

## NOTICE OF AVAILABILITY

### Draft Recirculated Revised Sections of the Final Environmental Impact Report (SCH #2012021045)

NOTICE IS HEREBY GIVEN that, pursuant to requirements of the California Environmental Quality Act (CEQA), the City of Moreno Valley has prepared a Draft Recirculated Revised Sections of the Final Environmental Impact Report (Draft Recirculated RSFEIR) with a State Clearinghouse number, 2012021045, to revise the air quality, greenhouse gas and energy analyses based on the use of the U.S. Environmental Protection Agency's approval of the use of the EMFAC2017 model on August 15, 2019. The Draft Recirculated RSFEIR also includes revisions to Section 6, Cumulative Impacts, of the Revised Sections of the Final Environmental Impact Report circulated in 2018 (RSFEIR). The revised analyses evaluate the potential environmental impacts associated with construction and operation of the World Logistics Center project and its associated infrastructure.

Project Description: This Notice of Availability (NOA) has been prepared to notify agencies and interested parties that the City of Moreno Valley, as the Lead Agency, has prepared the Draft Recirculated RSFEIR to provide the public and trustee agencies with information about the revised air quality, greenhouse gas and energy potential effects on the environment associated with the construction and operation of the proposed World Logistics Center project and its associated infrastructure on approximately 2,600 acres of land in the eastern portion of the City. The land use entitlements for the World Logistics Center that are in place include the General Plan and Zoning designations, the World Logistics Center Specific Plan, and a request for annexation of unincorporated land. The discretionary approvals that will be considered by the City as part of the approval process consist of a development agreement and Parcel Map 36457. The potential environmental impacts evaluated in the Draft Recirculated RSFEIR are based upon the previously adopted entitlements as well as the development agreement and Parcel Map 36457 allowing 40.6 million square feet of buildings specifically designed to support large scale logistic operations in a quality business environment.

Location: The project site includes the area generally east of Redlands Boulevard, south of the SR-60 Freeway, west of Gilman Springs Road, and north of the San Jacinto Wildlife Area.

Potential Environmental Impacts: Analyses presented in the Draft Recirculated RSFEIR indicates that the proposed project will have significant unavoidable adverse impacts to air quality, as described in detail within the document. In the RSFEIR, the significant unavoidable adverse impacts also included air quality as well as land use, noise, and transportation/traffic. All other environmental effects evaluated in the Final Environmental Impact Report, RSFEIR, and the Draft Recirculated RSFEIR are considered to be less than significant, or can be feasibly reduced with mitigation measures to less than significant levels.

Public Review and Comment Deadline: The City of Moreno Valley is soliciting comments from the public about the Draft Recirculated RSFEIR. Pursuant to Section 21091 of the Public Resources Code, the City has established a review period that runs 45 days, beginning December 17, 2019 through the close of City business on January 31, 2020. The City has also prepared, for informational purposes, a document that shows the changes from the RSFEIR. **If you wish to make written comments on the Draft Recirculated RSFEIR or the changes to the RSFEIR that are identified in a separate document and available for review at the City of Moreno Valley, comments must be received at the City of Moreno Valley Community Development Department by no later than the conclusion of the 45-day review period, 4:30 pm on January 31, 2020.** Written comments on the Draft Recirculated RSFEIR or the changes to the RSFEIR should be addressed to:

Albert Armijo, Interim Planning Manager  
14177 Frederick Street  
Post Office Box 88005  
Moreno Valley, California 92552  
Phone: (951) 413-3206  
Email: alberta@moval.org

Document Availability: The Draft Recirculated RSFEIR, all documents incorporated and/or referenced therein and the changes to the RSFEIR can be reviewed during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday and Friday's, 7:30 a.m. to 4:30 p.m.) at the City of Moreno Valley Planning Division counter, located at 14177 Frederick Street, Moreno Valley, CA 92553. The documents may also be reviewed at the Moreno Valley Library, located at 25480 Alessandro Boulevard, Moreno Valley, California. For your convenience, the document will also be provided on-line at the City's web page, [www.moval.org](http://www.moval.org).

# World Logistics Center



Draft Recirculated Revised Sections of the  
Final Environmental Impact Report

Moreno Valley, California

*State Clearinghouse No. 2012021045*



Prepared for:

City of Moreno Valley

December 2019

# World Logistics Center

Draft Recirculated Revised Sections of the  
Final Environmental Impact Report

Moreno Valley, California

State Clearinghouse no. 2102021045

Prepared for  
City of Moreno Valley

December 2019



550 West C Street, Suite 750  
San Diego, CA 92101  
619.719.4200  
[www.esassoc.com](http://www.esassoc.com)

Bend	Oakland	San Francisco
Camarillo	Orlando	Santa Monica
Delray Beach	Pasadena	Sarasota
Destin	Petaluma	Seattle
Irvine	Portland	Sunrise
Los Angeles	Sacramento	Tampa
Miami	San Diego	

D120614

# Table of Contents

	<u>Page</u>
<b>2.0 INTRODUCTION AND PURPOSE .....</b>	<b>2-1</b>
2.1 Document Format .....	2-4
2.2 Process for Consideration of the RSFEIR and the Draft Recirculated RSFEIR ..	2-5
2.3 Incorporated Documents.....	2-6
2.4 Technical Reports .....	2-6
2.5 Public Review of the RSFEIR and Draft Recirculated RSFEIR .....	2-8
2.6 Mitigation Monitoring and Reporting Program .....	2-8
2.7 Potential Impacts of the Project Discussed in the RSFEIR and this Draft Recirculated RSFEIR .....	2-9
2.8 Cumulative Impacts.....	2-9
<b>3.0 PROJECT DESCRIPTION .....</b>	<b>3-1</b>
<b>4.3 AIR QUALITY.....</b>	<b>4-1</b>
4.3.1 Existing Setting .....	4.3-2
4.3.2 Policies and Regulations.....	4.3-10
4.3.3 Methodology.....	4.3-19
4.3.4 Thresholds of Significance.....	4.3-31
4.3.5 Less than Significant Impacts .....	4.3-34
4.3.6 Significant Impacts .....	4.3-36
<b>4.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE, AND SUSTAINABILITY ..</b>	<b>4.7-1</b>
4.7.1 Existing Setting .....	4.7-1
4.7.2 Regulatory Setting.....	4.7-6
4.7.3 Methodology.....	4.7-16
4.7.4 Thresholds of Significance .....	4.7-17
4.7.5 Less than Significant Impacts .....	4.7-20
4.7.6 Significant Impacts .....	4.7-20
<b>4.17 ENERGY.....</b>	<b>4.17-1</b>
4.17.1 Existing Setting .....	4.17-1
4.17.2 Regulatory Setting.....	4.17-3
4.17.3 Methodology.....	4.17-12
4.17.4 Thresholds of Significance .....	4.17-18
4.17.5 Project Design Features.....	4.17-19
4.17.6 Mitigation Measures .....	4.17-24
4.17.7 Less than Significant Impacts .....	4.17-25
4.17.8 Significant Impacts .....	4.17-40
<b>6.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE AND SUSTAINABILITY ...</b>	<b>6.7-1</b>
<b>6.17 ENERGY.....</b>	<b>6.17-1</b>

## Appendices

- A. Air Quality/Greenhouse Gas/Health Risk Assessment Technical Report
- E. Energy

**List of Figures**

Figure 3-1	Specific Plan Land Uses.....	3-3
Figure 4.3-1	SCAQMD Monitoring Stations .....	4.3-4
Figure 4.3-2	Existing Sensitive Receptors .....	4.3-9
Figure 4.3-3	Incremental Project Cancer Risk – No Mitigation (Construction and Operation).....	4.3-70
Figure 4.3-4	Incremental Project Cancer Risk – No Mitigation (30 Year of Full Operation).....	4.3-71
Figure 4.3-5	Incremental Project Cancer Risk – With Mitigation (Construction and Operation).....	4.3-75
Figure 4.3-6	Incremental Project Cancer Risk – With Mitigation (30 Year of Full Operation).....	4.3-76
Figure 6.3-1	Air Quality Cumulative Projects Area .....	6.3-3
Figure 6.3-2	Localized Cumulative Projects Area.....	6.3-41
Figure 6.17-1	Energy Cumulative Projects Area .....	6.17-3

**List of Tables**

Table 3.1:	Estimated Construction Equipment and Phasing (2020–2034) .....	3-4
Table 4.3-1:	Ambient Air Quality Standards .....	4.3-5
Table 4.3-2:	Attainment Status of Criteria Pollutants in the South Coast Air Basin .....	4.3-7
Table 4.3-3:	Ambient Air Quality Monitored in the Project Vicinity .....	4.3-8
Table 4.3-4:	Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California).....	4.3-15
Table 4.3-5:	Exposure Assumptions for Cancer Risk.....	4.3-26
Table 4.3-6:	Carbon Monoxide Concentrations at Intersections, 2025 .....	4.3-35
Table 4.3-7:	Carbon Monoxide Concentrations at Intersections, 2035 .....	4.3-36
Table 4.3-8:	Short-Term Regional Construction Emissions–Without Mitigation.....	4.3-40
Table 4.3-9:	Short-Term Regional 24-hour Concrete Pour Emissions–Without Mitigation .....	4.3-41
Table 4.3-10:	Mitigated Short-Term Regional Construction Emissions.....	4.3-44
Table 4.3-11:	Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation) .....	4.3-46
Table 4.3-12:	Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation) .....	4.3-47
Table 4.3-13:	Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (without Mitigation) .....	4.3-48
Table 4.3-14:	Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation).....	4.3-49
Table 4.3-15:	Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Within the Project Boundaries (without Mitigation) .....	4.3-50
Table 4.3-16:	Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Outside the Project Boundaries (without Mitigation).....	4.3-51
Table 4.3-17:	Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (without Mitigation) .....	4.3-52
Table 4.3-18:	Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (without Mitigation).....	4.3-52
Table 4.3-19:	Comparison of Local Project Air Quality Impacts Before and After Mitigation .....	4.3-55
Table 4.3-20:	Operational Regional Air Pollutant Emissions (Worst-Case Scenario).....	4.3-56
Table 4.3-21:	Operational Regional Air Pollutant Emissions (Detail, Unmitigated).....	4.3-58
Table 4.3-22:	Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated).....	4.3-59

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

---

Table 4.3-23:	Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated).....	4.3-60
Table 4.3-24:	Operational Regional Air Pollutant Emissions (Buildout Mitigated) .....	4.3-62
Table 4.3-25:	Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day) – Mitigated .....	4.3-63
Table 4.3-26:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation .....	4.3-67
Table 4.3-27:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation .....	4.3-68
Table 4.3-28:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation .....	4.3-73
Table 4.3-29:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation .....	4.3-74
Table 4.3-30:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Onsite Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation & Installation of MERV-13 Filters .....	4.3-74
Table 4.3-31:	Summary of Project-Related Air Quality Impacts .....	4.7-79
Table 4.7-1:	SCAG Assumptions for Moreno Valley .....	4.7-15
Table 4.7-2:	Construction Greenhouse Gas Emissions (without mitigation) .....	4.7-21
Table 4.7-3:	Annual Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout) .....	4.7-22
Table 4.7-4:	Project GHG Emissions at Buildout (Unmitigated).....	4.7-23
Table 4.7-6:	Greenhouse Gas Emissions Reduction Analysis .....	4.7-32
Table 4.7-7:	GHG Reductions at Buildout (with Mitigation) .....	4.7-34
Table 4.7-9:	California and SCAQMD Electric Vehicle (EV) Penetration Estimates .....	4.7-38
Table 4.7-11:	Project Compliance with Federal/State Greenhouse Gas Reduction Strategies.....	4.7-42
Table 4.7-12:	Analysis of Additional Measures in the 2017 Scoping Plan Update .....	4.7-45
Table 4.7-13:	Consistency with City General Plan Air Quality Policies .....	4.7-45
Table 4.7-14:	Consistency with City Climate Action Strategy.....	4.7-46
Table 4.17-1:	EV Charging Station Requirements at WLC .....	4.17-16
Table 4.17-2:	WLC Project Construction Electricity Use .....	4.17-26
Table 4.17-3:	WLC Project Construction Fuel Usage.....	4.17-27
Table 4.17-4:	WLC Project Operational Electricity Usage.....	4.17-29
Table 4.17-5:	WLC Project Annual Peak Demand .....	4.17-31
Table 4.17-6:	WLC Project Operational Natural Gas Usage in Buildings .....	4.17-32
Table 4.17-7:	WLC Project Operational Fuel Usage .....	4.17-33
Table 4.17-8:	Scenario A: Low EV Penetration Charging Loads .....	4.17-34
Table 4.17-9:	Scenario B: Medium EV Penetration Charging Loads .....	4.17-34
Table 4.17-10:	Scenario C: High EV Penetration Charging Loads .....	4.17-34
Table 4.17-11:	Natural Gas Use from Transportation .....	4.17-36
Table 6.3-1:	Air Quality Cumulative Projects Summary .....	6.3-4
Table 6.3-3:	Cumulative Maximum Daily Construction Emissions (lbs/day) .....	6.3-22
Table 6.3-4:	Air Quality Cumulative Operation Emissions.....	6.3-37
Table 6.3-5:	Cumulative Localized Assessment of Construction Start year (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation) .....	6.3-43
Table 6.3-6:	Cumulative Localized Assessment of Construction Start Year (2020) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation) .....	6.3-44

Table 6.3-7:	Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Within the Project Boundaries (without mitigation) .....	6.3-45
Table 6.3-8:	Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation).....	6.3-46
Table 6.7-1:	Greenhouse Gas Emissions, Climate Change and Sustainability Cumulative Projects Summary .....	6.7-4
Table 6.7-2:	Cumulative Annual GHG Emissions.....	6.7-15
Table 6.17-1:	Energy Cumulative Projects Summary.....	6.17-4
Table 6.17-2:	Cumulative Electrical Consumption within MVU Service Area.....	6.17-11
Table 6.17-3:	Cumulative Natural Gas Consumption .....	6.17-13
Table 6.17-4:	Cumulative Transportation Fuel Consumption (Annual Average).....	6.17-16

**NOTE TO READERS:** Section 2.0, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 2.0 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of reference to a portion of Section 2.0 means that the corresponding portion of Section 2.0 in the FEIR prepared in 2015 remains unchanged or has been deleted.

This Draft Recirculated RSFEIR sets forth those portions of the RSFEIR circulated in 2018 that have been revised. Revisions to, and deletions from, the RSFEIR have been identified in a separate document (tracked changes), available for review at the City of Moreno Valley.

## **2.0 INTRODUCTION AND PURPOSE**

### **Background**

In August, 2015, the City Council of the City of Moreno Valley certified a Final Programmatic Environmental Impact Report (“FEIR”), which analyzed the environmental impacts that would result from the construction and operation of the World Logistics Center (“WLC”), as having been prepared in compliance with the California Environmental Quality Act (“CEQA”). The City Council approved a General Plan Amendment (“GPA”), a Zone Change (“Zone Change”), the World Logistics Center Specific Plan (“WLC Specific Plan”), a financing and conveyancing Parcel Map (“Parcel Map 36457”), a Development Agreement (“Development Agreement”) and a request that 85 acres in an unincorporated portion of Riverside County be annexed into the City. In September, 2015, a number of lawsuits were filed challenging the City’s certification of the FEIR and the approvals granted for the construction and operation of the WLC.

In November, 2015, the City Council, in response to initiative petitions submitted to it for the GPA, the Zone Change, the WLC Specific Plan and the Development Agreement, vacated approvals for those entitlements granted in August, and then readopted the GPA, the Zone Change, the WLC Specific Plan and the Development Agreement. Parcel Map 36547 was not part of the Initiative process and is not currently approved. The World Logistics Center Specific Plan entitles 40.6 million square feet of logistics and associated infrastructure land uses on the 2,610-acre WLC project site.

In February, 2016, lawsuits were filed challenging the use of the initiative process to adopt the Development Agreement. The trial judge rejected the challenges. However, in August 2018, the Court of Appeal, Fourth Appellate District, Division One, reversed the trial court judgment, holding that the initiative process could not be used to adopt the Development Agreement, and directed the trial court to issue a writ of mandate ordering the City to vacate its November, 2015, approval of the Development Agreement. The RSFEIR and this Draft Recirculated Revised Sections of the Final Environmental Impact Report (“Draft Recirculated RSFEIR”) will be considered by the City.<sup>1</sup>

In the court ruling dated February, 8, 2018, the Honorable Sharon J. Waters, Judge of the Riverside County Superior Court, identified five deficiencies in the FEIR. The key findings from Judge Waters’ ruling are quoted below:

---

<sup>1</sup> The RSFEIR was also treated as a draft to be circulated and commented on. However, several comments failed to recognize its draft nature. Accordingly, to avoid any misunderstanding, this document has been explicitly identified as a “draft” CEQA document.

- **Energy Impacts:** “The FEIR must provide a comparison of feasible, cost-effective renewable energy technologies in the Energy Impacts analysis”.
- **Biological Impacts:** “The FEIR should remove all references to and consideration of the 910 acres of SJWA and MSHCP lands as “buffer zone” or “CDFW Conservation Buffer Area” in the Biological Resources and Habitat Impacts analysis”.
- **Noise Impacts:** “The FEIR must provide an analysis of construction noise over ambient levels; provide adequate analysis on construction noise impacts on nearby homes; address the inadequacy of mitigation measures, which fail to include performance standards or ways to reduce construction noise”.
- **Agricultural Impacts:** “The FEIR and the resolution certifying the FEIR require clarification as to whether loss of locally important farmland will have a significant direct or cumulative impact on agriculture and, if significant, the FEIR must either explain how proposed mitigation will reduce the impact or why other mitigation is not feasible”.
- **Cumulative Impacts:** “The FEIR should include consideration of recently constructed and proposed large warehouse projects in the summary of projections method, and should analyze whether individually significant impacts may be cumulative considerable”.

The RSFEIR was prepared to respond to the Judge’s ruling and writ by correcting the five deficiencies identified in the ruling. With respect to cumulative impacts, the Judge’s ruling did not indicate the specific environmental topics to be evaluated, and thus, to ensure compliance with the ruling, the RSFEIR included an analysis of potential cumulative impacts for all environmental topics, even those not referred to in the Judge’s ruling. While such information may not be required to comply with the Judge’s ruling, it was included to account for the most conservative interpretation of the Judge’s ruling. The court will have the discretion to determine whether it was required to comply with the writ or not. The RSFEIR evaluated the current environmental baseline conditions, impacts and any required additional or revised mitigation measures associated with the construction and operation of the World Logistics Center.

Using this interpretation of the Judge’s ruling for cumulative impacts, the RSFEIR included a revised analysis of the WLC’s potential transportation impacts to incorporate the cumulative impacts of additional projects, although the adequacy of the FEIR’s section on Transportation and Traffic (Section 4.15) was upheld by Judge Waters. Although not required by the Judge’s ruling, this section was also revised to reflect the latest trip generation rates found in the Institute of Transportation Engineers’ Trip Generation Manual (10<sup>th</sup> ed., 2017). The revised traffic analysis also formed the basis for revised analyses of air quality, greenhouse gases and traffic noise, even though those sections of the FEIR were upheld by the court (Sections 4.3, 4.7 and portions of 4.12). The reader should note that each section within Section 4.0 of the FEIR contained a subsection analyzing cumulative impacts. Those subsections are no longer applicable and have been replaced with a new Section 6.0 in the Revised Sections of the FEIR and a few sections within Section 6.0 have been updated in this Draft Recirculated RSFEIR.

The Judge found that substantial portions of the FEIR did comply with CEQA so that, only portions of the RSFEIR had to be circulated for public review and comment. The RSFEIR presented additional environmental analyses necessary to respond to the Judge’s ruling. Some portions of the RSFEIR added to the FEIR, e.g., new Section 4.17 (Energy), or provided additional information on the same topic, e.g., Section 2.1 (Document Format). Elsewhere in the RSFEIR, individual sections were revised and replaced the corresponding sections in the FEIR (Air Quality, Biological Resources, Greenhouse Gas Emissions/Climate Change). The RSFEIR also identified discretionary actions anticipated to be taken by

the City that are no longer applicable to the CEQA analysis. These discretionary actions were identified as the GPA, Zone Change, the World Logistics Center Specific Plan, and Annexation Request because these actions were approved by the City in compliance the initiative process set forth in the California Elections Code. The RSFEIR in combination with the valid portions of the FEIR, served to evaluate the environmental effects of the World Logistics Center project.

### **Current Proceedings**

After the RSFEIR was circulated in July of 2018, the City of Moreno Valley decided that new information, which was considered significant, required revision and recirculation of portions of the RSFEIR pursuant to Section 15088.5 of the CEQA Guidelines. The sections of the RSFEIR affected by the new information in this Draft Recirculated RSFEIR are:

- Air Quality, including Human Health (Section 4.3 and Section 6.3)
- Greenhouse Gas Emissions (Section 4.7 and Section 6.7)
- Energy (Section 4.17 and Section 6.17)

The air quality, greenhouse gas and energy analyses set forth in the RSFEIR circulated in July of 2018 were based on the California Air Resources Board's EMFAC2014 model. Those analyses have been revised in light of the U.S. Environmental Protection Agency's approval of the use of the EMFAC2017 model on August 15, 2019, and are now set forth in this Draft Recirculated RSFEIR.

A recirculation of portions of the RSFEIR is appropriate because, in accordance with Section 15088.5 of the CEQA Guidelines, a lead agency should recirculate an EIR before certification when new substantive information is added to the EIR after the public notice is given of the availability of the draft EIR (in this case, the RSFEIR).

The RSFEIR was circulated to the public for review and comment in July, 2018. This Draft Recirculated RSFEIR will also be circulated to the public for review and comment. Responses to the comments that were previously received on the RSFEIR as well as the comments that are received on this Draft Recirculated RSFEIR will be prepared. A Final Revised FEIR, which will consist of (1) the comments and responses on the Draft Recirculated RSFEIR and the RSFEIR, (2) the Draft Recirculated RSFEIR, (3) the RSFEIR circulated in July 2018 and (4) the portions of the FEIR that were found to be in compliance with CEQA after trial, will be considered by the City.

The Judge found that substantial portions of the FEIR did comply with CEQA so that only portions of the FEIR had to be circulated for public review and comment. The absence of any reference to a section of the FEIR in the RSFEIR and this Draft Recirculated RSFEIR means that the corresponding section in the FEIR remains unchanged because the Judge found that it complied with CEQA. In addition, the absence of any reference to a section of the RSFEIR in this Draft Recirculated RSFEIR means that the corresponding section of the RSFEIR remains unchanged.

### **2.1 Document Format**

As noted above, the Judge's ruling identified five areas where the FEIR failed to comply with CEQA. The ruling required that revisions to the FEIR: (1) provide a comparison of feasible, cost-effective renewable

energy technologies in the Energy Impacts analysis; (2) remove references to and consideration of the northernmost 910 acres of the San Jacinto Wildlife Area (SJWA) as a “buffer zone” or the “CDFW Conservation Buffer Area” in the Biological Resources analysis; (3) provide an analysis of construction noise over ambient levels, provide adequate analysis of construction noise impacts on nearby homes, and address inadequate mitigation measures, which fail to include performance standards or ways to reduce construction noise; (4) clarify as to whether loss of farmlands of local importance was significant and, if so, how it would be mitigated, if feasible; and (5) consider recently constructed and proposed large warehouse projects to determine whether they will result in cumulatively significant impacts.

This RSFEIR responded to each of the five areas as follows:

**(1) Renewable Energy:** A new section dealing with renewable energy technologies, Section 4.17, was prepared and was included in the RSFEIR. In addition, a new Appendix E, World Logistics Center, Comparison of Renewable Energy Technologies, was prepared and was included in the RSFEIR.

**(2) Biological Resources:** References to, and consideration of the SJWA as a “buffer zone” or “CDFW Conservation Buffer Area” have been removed from Section 4.4, Biological Resources, and a revised version of that section was prepared. These terms have also been removed in all other relevant sections of the FEIR. Those sections, as revised, were also included in the RSFEIR.

**(3) Construction Noise:** Those portions of Section 4.12, Noise, dealing with construction noise and mitigation measures were revised and included in the RSFEIR. In addition, a revised Appendix K, Noise Technical Report, was prepared and included in the appendices.

**(4) Farmlands of Local Importance:** Those portions of Section 4.2, Agricultural and Forestry Resources, dealing with the loss of farmland of local importance were revised and included in the RSFEIR.

**(5) Cumulative Impacts:** A new Section 6.0, Cumulative Impacts, was prepared and included in the RSFEIR. There are 359 recent past, present and reasonably foreseeable projects that could cumulatively contribute to the WLC’s environmental impacts that were identified and considered. These are in addition to the contributions of projects reflected in various planning documents.

As mentioned, the RSFEIR also included revised analyses in Traffic and Circulation, and in Appendix F, Traffic Impact Analysis (“TIA”), Section 4.15, in Air Quality, Section 4.3, and in Appendix D, Air Quality/Health Risk/Greenhouse Gases, Noise, Section 4.12, and in Appendix C, Noise. It should also be noted that the methodologies used to determine the environmental impacts were not changed. As an example, the same general approach, LOS methodologies, and thresholds that were used in the 2014 TIA were repeated in the 2018 TIA, although the input data and study years were updated to reflect the best available current information.

As noted above, the U.S. Environmental Protection Agency’s approval of the use of the California EMFAC2017 model on August 15, 2019, has resulted in revisions to portions of the RSFEIR. Because the RSFEIR utilized EMFAC2014 for the project and cumulative analyses for air quality, greenhouse gas, and energy evaluations, these portions of the RSFEIR are the subject of this Draft Recirculated RSFEIR.

**2.2 Process for Consideration of the RSFEIR and the Draft Recirculated RSFEIR**

CEQA requires the Lead Agency to consider the information contained in an EIR prior to taking any discretionary action on a project. The RSFEIR and this Draft Recirculated RSFEIR correct deficiencies found by the court to exist in the FEIR and provide information to the City and other public agencies and the general public regarding the potential environmental impacts from the construction and operation of the WLC project. The purpose of the public review of an EIR is to evaluate the adequacy of the environmental analysis in terms of compliance with CEQA. Section 15151 of the *CEQA Guidelines* states the following regarding standards from which adequacy is judged:

“An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure.”

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the *CEQA Guidelines*, and provides the information needed to assess the environmental consequences of a proposed project. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts.

Under CEQA (Public Resources Code §21002.1(a)):

“The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the proposed project, and to indicate the manner in which those significant effects can be mitigated or avoided.”

The RSFEIR and this Draft Recirculated RSFEIR were prepared to correct deficiencies found by the court to exist in the FEIR by evaluating some of the potential environmental impacts associated with the construction and operation of the WLC project which will include 40.6 million square feet of logistics warehouse facilities, as well as its associated infrastructure. Environmental Science Associates (“ESA”) prepared both the RSFEIR and this Draft Recirculated. However, prior to certification of the Revised Final FEIR, responses to comments received on both the RSFEIR as well as this Draft Recirculated RSFEIR will be prepared and included in a Response to Comments document that will be available for public review prior to any action taken by the City.

The RSFEIR and this Draft Recirculated RSFEIR were prepared utilizing information from City planning and environmental documents, applicant-provided technical studies, and other publicly-available data. Additional mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts from the construction and operation of the WLC project have been identified, where required. These documents have been prepared in accordance with CEQA, California Public Resources Code §21000 *et seq.*; the *Guidelines for California Environmental Quality Act* (California Code of Regulations, Title 14, Chapter 3); and the rules, regulations, and procedures for implementing CEQA as adopted by the City. The objective of the RSFEIR and this Draft Recirculated RSFEIR is to inform City decision-makers,

representatives of other affected/responsible agencies, the public, and other interested parties of the potential environmental consequences that were not adequately dealt with in the FEIR that may be associated with the approval and implementation of the WLC project.

### **2.3 Incorporated Documents**

The CEQA Guidelines (§15150) permits the incorporation by reference of all or portions of other documents that are generally available to the public. Any document incorporated by reference is required to be made available to the public for inspection at a public place or public building and requires that the EIR state where the incorporated documents will be made available for public inspection. The following documents have been incorporated by reference:

*City of Moreno Valley General Plan, various elements*, adopted by City Council Resolution No. 2006-83, July 11, 2006, and last updated October 2006.

City of Moreno Valley General Plan Final Environmental Impact Report, certified July 2006.

City of Moreno Valley General Plan Land Use Map, last updated November, 2017.

City of Moreno Valley Zoning Atlas, last updated November 2017.

City of Moreno Valley Municipal Code (various chapters), last updated February 2012.

Moreno Highlands Specific Plan EIR, adopted 1992.

World Logistics Center Initiative, November 24, 2015

### **2.4 Technical Reports**

Various technical or project-related reports have been prepared to assess specific issues that may result from the construction and operation of the project. As relevant, information from the following documents and technical reports has been integrated into the RSFEIR as appendices:

“The World Logistics Center Specific Plan” (Highland Fairview) original dated January 30, 2013, revised dated September 2014.

“An Agricultural Industry Analysis of the Inland Empire” (Andrew Chang & Co.), original dated March 2012, revised September 2014.

“Agricultural Resources Assessment for the WLCSP” (Parsons Brinckerhoff), original dated March 2012, revised December 2013.

“Agricultural Assessment for the WLCSP” (Cushman and Wakefield) new report dated December 20, 2013 (prepared for Final EIR in response to comments) and revised September 2014.

“Air Quality, Greenhouse Gas, and Health Risk Assessment for the WLCSP” (MBA), original dated January 2013, revised April 2015.

“Habitat Assessment, MSHCP Consistency Analysis, and JPR Review” (MBA), original dated December 20, 2012, revised September 2014.

“Delineation of Jurisdictional Waters and Wetlands” (MBA), original dated November 2012, revised September 2014.

“Phase I and Phase II Cultural Resources Assessment” (MBA), original dated May 2012, revised September, 2014.

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

- “Preliminary Geotechnical Investigation” (Leighton), original dated March 23, 2012, revised September 2014.
- “Supplemental Geotech Assessment for Offsite Improvements Related to the WLCSP” (Leighton), original dated March 23, 2013, revised September 2014.
- “Phase 1 Environmental Site Assessments” (various dates, LOR Geotechnical) (not revised).
- “Draft Master Plan of Drainage Study” (CH2MHill) original dated November 2012, revised dated September 2014.
- “Preliminary Water Quality Management Plan” (CH2MHill) original dated November 2012, revised September 2014.
- “Noise Assessment for the WLCSP” (Mestre Greve Associates) original dated January 2013, revised September 2014.
- “Traffic Impact Assessment (TIA) for the WLCSP” (Parsons Brinckerhoff) original dated January 2013, revised September 2014.
- “NAIOP Assessment of Available High-Cube Trip Generation Rates” (Kunzman Associates), December 20, 2011.
- “Water Supply Assessment for the WLCSP” (Eastern Municipal Water District), March 21, 2012.
- “Highlands Water Budget” (CH2MHill), original dated December 2012, revised September 2014.
- “Water System Modeling Results” (CH2MHill), original dated December 2012, revised dated October 22, 2013.
- “Sewer and Reclaimed Wastewater Memorandum” (CH2MHill), original dated April 25, 2012, revised September 2014.
- “Dry Utilities – Technical Memorandum” (Utility Specialists), original dated December 20, 2012, revised September 2014.
- “Electrical System Forecast of Utility Infrastructure” (MVU Engineering), original dated December 2012, revised September 2014.
- “Fiscal and Economic Impact Study for the World Logistics Center” (David Taussig and Associates), original dated January 15, 2013, revised September 2014.
- Hydrology and Water Quality Memorandum (Woodard Curran), 2018
- Traffic Impact Assessment (WSP), 2018
- World Logistics Center Comparison of Renewable Energy Technologies (WSP), 2018
- World Logistics Center Transportation Energy Technical Study (ESA and CALSTART), 2019
- Noise and Vibration Technical Report (ESA), 2018
- Biological Resources Assessment (ESA), 2018
- Sensitive Species Surveys (ESA), 2018
- Air Quality/GHG and Health Risk Assessment Technical Report (Draft Recirculated) (ESA), 2019

In addition to their inclusion in their entireties as appendices to the RSFEIR or this Draft Recirculated RSFEIR, these documents are available for review at the following location:

**Moreno Valley City Hall**  
Community Development Department

Planning Division  
14177 Frederick Street  
Post Office Box 88005  
Moreno Valley, California 92552  
Phone: (951) 413-3238  
Monday–Thursday 7:30 a.m.– 5:30 p.m.  
Friday 7:30 a.m. – 4:30 p.m.

## **2.5 Public Review of the RSFEIR and Draft Recirculated RSFEIR**

The RSFEIR was, and this Draft Recirculated RSFEIR will be, distributed to responsible and trustee agencies, other affected agencies, and interested parties. Additionally, in accordance with Public Resources Code Section 21092(b)(3), the RSFEIR was and this Draft Recirculated RSFEIR will be provided to all parties who previously requested copies. The Notice of Completion (“NOC”) and Notice of Availability (“NOA”) of the RSFEIR was, and this Draft Recirculated RSFEIR will be, distributed for a 45-day public review period. During the RSFEIR public review period, the RSFEIR and the revised technical appendices were made available for review. During the Draft Recirculated RSFEIR public review period, this Draft Recirculated RSFEIR and the revised technical appendices will be made available for review. Written Comments should be addressed to:

Albert Armijo, Interim Planning Manager  
14177 Frederick Street  
Post Office Box 88005  
Moreno Valley, California 92552  
Phone: (951) 413-3206  
Email: alberta@moval.org

Written responses to comments on the RSFEIR and this Draft Recirculated RSFEIR will be prepared after the close of the public review period for this Draft Recirculated RSFEIR. These responses will be available for review for a minimum of 10 days prior to the public hearings before the City, at which time the certification of the Final Revised FEIR will be considered. The Final Revised FEIR, which will consist of [1] the comments and responses on the Draft Recirculated RSFEIR and the RSFEIR, [2] the Draft Recirculated RSFEIR, [3] the RSFEIR circulated in July 2018, and [4] the portions of the FEIR found to comply with CEQA will be included as part of the environmental record for consideration by the City decision-makers. The City will respond as appropriate to comments made at public hearings on the WLC Project, the RSFEIR, and the Draft Recirculated RSFEIR.

## **2.6 Mitigation Monitoring and Reporting Program**

The Mitigation Monitoring and Reporting Program (MMRP) will be revised to comply with the requirements of State law (Public Resources Code Section 21081.6) and the court’s ruling and writ. When mitigation measures are required to avoid or reduce the severity of significant impacts, State law requires the adoption of an MMRP. The monitoring program is intended to ensure compliance during implementation of the program.

**2.7 Potential Impacts of the Project Discussed in the RSFEIR and this Draft Recirculated RSFEIR**

The RSFEIR focused on the areas of concern identified by the court ruling and writ. The following seven environmental topics were addressed in the project impacts section (Section 4.0) of the RSFEIR:

- Agriculture and Forestry Resources (loss of farmland of local importance)
- Biological Resources
- Energy
- Noise
- Traffic
- Air Quality
- Greenhouse Gas Emissions

The following seventeen environmental topics were addressed in the cumulative impact sections (Section 6.0) of the RSFEIR:

Aesthetics	Hydrology, and Water Quality
Agriculture and Forestry Resources	Land Use and Planning
Air Quality, including Human Health	Mineral Resources
Biological Resources	Noise
Cultural Resources	Population, Housing, and Employment
Geology and Soils	Public Services and Facilities
Greenhouse Gas Emissions	Transportation and Traffic
Hazards and Hazardous Materials	Utilities and Service Systems
	Energy

This Draft Recirculated RSFEIR includes only those sections of the RSFEIR that were revised. The following three environmental topics in the project impacts section (Section 4.0) and in the cumulative impacts sections (Section 6.0) are addressed in this Draft Recirculated RSFEIR.

- Air Quality, including Human Health (Section 4.3 and Section 6.3)
- Greenhouse Gas Emissions (Section 4.7 and Section 6.7)
- Energy (Section 4.17 and Section 6.17)

**2.8 Cumulative Impacts**

Cumulative impacts are discussed in Section 6.0 of the RSFEIR, and this Draft Recirculated RSFEIR includes revised cumulative impacts sections for the three environmental topics identified above.

**NOTE TO READERS:** Section 3.0, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 3.0 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of reference to a portion of Section 3.0 means that the corresponding portion of Section 3.0 in the FEIR prepared in 2015 remains unchanged or has been deleted.

The project as originally proposed to the City, and as described and evaluated in the Final Environmental Impact Report certified by the City Council in August, 2015 (2015 FEIR), included both the World Logistics Center (WLC) project and a General Plan Amendment and a rezoning of land (not part of the WLC project) south of the World Logistics Center site to reflect its open space nature. The General Plan Amendment and rezoning have since been adopted through the initiative process. The description of the World Logistics Center has not changed.

In July 2018, the Revised Sections of the Final EIR (RSFEIR) document was prepared and circulated for public review and comment in response to the Superior Court’s direction to correct certain identified deficiencies in the 2015 FEIR. The RSFEIR public comment period closed September 7, 2018, and over 350 comment letters were received. The air quality, greenhouse gas and energy analyses set forth in the RSFEIR circulated in July 2018 were based on the California Air Resources Board’s EMFAC2014 model. Those analyses have been revised in light of the U.S. Environmental Protection Agency’s approval of the use of the EMFAC2017 model on August 15, 2019, and are now set forth in this Draft Recirculated Revised Sections of the Final EIR (Draft Recirculated RSFEIR).

It should be noted that Theodore Street south of SR-60 has been renamed World Logistics Center Parkway.

Responses to comments received on both the RSFEIR as well as this Draft Recirculated RSFEIR will be prepared and included in a Response to Comments document that will be available for public review prior to any action taken by the City.

## **3.0 PROJECT DESCRIPTION**

The World Logistics Center (WLC) project is located on 2,610 acres in the Rancho Belago area at the eastern end of Moreno Valley, south of SR-60, east of Redlands Boulevard, west of Gilman Springs Road and north of the San Jacinto Wildlife Area. The site currently has a General Plan designation of Business Park/Light Industrial and zoning designations of WLCSP-LD (World Logistics Center Specific Plan – Logistics Development) and WLCSP-LL (World Logistics Center Specific Plan – Light Logistics). The site is subject to the adopted World Logistics Center Specific Plan (WLC Specific Plan) which authorizes the construction and operation of 40,600,000 square feet of logistics facilities and associated infrastructure. The land use plan in the Specific Plan is shown in Figure 3-8 and is also shown in this section in Figure 3-1.

The land use entitlements for the WLC project that are in place include the General Plan and zoning designations, the WLC Specific Plan, and a request for annexation of 85 acres of unincorporated land in Riverside County into the City – having been adopted in November, 2015, through the initiative process. The discretionary approvals that will be considered by the City as part of the approval process consist of a development agreement and Parcel Map 36457.

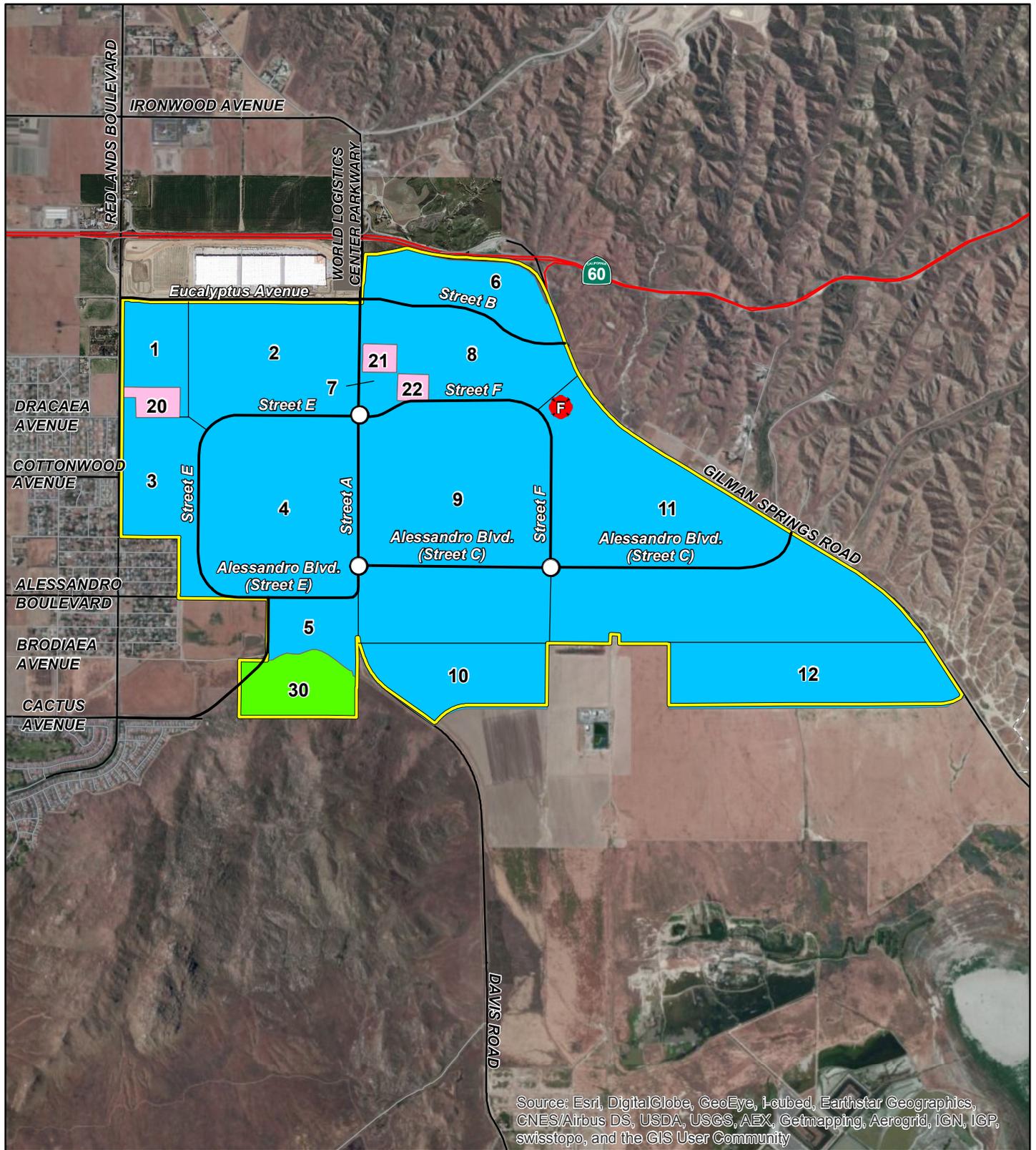
### **3.4.13 Phasing**

Development and occupancy of the WLC project is planned over a period of fifteen years, from 2020 through 2035, although the actual development phasing and square footage buildout will be based on future market conditions. Section 8.0 of the WLC Specific Plan, *Project Phasing*, suggests that development will likely occur in two large phases, starting in the western portion of the site south of Eucalyptus Avenue. This phasing concept is based on beginning construction where infrastructure presently exists and expanding southerly and easterly. It is anticipated that construction of Phase 1 would be completed by 2024 and occupied by 2025 and would contain approximately 50% of

development or approximately 20,300,000 square feet of logistics warehouse uses. Construction of Phase 2 is anticipated to be completed by 2034 and occupied by 2035. Figure 3.19 in the 2015 FEIR shows the proposed phasing plan.

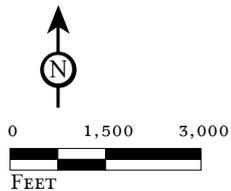
As stated in the WLC Specific Plan, project phasing predictions are conceptual. The actual amount and timing of development and occupancy will be dependent upon numerous factors, many of which are outside the control of the City or the developer, including interest by building users, private developers and local, regional, and national economic conditions. These and other factors acting together will ultimately determine the location and rate at which development within the project area occurs.

The framework for development of the WLC project will be in accordance with the adopted WLC Specific Plan, which identifies the type and intensity of land uses permitted within the project site. It is anticipated that development of the project would occur over time, as the result of the construction of multiple separate independent projects of varying sizes and configurations. Each of these future projects would be required to be consistent with the General Plan and zoning and would comply with all applicable regulations of the WLC Specific Plan. The estimated construction timing in Table 3.E in the 2015 FEIR was revised in the RSFEIR as Table 3.1. This Draft Recirculated RSFEIR includes revisions to the estimated construction equipment and phasing as shown in Table 3.1, below.



Source: Esri, DigitalGlobe, GeoEye, I-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

LSA



- Project Boundary
- Light Logistics
- Logistics Development
- Open Space
- F Fire Station Site
- 1 Planning Area Number

Figure 3.1

World Logistics Center Specific Plan Project  
Environmental Impact Report

Specific Plan Land Uses

**Table 3.1: Estimated Construction Equipment and Phasing (2020–2034)**

Activity/Equipment	#	Duration (months)	Phase 1–		Phase 2–	
			Start	End	Start	End
<b>Mass Grading/Excavation</b>						
Dozers (D8R, D9, D10)	0-14	156	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024	The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, and 2032		
Scraper (651E)	0-20					
Compactor (824C, 834)	0-4					
Motor Grader (140G)	0-2					
Service/Support Truck	0-2					
Other Dozers (D6M, 550)	1-5					
Other <sup>1</sup>	0-30					
<b>Finish Grading</b>						
Dozer (D6M, 550)	1-6	180	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024	The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034		
Backhoe (420D)	0-2					
Water Truck	0-2					
Service/Support Truck	0-2					
<b>Building</b>						
Backhoe (590,420)	5-10	180	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024	The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034		
Concrete Truck	8-48					
Excavators (9060, 270, 240, mini)	6-18					
Material Delivery Trucks	3-15					
Forklift (420 and 544D)	2-4					
Case and Skip Loaders <sup>2</sup>	10-32					
Service/Support Truck	12-27					
Other <sup>3</sup>	7-14					
<b>Utilities</b>						
Excavators <sup>4</sup>	15-30	180	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024	The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034		
Loaders	4-8					
Water Truck	1-8					
Backhoe (420)	1-2					
Service/Support Trucks	8-20					
Delivery Trucks	5-10					
Concrete Trucks	4-8					
Other <sup>5</sup>	3-8					
<b>Interchange</b>						
Dozer (D9, D10)	1	24	The equipment will be used from January 1 to December 31 during the			
PW Scraper (623)	1					
Excavator (324)	1					
Backhoe (430)	1					
Crane	1					

**Table 3.1: Estimated Construction Equipment and Phasing (2020–2034)**

Activity/Equipment	#	Duration (months)	Phase 1–		Phase 2–	
			Start	End	Start	End
Concrete Truck	4		following years: 2023 and 2024			
Service/Support Truck	4					
Drill Rig	1					
Dump Truck	5					
RT Wheel Loader (950)	1					
Concrete Screed Mach.	1					
Skip Loader (414)	1					
Dozer (D5, D6)	1					
Motor Grader (14M)	1					
<b>Curbing</b>						
Curb Machine/Screed	0-2	180	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024		The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034	
Skip Loader (210)	0-2					
Concrete Truck	3-8					
Service/Support Truck	2-6					
<b>Paving</b>						
Roller/Paving/Blade/Scraper	4-8	180	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024		The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034	
Skip Loader	2-4					
Bottom Dump Truck	1-4					
Delivery Truck	2-7					
Service/Support Truck	3-6					
<b>Landscaping</b>						
Loader (310G, 210LE, 544J)	3-6	180	The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024		The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034	
Water Truck	1-2					
Excavator (mini) /Lift (544D)/ Steer (S190R)	3-6					
Trencher (RT-45)	1-2					
Service/Support Truck	5-10					
Source: Highland Fairview 1. Includes: Water Puller, 420D Backhoe, water trucks, support trucks 2. Includes: 414, 721, cat skip loader, 310G, 210LE, 544J 3. Includes: boom pump/truck, water truck, trencher, skid steer, water truck 4. Includes: 65,000 lbs to 175,000 lbs, 250G, and cat mini 5. Includes: dump truck, crane, fork lift						

**NOTE TO READERS:** Section 4.3, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 4.3 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of reference to a portion of Section 4.3 means that the corresponding portion of Section 4.3 in the FEIR prepared in 2015 remains unchanged or has been deleted.

## **4.3 AIR QUALITY**

This section analyzes the World Logistics Center project’s potential air quality impacts and provides a discussion of the World Logistics Center project, the physical setting of the project area, and the air quality regulatory framework. The air quality analyses evaluate potential air quality impacts by examining the short-term construction as well as long-term operational impacts associated with the project and by evaluating the effectiveness of the identified mitigation measures. Modeled air quality levels are based upon vehicle data, project trip generation, and vehicle miles traveled assumptions included in the project’s *Traffic Impact Analysis (TIA)* and peak turn volumes generated for the World Logistics Center project combined with emission factors from the California Air Resources Board (CARB). The evaluation was prepared in accordance with appropriate standards, utilizing procedures and methodologies as recommended by the South Coast Air Quality Management District (SCAQMD), the California Office of Environmental Health Hazards Assessment (OEHHA), and CARB. Air quality data posted by the SCAQMD, CARB, and the EPA web sites are included to document the local air quality environment and are incorporated herein by reference.

Compared to the Revised Sections of the FEIR (2018), construction emissions analyzed herein assume a more average approach to construction phasing and duration and the completion of Phase 1 by December 31, 2024 and the completion of Phase 2 by December 31, 2034. This results in greater consistency with the assumed Project buildout and occupancy schedule with Phase 1 operational in 2025 and Phase 2 operational in 2035. On-road mobile emissions for both construction and operations reflect updated emissions factors using EMFAC2017. The use of EMFAC2017 results in the inclusion of natural gas heavy-duty trucks. Additionally, an early operational year (2035) has been assumed for full Project buildout as opposed to 2040 in the Revised Sections of the FEIR (2018), resulting in less efficient vehicles. Due to these factors, the construction and operational analyses contained herein entirely replace the analyses included in the FEIR and no further comparison is required.

The analysis contained in this section is based on the following technical studies prepared for the World Logistics Center project:

- *Air Quality, Greenhouse Gas, and Health Risk Assessment Report* (Environmental Science Associates, dated November 2019) contained in Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR; and
- *Traffic Impact Analysis Report, The World Logistics Center*, (WSP USA, Inc., dated June 2018) contained in Appendix L of the Revised Sections of the FEIR.
- Additional Information Regarding Potential Health Effects of Air Quality Impacts (Ramboll, dated November 2019) contained in Appendix A.2 of this Draft Recirculated Revised Sections of the FEIR.

On September 29, 2019, the United States Environmental Protection Agency (US EPA) and the National Highway Traffic Safety Administration (NHTSA) published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program.” (84 Fed. Reg. 51,310 (Sept. 27, 2019)). The Part One Rule revokes California’s authority to set its own greenhouse gas emissions standards and set zero-emission vehicles mandates in California.

Generally, after the SAFE Rule Part One becomes effective on November 26, 2019, EMFAC2014 and EMFAC2017 will not accurately estimate future transportation emissions until they are updated with new assumptions reflecting the SAFE Rule Part One in off-model adjustment factors provided by CARB. CARB has prepared off-model adjustment factors for both the EMFAC2014 and EMFAC2017 models to account for the impact of the SAFE Vehicle Rule Part One. These adjustments provided in the form

of multipliers can be applied to emissions outputs from EMFAC model to account for the impact of this rule for gasoline light duty vehicles.

Since a vast majority of the project emissions are from non-gasoline heavy duty vehicles, the change in total project emissions for NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> is less than 1 percent and for CO less than 2.5 percent. As a result, the off-model adjustment factors will not substantially increase any of the significant impacts (or create a new impact).

### **4.3.1 Existing Setting**

#### **4.3.1.1 Regional Air Quality Improvements**

The American Lung Association website ([lung.org](http://lung.org)) includes data collected from State air quality monitors that are used to compile an annual *State of the Air* report. These reports have been published over the last 13 years. The latest *State of the Air Report* compiled for the Basin was in 2017 (American Lung Association, 2017). As noted in this report, air quality in the Basin has significantly improved in terms of both pollution levels and high pollution days over the past three decades. Riverside County's average number of unhealthy ozone days dropped from 203 days per year in the initial 2000 State of the Air report to 122 in the 2017 report and San Bernardino County's number of unhealthy ozone days dropped from 230 in 2000 to 142 in 2017. Both Counties has seen dramatic reduction in particle pollution since the initial State of the Air report (2000). While the 2017 *State of the Air Report* shows a slight uptick in the number of days of unhealthy particle pollution for both counties since the 2016 report, it is important to note that pollution levels measured in this latter report were affected by fluctuations in weather conditions.

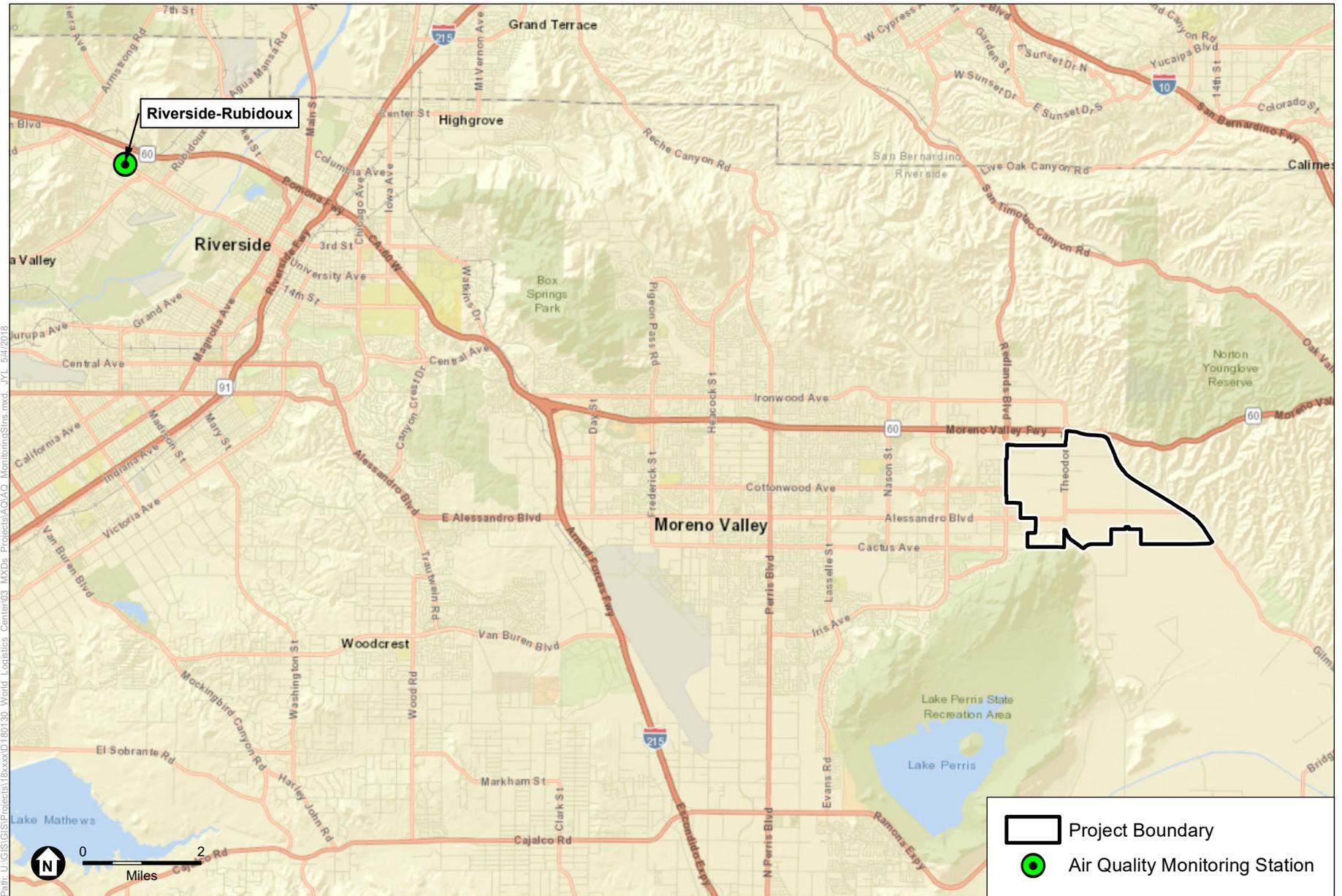
The 2016 Air Quality Management Plan (SCAQMD, 2017) outlines a comprehensive control strategy that meets the requirement for expeditious progress towards an attainment date for the five National Ambient Air Quality Standards (NAAQS) being analyzed. As stated in the 2016 AQMP, "The ozone and PM levels continue to trend downward as the economy and population increase, demonstrating that it is possible to maintain a healthy economy while improving public health through air quality improvements" (SCAQMD, 2017). NO<sub>x</sub>, VOC, PM, NH<sub>3</sub>, have been decreasing in the Basin since 2000 and are projected to continue to decrease through 2035 (CARB, 2013). These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NO<sub>x</sub> and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO<sub>x</sub> emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. The number of days exceeding the ozone national 8-hour standard has decreased between 1992 and 2011. During the 1992 time period, nearly all of the South Coast Air Basin had more than 50 exceedance days, with more than 100 days in nearly one-third of the Basin. This is equivalent to more than three months during a year with ozone concentrations above the level of the standard. Much of this area currently meets the national standard, including about two-thirds of Orange County and one-third of Los Angeles County, where the majority of the Basin population lives and works (CARB, 2013).

The reduction in air pollution levels experienced in the Basin is attributable to multiple factors. First, Federal and State regulatory strategies requiring the use of cleaner fuels and use of emissions control technology in the transportation and energy production industries have proven to greatly reduce the amount of tailpipe emission (vehicles) and point source (power plants) pollutants (e.g., NO<sub>x</sub> and ROG). Second, the SCAQMD's rules and regulatory programs have proven to be instrumental in improving the air quality in the Basin. As an example, the SCAQMD has adopted multiple rules regarding fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) and construction emissions that have resulted in reduced emission levels. Third, the SCAQMD's creation of the 1993 CEQA review handbook has resulted in lead agencies throughout the air basin employing uniform CEQA analyses and methodologies. The use of uniform CEQA review has allowed the SCAQMD and lead agencies that rely on the 1993 SCAQMD Air Quality Handbook to perform CEQA analysis to better track progress and to employ uniform mitigation and design feature strategies. Fourth, the use of the SCAQMD thresholds of significance to determine a project's direct and cumulative impact has allowed the SCAQMD to make tremendous progress toward achieving air

quality attainment. The discussion above (pertaining to the air quality improvements achieved over the past 20 years) demonstrates that the SCAQMD's rules and procedures, including the uniform utilization of the thresholds of significance recommended in the SCAQMD *CEQA Air Quality Handbook* are contributing toward the achievement of improved air quality in the Basin.

#### **4.3.1.2 Local Air Quality**

The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station most representative of the project site is the Riverside-Rubidoux station. This station monitors CO, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Some monitoring data for SO<sub>2</sub> has been omitted as attainment is regularly met for this pollutant within the Basin. This station characterizes the air quality representative of the ambient air quality in the project area. The ambient air quality data in Table 4.3-3 identify that CO and NO<sub>2</sub> levels are consistently below the relevant State and Federal standards in the project vicinity. O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> levels all exceed State and/or Federal standards regularly. Figure 4.3-1 identifies the location of the monitoring station relative to the World Logistics Center project site.



Path: U:\GIS\GIS\Projects\18xxxx\180130\_World\_Logistics\_Center\03\_MXDs\Projects\AQ\AQ\_Monitoring\Sins.mxd\_JYL\_5/4/2018

SOURCE: ESRI

World Logistics Center

**Figure 4.3.1**  
Air Quality Monitoring Station



Table 4.3-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>			Footnotes
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>	
Ozone (O <sub>3</sub> ) <sup>8</sup>	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry	<p><sup>1</sup> California standards for ozone; carbon monoxide (except 8-hour Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub> and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.</p> <p><sup>2</sup> National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal policies.</p> <p><sup>3</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.</p> <p><sup>4</sup> Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.</p> <p><sup>5</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.</p> <p><sup>6</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p><sup>7</sup> Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.</p> <p><sup>8</sup> On October 1, 2015, the natural eight-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.</p> <p><sup>9</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.</p> <p><sup>10</sup> To attain the 1-hour national standard, the 3-year average of the 98<sup>th</sup> percentile of the daily maximum concentrations at each site must not exceed 0.100 ppm. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.</p> <p><sup>11</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99<sup>th</sup> percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm).</p> <p><sup>12</sup> The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.</p> <p><sup>13</sup> The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.</p> <p>°C = degrees Celsius                      EPA = United States Environmental Protection Agency                      µg/m<sup>3</sup> = micrograms per cubic meter      mg/m<sup>3</sup> = milligrams per cubic meter                      ppm = parts per million      ppb = parts per billion</p>
	8-Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )			
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>9</sup>	24-Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		—			
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>9</sup>	24-Hour	No Separate State Standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)	
	1-Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )			
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—			
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>10</sup>	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	53 ppb (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence	
	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )		100 ppb (188 µg/m <sup>3</sup> )	None		
Sulfur Dioxide (SO <sub>2</sub> ) <sup>11</sup>	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas) <sup>11</sup>	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)	
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (for certain areas) <sup>11</sup>	—		
	3-Hour	—		—	0.5 ppm (1300 µg/m <sup>3</sup> )		
	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )		75 ppb (196 µg/m <sup>3</sup> )	—		
Lead <sup>12, 13</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption	
	Calendar Quarter	—		1.5 µg/m <sup>3</sup> (for certain areas) <sup>12</sup>	Same as Primary Standard		
	Rolling 3-Month Average <sup>11</sup>	—		0.15 µg/m <sup>3</sup>			
Visibility-Reducing Particles <sup>14</sup>	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.	Beta Attenuation and Transmittance through Filter Tape	<b>No Federal Standards</b>			
Sulfates	24-Hour	25 µg/m <sup>3</sup>	Ion Chromatography				
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence				
Vinyl Chloride <sup>12</sup>	24-Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography				

Source: CARB, 2016a

THIS PAGE INTENTIONALLY LEFT BLANK

**Table 4.3-2: Attainment Status of Criteria Pollutants in the South Coast Air Basin**

<b>Pollutant</b>	<b>State</b>	<b>Federal</b>
O <sub>3</sub> 1-hour	Nonattainment	N/A
O <sub>3</sub> 8-hour	Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Nonattainment	Maintenance – serious (San Bernardino County is in nonattainment)
PM <sub>2.5</sub>	Nonattainment	Moderate Nonattainment
CO	Attainment	Serious Maintenance
NO <sub>2</sub>	Attainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Pb	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Unclassified designation: a pollutant that is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment designation: a pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment: a pollutant is designated nonattainment if there was at least one violation at any site in the area during a 3-year period.

Source: CARB, 2017a. USEPA, 2018a

**4.3.1.3 Sensitive Land Uses in the Project Vicinity**

Sensitive receptors include residences, schools, medical offices, convalescent facilities, and similar uses where people sensitive to air pollutants may be located (i.e., the ill, elderly, pregnant women, and children). There are currently six occupied single-family homes and associated ranch/farm buildings in various locations on the World Logistics Center project site. These residences are existing on-site sensitive receptors. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, west of Redlands Boulevard, and scattered residences along Gilman Springs Road north of Alessandro Boulevard. Nearby sensitive land uses are depicted in Figure 4.3-2.

**4.3.1.4 Existing Project Area Emissions**

The project area is largely vacant undeveloped marginal agricultural land, with six occupied single-family homes and associated ranch/farm buildings in various locations on the property. Much of the site is currently used for dry farming. San Diego Gas & Electric (SDG&E) operates a natural gas compressor plant, known as the Moreno Compressor Station, on 19 acres south of the site. The Southern California Gas Company (SCGC) also operates a metering and pipe cleaning station on two separate parcels (totaling 1.5 acres) south of the site south of Alessandro Boulevard along existing Virginia Street. Existing air quality conditions at the project site reflect ambient<sup>1</sup> monitored conditions as presented in Table 4.3-3.

<sup>1</sup> Ambient: of or related to the immediate surroundings of something; in this context it means “in the air”

**Table 4.3-3: Ambient Air Quality Monitored in the Project Vicinity**

Pollutant	Standard	2014	2015	2016	2017
<b>Carbon Monoxide (CO)</b>					
Maximum 1-hr concentration (ppm)		2.4	2.5	1.6	2.4
Number of days exceeded:	State: > 20 ppm	0	0	0	0
	Federal: > 35 ppm	0	0	0	0
Maximum 8-hr concentration (ppm)		1.9	1.7	1.3	1.8
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0	0
	Federal: ≥ 9 ppm	0	0	0	0
<b>Ozone (O<sub>3</sub>)</b>					
Maximum 1-hr concentration (ppm)		0.141	0.132	0.142	0.145
Number of days exceeded:	State: > 0.09 ppm	29	31	33	ND
	Federal: > 0.075 ppm	41	39	47	84
Maximum 8-hr concentration (ppm)		0.105	0.106	0.105	0.118
Number of days exceeded:	State: > 0.070 ppm	69	59	71	ND
	Federal: > 0.075 ppm	41	39	47	84
<b>Coarse Particulates (PM<sub>10</sub>)</b>					
Maximum 24-hr concentration (µg/m <sup>3</sup> )		100	69	84	92
Number of days exceeded:	State: > 50 µg/m <sup>3</sup>	125	92	ND	ND
	Federal: > 150 µg/m <sup>3</sup>	0	0	0	0
Annual arithmetic mean concentration (µg/m <sup>3</sup> )		44.8	40.0	ND	ND
Exceeded for the year	State: > 20 µg/m <sup>3</sup>	Yes	Yes	ND	ND
<b>Fine Particulates (PM<sub>2.5</sub>)</b>					
Maximum 24-hr concentration (µg/m <sup>3</sup> )		50.6	61.1	60.8	50.3
Number of days exceeded:	Federal: > 35 µg/m <sup>3</sup>	ND	10	5	ND
	State: > 12 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
Annual arithmetic mean (µg/m <sup>3</sup> )		16.8	15.3	12.6	12.2
Exceeded for the year	State: > 12 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
	Federal: > 12.0 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Maximum 1-hr concentration (ppm)		0.0600	0.057	0.073	0.063
Number of days exceeded:	State: > 0.18 ppm	0	0	0	0
	Federal: > 0.053 ppm	No	No	ND	ND
Annual arithmetic mean concentration (ppm)		0.015	0.0144	0.015	0.015
Exceeded for the year	State: > 0.030 ppm	No	No	ND	ND
	Federal: > 0.053 ppm	No	No	ND	ND
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Maximum 24-hr concentration (ppm)		1.3	1.0	1.2	1.2
Number of days exceeded:	State: > 0.04 ppm	ND	ND	ND	ND
	Federal: > 0.030 ppm	No	No	No	No
Annual arithmetic average concentration (ppm)		0.26	0.27	0.23	0.29
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No	No

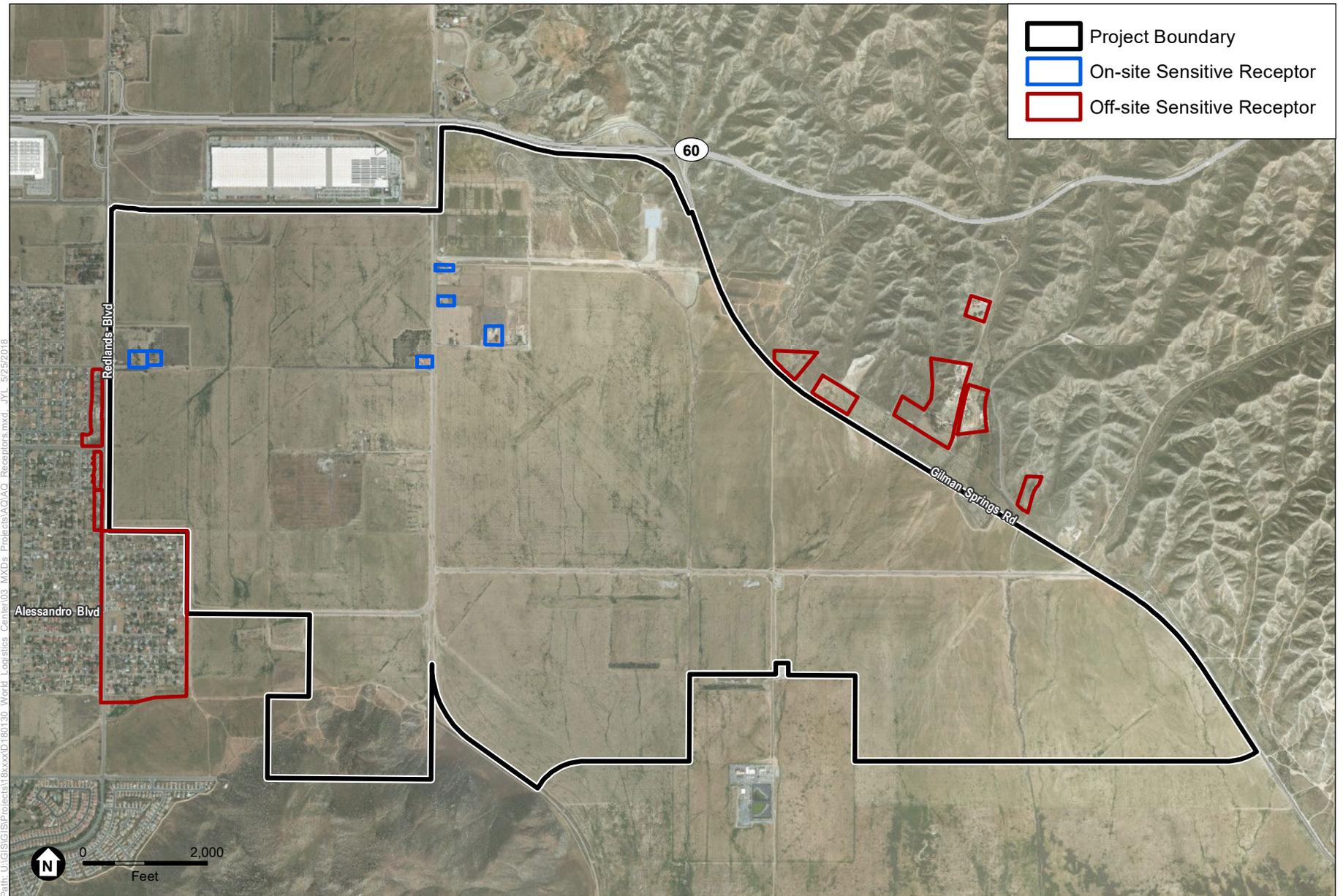
µg/m<sup>3</sup> = micrograms per cubic meter  
Agency

EPA = United States Environmental Protection

ID = Insufficient data  
ppm = parts per million

ND = No data

Source: CARB, 2018 for the SCAQMD Riverside-Rubidoux air monitoring station.



SOURCE: ESRI 2016; County of Riverside 2017

World Logistics Center

**Figure 4.3.2**  
Existing Sensitive Receptors

## 4.3.2 Policies and Regulations

### 4.3.2.1 Federal Regulations

**Clean Air Act.** Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Effective June 2, 2010, the EPA revised the primary standard for SO<sub>2</sub> by establishing a new 1-hour standard at a level of 75 ppb. The EPA revoked the two existing primary standards of 140 ppb evaluated over 24 hours and 30 ppb evaluated over an entire year as they would not provide additional public health protection given a 1-hour standard at 75 ppb. To attain this standard, the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Effective December 14, 2012, the national annual PM<sub>2.5</sub> standard was lowered from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup> but the existing 24-hour and annual secondary standards were retained.

On October 1, 2015, the national eight-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm, respectively.

### 4.3.2.2 Regional Regulations

**Regional Air Quality Management Plan (AQMP).** The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP, which has a 20-year horizon for the Basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the Federal and/or California ambient air quality standards. The SCAQMD and SCAG must update the AQMP every three years.

**2012 AQMP.** The 2012 AQMP was adopted December 7, 2012 (SCAQMD, 2012b). The purpose of the 2012 AQMP for the Basin was to set forth a program that would lead the Basin into compliance with the Federal 24-hour PM<sub>2.5</sub> air quality standard, and to provide an update of the Basin’s projections in meeting the Federal 8-hour ozone standards. The AQMP was adopted by the SCAQMD Board; therefore, it was submitted to the EPA as the State Implementation Plan (SIP). Specifically, the AQMP served as the official SIP submittal for the Federal 2006 24-hour PM<sub>2.5</sub> standard. In addition, the AQMP updated specific elements of the previously approved 8-hour ozone SIP: (1) an updated emissions inventory, and (2) new control measures and commitments for emissions reductions to help fulfill the Section 182(e)(5) portion of the 8-hour ozone SIP.

The 2012 AQMP states, “The remarkable historical improvement in air quality since the 1970’s is the direct result of Southern California’s comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs.”

The 2012 AQMP proposed Basin-wide PM<sub>2.5</sub> measures that would be implemented by the 2014 attainment date, episodic control measures to achieve air quality improvements (would only apply during high PM<sub>2.5</sub> days), Section 182(e)(5) implementation measures (to maintain progress toward meeting the 2023 8-hour ozone national standard), and transportation control measures. Most of the control measures focused on incentives, outreach, and education.

Proposed PM<sub>2.5</sub> reduction measures in the 2012 AQMP included the following:

- Further NO<sub>x</sub> reductions from the SCAQMD’s Regional Clean Air Incentives Market (RECLAIM) program. The RECLAIM program was adopted by the SCAQMD in October 1993 and set an emissions cap and declining balance for many of the largest facilities emitting NO<sub>x</sub> and SO<sub>x</sub> in the

South Coast Air Basin. RECLAIM includes over 350 participants in its NO<sub>x</sub> market and about 40 participants in its SO<sub>x</sub> market. RECLAIM has the longest history and practical experience of any locally designed and implemented air emissions cap and trade program. RECLAIM allows participating facilities to trade air pollution while meeting clean air goals.

- Further reductions from residential wood-burning devices.
- Further reductions from open burning.
- Emission reductions from under-fired char broilers.
- Further ammonia reductions from livestock waste.
- Backstop measures for indirect sources of emissions from ports and port-related sources.
- Further criteria pollutant reductions from education, outreach, and incentives.

There were multiple VOC and NO<sub>x</sub> reductions in the 2012 AQMP to attempt to reduce ozone formation, including further VOC reductions from architectural coatings, miscellaneous coatings, adhesives, solvents, lubricants, and mold release products.

The 2012 AQMP also contained proposed mobile source implementation measures for the deployment of zero and near-zero emission on-road heavy-duty vehicles, locomotives, and cargo handling equipment. There were measures for the deployment of cleaner commercial harbor craft, cleaner ocean-going marine vessels, cleaner off-road equipment, and cleaner aircraft engines.

The 2012 AQMP proposed the following mobile source implementation measures:

- On-road mobile sources:
  - Accelerated penetration of partial zero-emission and zero-emission vehicles. This measure proposed to continue incentives for the purchase of zero-emission vehicles and hybrid vehicles with a portion of their operation in an all-electric range mode. The state Clean Vehicle Rebate Pilot program was proposed to continue from 2015 to 2023 with a proposed funding for up to \$5,000 per vehicle. The measure seeks to provide funding assistance for up to 1,000 zero-emission or partial-zero emission vehicles per year.
  - Accelerated penetration of partial zero-emission and zero-emission light-heavy and medium-heavy duty vehicles through funding assistance for purchasing the vehicles. The objective of the proposed action was to accelerate the introduction of advanced hybrid and zero-emission technologies for Class 4 through 6 heavy-duty vehicles. The state is currently implementing a Hybrid Vehicle Incentives Project program to promote zero-emission and hybrid heavy-duty vehicles. The proposed measure aims to continue the program from 2015 to 2023 to deploy up to 1,000 zero- and partial-zero emission vehicles per year with up to \$25,000 funding assistance per vehicle. Zero-emission vehicles and hybrid vehicles with a portion of their operation in an all-electric range mode would be given the highest priority.
  - Accelerated retirement of older light-, medium-, and heavy-duty vehicles through funding incentives.
  - Further emission reductions from heavy-duty vehicles serving near-dock rail yards. This proposed control measure called for a requirement that any cargo container moved between the ports of Los Angeles and Long Beach to the nearby rail yards be with zero-emission technologies. The measure would be fully implemented by 2020 through the deployment of zero-emission trucks or any alternative zero-emission container movement system such as a fixed guideway system. The measure called for the CARB to either adopt a new regulation or amend an existing regulation to require such deployment by 2020.

- Off-road mobile sources:
  - Extension of the Surplus Off-Road Opt-In for NO<sub>x</sub> (SOON) provision for construction/industrial equipment, which provides funding to repower or replace older Tier 0 and Tier 1 equipment.
  - Further emission reductions from freight and passenger locomotives called for an accelerated use of Tier 4 locomotives in the Basin.
  - Further emission reductions from ocean-going marine vessels while at berth.
  - Emission reductions from ocean-going marine vessels.

The 2012 AQMP also relied upon the SCAG regional transportation strategy, which is in its adopted 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and 2011 Federal Transportation Improvement Program (FTIP), which contains the following sections:

1. Linking regional transportation planning to air quality planning and making sure that the regional transportation plan supports the goals and objectives of the AQMP/SIP.
2. Regional transportation strategy and transportation control measures: The RTP/SCS contains improvements to the regional multimodal transportation system including the following: active transportation (non-motorized transportation, e.g., biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground access; highways; arterials; and operations and maintenance.
3. Reasonably available control measure analysis.

**2016 AQMP.** On March 3, 2017, SCAQMD approved the Final 2016 Air Quality Management Plan (2016 AQMP) that demonstrates attainment of the 1-hr and 8-hr ozone NAAQS as well as the latest 24-hr and annual PM<sub>2.5</sub> standards. Currently, the 2016 AQMP is being reviewed by the U.S. EPA and CARB. Until the approval of the EPA and CARB, the current regional air quality plan is the Final 2012 Air Quality Management Plan (AQMP) adopted by the SCAQMD on December 7, 2012. The Final 2016 AQMP includes the integrated strategies and measures needed to meet the NAAQS.

The 2016 AQMP seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, greenhouse gases, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts on the health of our nearly 17 million residents, including those in disproportionately impacted and environmental justice communities that are concentrated along our transportation corridors and goods movement facilities, is to reduce emissions from mobile sources, the principal contributor to our air quality challenges. For that reason, the SCAQMD worked closely with CARB and the U.S. EPA who have primary responsibility for these sources. The Plan recognized the critical importance of working with other agencies to develop new regulations, as well as secure funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy. These “win-win” scenarios will be key to implementation of this Plan with broad support from a wide range of stakeholders. The 2016 AQMP also includes transportation control measures (TCMs) developed by SCAG from the 2016 RTP/SCS.

The RTP/SCS and FTIP were developed in consultation with federal, state and local transportation and air quality planning agencies and other stakeholders. The four County Transportation Commissions (CTCs) in the South Coast Air Basin, namely Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, Orange County Transportation Authority and the San Bernardino Associated Governments, were actively involved in the development of the regional transportation measures. In the South Coast Air Basin, TCMs include the following three main

categories of transportation improvement projects and programs that have funding programmed for right-of-way and/or construction in the first two years of the 2015 FTIP:

- Transit, Intermodal Transfer, and Active Transportation Measures;
- High Occupancy Vehicle (HOV) Lanes, High Occupancy Toll (HOT) Lanes, and their pricing alternatives; and
- Information-based Transportation Strategies.

**South Coast Air Quality Management District Proposed Indirect Sources Rules for Warehouses.**

In order to obtain the 80 ppb and 75 ppb 8-hour ozone standards by the 2023 and 2031 attainment dates, respectively, and in support of the 2016 AQMP, the SCAQMD is formulating Facility Based Mobile Sources Rules to reduce NO<sub>x</sub> emissions from indirect sources (e.g., mobile sources generated by, or attracted to facilities). This proposed rule or set of rules would reduce emissions associated with emissions sources operating in and out of warehouse and distribution centers, consistent with Control Measures MOB 03 from the 2016 AQMP, and is anticipated to be brought before the Board for consideration in the second quarter of 2020 (SCAQMD, 2019a).<sup>2</sup> The SCAQMD is looking at a variety of options which could include voluntary reduction strategies, as well as, regulations to limit emissions. The voluntary emission reduction strategies for warehouses and distribution centers could include: (1) development of a SCAQMD administered CEQA air quality mitigation fund, for warehouse projects to opt into, which would be used to reduce project emissions by funding financial incentives for fleet owners to purchase cleaner trucks; (2) development of updated guidance for warehouse siting and operations; (3) development of the necessary fueling/charging infrastructure by working with utilities and regulatory agencies; and (4) development of “green delivery options” which could involve a small, voluntary, opt-in surcharge for consumers when purchasing goods online with the funds generated used towards reducing truck fleet emissions (SCAQMD, 2018).<sup>3</sup> A regulatory approach is being proposed as well, since the recommended voluntary measures would only result in limited emissions reductions. The proposed Warehouse Indirect Source Rule is aimed at reducing trucking emissions and could provide several compliance options that facilities could choose including: (1) requirements for warehouses to ensure that construction fleets and truck fleets that serve their facility during operations are cleaner than required by CARB regulations (verified through a voluntary fleet certification program); (2) facility emission caps that would require warehouses to directly control the emissions associated with trucks visiting the facility; (3) mitigation fees if the facilities emissions exceed cap levels set in the Indirect Source Rule, (4) crediting options for other activities like installation of charging/fueling infrastructure for cleaner trucks and transportation refrigeration units, conversion of cargo handling equipment to zero emission technologies, etc.; (5) requiring facilities to utilize zero emission trucks and build the infrastructure to support them; and (6) a points based system for the warehouse Indirect Source Rule (SCAQMD, 2019a, SCAQMD, 2019b,<sup>4</sup> SJVAPCD, 2017<sup>5</sup>). This proposed rule would further reduce air quality emissions, beyond those calculated in this analysis, as future operations of the WLC would be subject to this rule once it is proposed and approved.

**Diesel Regulations.** The Ports of Long Beach and Los Angeles and the CARB have adopted regulations aimed at reducing the amount of diesel particulate. These programs are the Ports of Los Angeles and Long Beach “Clean Truck Program” (POLA, 2018), the CARB Drayage Truck Regulation (CARB, 2017b), and the CARB statewide On-road Truck and Bus Regulation (CARB, 2017c). Each of

---

<sup>2</sup> South Coast Air Quality Management District, 2019a. General Board Meeting November 1, 2019 Agenda No. 1. Attached Minutes of the October 4 2019 Meeting. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-nov1-001.pdf?sfvrsn=6> Accessed November 6, 2015.

<sup>3</sup> South Coast Air Quality Management District, 2018. Board Meeting, March 2, 2018. Agenda No. 32. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-mar2-032.pdf?sfvrsn=7>. Accessed November 3, 2019.

<sup>4</sup> South Coast Air Quality Management District General Board Meeting March 1, 2019 Agenda No. 25. Mobile Source Committee Meeting February 15, 2019. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-mar1-025.pdf?sfvrsn=6>. Accessed November 6, 2019.

<sup>5</sup> San Joaquin Valley Air Pollution Control District, 2017. Rule 9510 Indirect Source Review (ISR) (Adopted December 15, 2005, Amended December 21, 2017, but not in effect until March 21, 2018). Available online: <http://www.valleyair.org/rules/currentrules/r9510-a.pdf>. Accessed November 6, 2015.

these regulatory programs will require an accelerated introduction of “clean trucks” into the statewide truck fleet that will result in substantially lower diesel emissions during the 2008 to 2020 timeframe. Additionally, the Ports of Long Beach and Los Angeles updated the Clean Air Action Plan in 2017, providing new strategies and emission targets supporting zero-emissions and freight efficiency targets (POLA and POLB, 2017).

**Toxic Air Contaminants.** A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality (death) or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. Hazardous Air Pollutants (HAPs) and TACs are used interchangeably in this discussion. HAPs are regulated by the EPA under the Federal Clean Air Act. TAC is the term used under the California Clean Air Act to regulate the same hazardous pollutants. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for periods of several years. Many of these contaminants originate from human activities, such as fuel combustion and solvent use.

In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants carbon dioxide, nitrogen dioxide, particulate matter, and ozone for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards. For this reason, thresholds for TAC impacts for regulatory purposes and for CEQA thresholds have been set based on the increase in risk of cancer of a specific amount at sensitive receptors located near the source of TAC emissions.

The California Almanac of Emissions and Air Quality presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. These TACs are as follows: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM).

TAC measurements, available at the SCAQMD Riverside Rubidoux monitoring station (14 miles northwest of the project site) can be used to characterize the “background” health risks from regional TAC emission sources. Table 4.3-4 provides this summary of TAC levels in the project area and health risk information. This table lists the air concentration levels and associated health cancer risks for eight of the nine TACs reported by the CARB in its Almanac as measured at the Riverside-Rubidoux air monitoring station. Note that since diesel PM cannot be measured directly, the table does not provide estimates of either measured diesel PM or the cancer risk associated with diesel PM.

Past studies have indicated that diesel PM poses the greatest health risk among the TACs listed in Table 4.3-4. The principal concern regarding exposures to diesel PM lies in its small size and thus its ability to penetrate deep into lung tissues when inhaled. Diesel exhaust has been found to cause health effects from short-term or acute exposures and from long-term chronic exposures, such as repeated occupational exposures. The type and severity of health effects depends upon several factors including the amount of chemical you are exposed to and the length of time you are exposed. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Long-term (chronic) exposure to diesel exhaust is likely to occur when a person works in a field where diesel is used regularly or experiences repeated exposure to diesel fumes over a long period of time. Human health studies demonstrate a correlation between exposure to diesel exhaust and increased lung cancer rates in occupational settings. Experimental animal inhalation studies of chronic exposure to diesel exhaust have shown that a range of doses causes varying levels of inflammation and cellular changes in the lungs. Human and laboratory studies have also provided considerable evidence that diesel exhaust is a likely carcinogen.

**Table 4.3-4: Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

<b>TAC</b>	<b>Concentration<sup>A</sup>/ Health Risk<sup>B</sup></b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>Health Effects</b>
Acetaldehyde	Mean	1.48	1.44	1.08	<p>Acetaldehyde is a carcinogen that also causes chronic non-cancer toxicity in the respiratory system. Symptoms of chronic intoxication of acetaldehyde in humans resemble those of alcoholism.</p> <p>The primary acute effect of inhalation exposure to acetaldehyde is irritation of the eyes, skin, and respiratory tract in humans. At higher exposure levels, erythema, coughing, pulmonary edema, and necrosis may also occur. Acute inhalation of acetaldehyde resulted in a depressed respiratory rate and elevated blood pressure in experimental animals.</p>
	Health Risk	22	21	16	
Benzene	Mean	ID	0.27	0.271	<p>Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.</p> <p>Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.</p> <p>Chronic inhalation of certain levels of benzene causes disorders in the blood in humans. Benzene specifically affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.</p>
	Health Risk	ID	85	70	
Chromium Hex	Mean	0.083	0.045	ID	<p>In California, hexavalent chromium has been identified as a carcinogen. There is epidemiological evidence that exposure to inhaled hexavalent chromium may result in lung cancer. The principal acute effects are renal toxicity, gastrointestinal hemorrhage, and intravascular hemolysis.</p> <p>The respiratory tract is the major target organ for chromium (VI) following inhalation exposure in humans. Other effects noted from acute inhalation exposure to very high concentrations of chromium (VI) include gastrointestinal and neurological effects, while dermal exposure causes skin burns in humans. Chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, with perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness reported. Chronic human exposure to high levels of chromium (VI) by inhalation or oral exposure may produce effects on the liver, kidneys, gastrointestinal and immune systems, and possibly the blood.</p>
	Health Risk	34	19	ID	

**Table 4.3-4: Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

<b>TAC</b>	<b>Concentration<sup>A</sup>/ Health Risk<sup>B</sup></b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>Health Effects</b>
Para-Dichlorobenzene	Mean	ID	ID	ID	In California, para-dichlorobenzene has been identified as a carcinogen. Acute exposure to 1,4-dichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans (e.g., cerebellar ataxia, dysarthria, weakness in limbs, and hyporeflexia).
	Health Risk	ID	ID	ID	
Formaldehyde	Mean	3.52	3.64	3.35	The major toxic effects caused by acute formaldehyde exposure via inhalation are eye, nose, and throat irritation and effects on the nasal cavity. Other effects seen from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic exposure to formaldehyde by inhalation in humans has been associated with respiratory symptoms and eye, nose, and throat irritation. Animal studies have reported effects on the nasal respiratory epithelium and lesions in the respiratory system from chronic inhalation exposure to formaldehyde. Occupational studies have noted statistically significant associations between exposure to formaldehyde and increased incidence of lung and nasopharyngeal cancer. This evidence is considered "limited" rather than "sufficient" due to possible exposure to other agents that may have contributed to the excess cancers. EPA considers formaldehyde to be a probable human carcinogen (cancer-causing agent) and has ranked it in EPA's Group B1. In California, formaldehyde has been identified as a carcinogen.
	Health Risk	70	76	70	
Methylene Chloride	Mean	ID	48.2	12.3	Case studies of methylene chloride poisoning during paint-stripping operations have demonstrated that inhalation exposure to extremely high levels can be fatal to humans. Acute inhalation exposure to high levels of methylene chloride in humans has resulted in effects on the central nervous system, including decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Methylene chloride also irritates the nose and throat at high concentrations. The major effects from chronic inhalation exposure to methylene chloride in humans are effects on the central nervous system, such as headaches, dizziness, nausea, and memory loss. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. EPA considers methylene chloride to be a probable human carcinogen and has ranked it in EPA's Group B2. California considers methylene chloride to be carcinogenic.
	Health Risk	ID	477	122	
Perchloroethylene	Mean	ID	0.018	0.013	In California, perchloroethylene has been identified as a carcinogen. Perchloroethylene vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity, as well as kidney dysfunction and neurological disorders.
	Health Risk	ID	2	2	
Diesel PM	Mean	No Monitoring Data Available			In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provided strong evidence that long-term occupational exposure to diesel exhaust
	Health Risk				

**Table 4.3-4: Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
					<p>increases the risk of lung cancer. Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. This research was based on studies prior to the advent of modern diesel engines with high efficiency emissions controls.</p> <p>Note: Since then the Health Effects Institute study clearly demonstrates that the application of new emissions control technology to diesel engines has virtually eliminated the health impacts of diesel exhaust.</p>

Notes:

ID = Insufficient data

A = Concentrations for Hexavalent Chromium are expressed as  $\mu\text{g}/\text{m}^3$ , and concentrations for Diesel PM are expressed as  $\mu\text{g}/\text{m}^3$ . Concentrations for all other TACs are expressed as ppb.

B = Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available

Source: CARB, 2018 for the SCAQMD Riverside-Rubidoux air monitoring station.

Several occupational and ambient studies have documented the health effects due to exposure to diesel PM. The California Office of Environmental Health Hazards Assessment (OEHHA), in its role in assessing risk from environmental factors reviews such studies and makes recommendations on the way environmental risk should be evaluated through programs like the AB2588 Hot Spot Program. In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, 1950's era railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. However, all of these studies were based on exposure to exhaust from traditional diesel engines and prior to the advent of highly efficient emissions controls like the diesel particulate filter. Based on these studies, CARB identified diesel exhaust a toxic air contaminant in 1998.

In 2014, the SCAQMD released the fourth iteration of the Multiple Air Toxics Exposure Study (MATES-IV). The MATES-IV is a follow up to the previous MATES studies and included an updated toxics air emission inventory, new air toxics air dispersion modeling, and enhanced air toxics monitoring. A key conclusion reached in the MATES-IV study was that the population weighted cancer risk in the Basin decreased by 57 percent from the MATES-III period in 2005 to the MATES-IV period in 2012 indicating that overall, cancer risks are declining in the Basin as a result of the implementation of emission controls principally on large diesel trucks. The MATES-IV study also concluded that diesel PM contributed 68 percent to the total cancer risk in the Basin with benzene and 1,3-Butadiene also making important contributions to cancer risk.

In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust has been a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM<sub>10</sub> database, ambient PM<sub>10</sub> monitoring data, and the results from several studies to estimate concentrations of diesel PM. Within the Basin, in addition to diesel PM, there are emissions of benzene, formaldehyde, acetaldehyde, naphthalene, ethylbenzene, acrolein, toluene, hexane, propylene, and xylene from a variety of sources located within the Basin that contribute to health risks.

In January 2015, a major new study evaluated the health impacts of "new technology diesel exhaust" (NTDE). Beginning in 2001, USEPA and CARB began issuing a series of regulations that require new diesel-powered vehicles and equipment to use the latest emissions control technology. This technology relies on two components. The first is a diesel particulate filter, which is capable of reducing particulate matter emissions by over 90 percent (required for new engines beginning in 2007). The second technology is selective catalytic reduction, which reduces emissions of nitrogen oxides by over 90 percent (required for new engines beginning in 2010). Diesel emissions from engines equipped with this technology is referred to as New Technology Diesel Exhaust (NTDE). As a result of the advances in emission control technology, USEPA, CARB, and other government and industry stakeholders commissioned a series of studies called the Advanced Collaborative Emissions Study (ACES). ACES has been guided by an ACES Steering Committee consisting of representatives of the Health Effects Institute (HEI) and the Coordinating Research Council (CRC: a nonprofit organization that directs engineering and environmental studies on the interaction between automotive or other mobility equipment and petroleum products), along with the U.S. Department of Energy, U.S. EPA, engine

manufacturers, the petroleum industry, CARB, emission control manufacturers, the National Resources Defense Council, and others. The HEI, funded in part by USEPA, was selected to oversee Phase 3 of ACES.

Phase 3 of ACES evaluated whether emissions from new technology diesel engines cause cancer or other health effects. Specifically, it evaluated the health impacts of a 2007-compliant engine equipped with a diesel particulate filter. HEI found chronic exposure to NTDE did not induce tumors or pre-cancerous changes in the lung and did not increase tumors that were considered to be related to NTDE in any other tissue in laboratory rats. The study also confirmed that the concentrations of particulate matter and toxic air pollutants emitted from NTDE are more than 90 percent lower than emissions from traditional older diesel engine. Rats are the most sensitive laboratory animal species for evaluation of older technology diesel engines (pre-model year 2007), because of their sensitivity to high concentrations of particles (present in older technology diesel engines), compared with other species (including humans).

The HEI study clearly demonstrates that the application of new emissions control technology to diesel engines have virtually eliminated the health impacts of diesel exhaust (McDonald et al, 2015).

**Conservative Nature of Health Risk Assessments.** Moreover, the current methodological protocols required by the SCAQMD and CARB when studying the health risk posed by diesel PM assume the following (CAPCOA, 2009): (1) 24-hour constant exposure; (2) 350 days a year; (3) for a continuous period lasting 30 years. These are overly conservative assumptions that are not replicated in reality. Most people are indoors for 18–20 hours a day (at their place of employment or home) and most people do not live in the same location for a 30-year period. In fact, less than 10 percent of the population has a continuous residency at the same location of greater than 30 years (American Community Survey, 2011). Thus, the health risk assessments prepared pursuant to the current protocols overestimate the risk of cancer associated with diesel PM exposure.

**Alternate Views on Diesel PM Risk.** Some researchers, such as Dr. James E. Enstrom (Enstrom, 2008), believe that the risk from diesel PM is exaggerated. Enstrom calls into question some of the basic research on the declaration of diesel exhaust as a toxic air contaminant. In particular, the article states the following:

*There is substantial new epidemiologic evidence relevant to the health effects of diesel exhaust that was not considered when the 1998 toxic air contaminant declaration was made. For instance, the 2007 paper by Francine Laden et al. measured death rates during 1985–2000 among 54,000 members of the unionized U.S. trucking industry. ... This cohort, which included 36,000 diesel truck drivers, had death rates from all causes and all cancer that were substantially below the rates among US males. Furthermore, unlike earlier evidence that was used in the TAC declaration, this cohort did not have a substantially elevated lung cancer death rate.*

Dr. Enstrom also indicates that the premature mortality calculation in the report, “Quantification of the Health Impacts and Economic Valuation of Air Pollution from Ports and Goods Movement in California,” is exaggerated. Dr. Enstrom’s analysis “found no relationship between PM<sub>2.5</sub> and mortality in elderly Californians during 1983–2002.”

### **4.3.3 Methodology**

The *Air Quality, Greenhouse Gas, and Health Risk Assessment Report* for this revised section of the FEIR (ESA Associates, 2019) evaluated the air quality impacts associated with the development of the World Logistics Center project including the following:

- Determined the short-term construction air quality and health risk impacts on both on-site and off-site sensitive receptors based on SCAQMD and OEHHA assessment methodologies and significance thresholds;

- Determined the long-term air quality and health risk impacts, including vehicular traffic, on both on-site and off-site sensitive uses based on SCAQMD and OEHHA assessment methodologies and significance thresholds; and
- Determined the required mitigation measures to reduce short-term and long-term on-site air quality and health risk impacts from all sources.

An Air Quality, Greenhouse Gas, and Health Risk Assessment Report was prepared by ESA Associates (ESA Associates, 2019) in November 2019, included as Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR, which estimated the impacts associated with the interim and horizon opening years. The methodology used in the analysis is discussed below.

### 4.3.3.1 Construction

Construction-related emissions are expected from various activities associated with the construction of the project such as rough grading, infrastructure construction, asphalt paving, building construction, architectural coatings, and construction workers commuting. Construction emissions for construction worker vehicles traveling to and from the project site, in addition to vendor trips (construction materials delivered to the project site) and haul trips (dump trucks and concrete trucks) were also accounted for in the analysis. Localized air quality in the project area would be affected by both heavy-duty construction equipment usage on site as well as local traffic due to the equipment delivery and construction worker commuting. The anticipated construction equipment and construction schedule are identified in Appendix A.1. The SCAQMD CEQA methodology (SCAQMD, 1993) was used to analyze the criteria pollutant emissions from these activities.

A summary of the construction assumptions that has been revised since the 2018 Revised Sections of the FEIR is included below. For a detailed description of all construction assumptions, please refer to Appendix A.1.

- *On-road Construction Emissions.* The current version of CalEEMod uses mobile source emissions from EMFAC2014. Due to the recent approval of EMFAC2017 by the EPA, on-road construction emissions were calculated separate from CalEEMod using EMFAC2017 emission factors.
- *Construction Period.* Construction was assumed to occur over 15 years from the year 2020 to 2034. The assumed construction schedule has been adjusted to assume the completion of Phase 1 construction in December 2024 and the completion of Phase 2 construction in December 2034 to better align with the TIA's assumption that Phase 1 would be operational by the year 2025 and that the project would be operational by the horizon year.<sup>6</sup> Although buildout of the project would depend on market conditions, the project could be built out and operational as early as 2035. Therefore, to provide a conservative air quality analysis, construction was assumed to be completed over a 15-year period that provides for phase overlap and the use of less efficient construction equipment.
- *Mass Grading Duration.* Each planning area was assumed to be graded separately over a total of approximately 13 years to reflect a realistic grading plan.

### 4.3.3.2 Operation

Air quality in the project area would be affected by long-term air emissions from stationary sources and mobile sources related to the World Logistics Center project once it commences operations. The stationary source emissions would come from emergency generators while mobile source emissions would come from vehicular emissions from automobiles and trucks traveling to, from, and within the project site and from on-site forklifts and yard trucks.

---

<sup>6</sup> The TIA analyzes full project buildout in 2040, which is the worst case for traffic analysis purposes as it accounts for greater regional growth in non-project traffic. However, for purposes of a conservative air quality analysis, it is assumed that full project operations would occur as early as 2035, resulting in the use of higher mobile emissions factors (dirtier engines).

A key piece of information required to estimate the project's operational emissions deals with an estimate of the number of trips and types of vehicles (i.e., cars and trucks) generated by the project during a peak hour and on a daily basis. To determine mobile source emissions associated with the project, the trip generation rates were derived from the *Traffic Impact Analysis Report* (TIA) for the project prepared by WSP USA.

Working jointly with the National Association of Industrial and Office Properties (NAIOP), the SCAQMD conducted a trip generation study for high-cube warehouses, the predominant form of land use for the project, *High-Cube Warehouse Vehicle Trip Generation Analysis* (ITE, 2016). The study replaces the earlier, smaller studies that produced conflicting results and created uncertainty regarding the amount of traffic generated by the newer, more automated type of high-cube warehouse proposed for the project. The results of the study for high-cube warehouse trip generation has been incorporated into the 10<sup>th</sup> edition of the Institute of Traffic Engineers (ITE) *Trip Generation Manual*. The trip generation rates included in this study for high-cube warehouse uses and trip rates from the 10<sup>th</sup> edition of the ITE *Trip Generation Manual* have been used for other proposed land uses.

For purposes of the TIA and worst case traffic growth assumptions, project operations were analyzed based on two buildout years: 2025 Phase 1 buildout year and 2035 full buildout year. Forecasted trip generation and vehicle miles traveled (VMT) contained in the TIA were used to estimate the project's motor vehicle emissions for the Phase 1 and full buildout scenarios. The traffic model provided estimates of project traffic volumes segregated by vehicle class as passenger cars, light heavy duty trucks, medium heavy duty trucks, and heavy-heavy duty trucks. The TIA provides VMT attributable to the project based on the net effect the project has on regional travel as well as project VMT without consideration of a net effect. The net effect includes consideration that creation of a job center (the project) would redistribute existing regional travel and result in shorter employee trips. Freeway and non-freeway VMT and speed data, as provided by WSP, were utilized to determine the appropriate emission factors to apply to project trips from the EMFAC2017 model. In calculating the operational traffic emissions, the VMT per speed was based on daily speed data provided by WSP. Emissions factors vary by speed bin. Therefore, accounting for variations in speed attributable to slow downs occurring during peak hours provides a realistic representation of project mobile emissions.

Mobile emissions utilized EMFAC2017's projected vehicle fuel mix for Phase 1 buildout year 2025 and project buildout year 2035. Section 6.17, *Energy*, of this EIR addresses the potential penetration of electric trucks and potential use in association with the project. Although the State has set targets for zero-emission vehicles, it would be speculative to assume that the High Penetration scenario discussed in Section 6.17 would be practicable or feasible by 2025 or by 2035. The Low, Medium, and High Penetration scenarios discussed in Section 6.17 are possible; however, as a worst-case analysis, the air quality analysis included herein factors in potential emissions reductions provided by electric and natural gas-fueled trucks based on EMFAC2017 projections.

Emission factors for the year 2020 were used for the "worst-case" scenario. Interim year 2025 (Phase 1 buildout) of the project used emission factors from the year 2025, and horizon year 2035 (Phase 2 buildout) of the project used emission factors for the year 2035. For years 2021 through 2024 and years 2026 through 2034, emissions factors and the Project's net effect on VMT were interpolated and scaled using data from 2025 and 2035 in order to provide an estimate of emissions and potential overlap of construction and operational emissions. For the mitigated scenario, the emission factors were modified to reflect the mitigation measure that requires the use of model year 2010 or newer trucks for all heavy duty diesel trucks associated with the project. Note that emissions from the existing on-site residence and fugitive dust that would be removed were not included in this analysis as a worst-case scenario.

#### **4.3.3.3 Localized Construction/Operation**

SCAQMD has developed the Localized Significance Threshold (LST) methodology that can be used to determine whether or not a project may generate significant adverse localized air quality impacts that substantially affect sensitive receptors. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State AAQS and

are developed based on the ambient concentrations of that pollutant for each source receptor area identified by the SCAQMD. SCAQMD's current guidelines, *Final Localized Significance Threshold Methodology* (SCAQMD, 2003) and subsequent additions, were adhered to in the assessment of local air quality impacts from the World Logistics Center project. The local emissions of concern from construction and operational activities as defined by the SCAQMD are NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> combustion emissions from construction equipment and fugitive PM<sub>10</sub> dust from construction site preparation activities. A summary of assumptions for the localized assessment is included below. For detailed assumptions, refer to Appendix A.1.

- *Construction Schedule.* Construction was assumed to occur over 15 years from the year 2020 to 2034. Although buildout of the project would depend on market conditions, the project could be built out and operational as early as 2035. Therefore, to provide a conservative air quality analysis, construction was assumed to be completed over a 15-year period that provides for activity overlap and the use of older construction equipment.
- *Emission Source Configuration.* The analysis represented the off-road construction exhaust emission sources as a series of contiguous volume sources, which is consistent with the SCAQMD methodology for LST assessments.
- *Operational Truck Idling.* Each truck was assumed to idle for 5 minutes per day consistent with the California Air Resources Board's Air Toxic Control Measure that limits such idling to 5 minutes and requirements specified in the World Logistics Center Specific Plan. Although project mitigation limits idling to 3 minutes per day per truck, this reduction in emissions has not been accounted for to provide a worst-case analysis.

The localized significance threshold analysis evaluated four conditions:

- Project Build Out (2020): this condition assumes that Phase 1 and Phase 2 of the project are fully built out in 2020 as a worst-case scenario.
- 2022, the year when the Project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur near the existing residences west of the project boundary along Merwin Street;
- 2025, the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the Project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase I operations would occur (approximately 57 percent of entire project floor space); and
- 2035 when Phase 1 and Phase 2 of the project are fully operational.

The Project Full Build Out 2020 scenario represents the existing plus project scenario assuming that the Project were to be built out and operational by 2020. This scenario does not include construction emissions as it is meant to show the operational impact the Project would have on the existing environment. This would be considered a worst case scenario since the project could not be physically built out in its entirety in a single year and does not reflect the fact that the project would be developed over a time period of 15 years depending on market demands for warehouse space. This assumption also does not account for the fact that emissions from mobile sources, prior to mitigation, particularly from heavy duty diesel trucks are expected to decline significantly over time as emissions control technologies continue to improve. This assessment also provided consistency with the TIA and noise reports which examines Project Build Out under existing conditions. The project impact results were added to the existing background concentrations and then compared to the localized threshold for the appropriate pollutant. Background concentration data was obtained from the SCAQMD's Rubidoux monitoring station for years 2016-2018, the most recent data available. Background concentrations of CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average. This analysis only considers the project's operational emissions and not construction emissions. The 2022, 2025,

and 2035 conditions represent the project development including the localized impacts during construction and operation over the time period of 2020 to 2035.

#### **4.3.3.4 Health Risk Assessment**

A Health Risk Assessment (HRA) is a guide that helps to determine whether current or future exposures to a chemical or substance in the environment could affect the health of a population. In general, risk depends on the following factors:

- How much of a chemical is present in an environmental medium (e.g., air);
- How much contact (exposure) a person has with the contaminated environmental medium; and
- The inherent toxicity of the chemical.

This HRA builds and expands upon the methodology described above in the localized air quality assessment by examining the regional effects of the project's potential health risk impacts. The HRA methodology applies a risk characterization model to the results from the air dispersion model to estimate potential health risks at each sensitive receptor location. However, unlike the localized assessment of the criteria pollutants (e.g., carbon monoxide, oxides of nitrogen, and particulate matter), which looks at impacts from exposure times of one hour to a year within a specific year, the HRA examines the impacts over an exposure time period from one hour to an extended exposure time period of many years.

#### Health Risk Impacts Assessed

The health risk assessment estimated the incremental health impacts attributable to the project's construction and operations for the following condition:

- Proposed Project Development condition which examines the effect of project-related construction and operational traffic emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the final full build out in 2035. This condition forms the basis for quantifying the incremental impacts from the project.

A multi-pollutant health risk assessment was conducted for the Proposed Project. The health risk assessment evaluated toxic emissions from a variety of sources. These included exhaust emissions of particulate matter (PM) and total organic gases (TOG) from diesel and gasoline combustion, as well as toxics associated with fugitive PM from tire wear and brake wear of mobile sources. Annual average emissions and impacts were calculated for each year starting from 2020 when construction of the Project would commence. Specifically, annual average concentrations of toxics were estimated from the construction emissions for each year of construction from 2020 to 2034 according to the construction schedule and equipment usage projected for each year of construction. Proposed Project Development examines project impacts resulting from the proposed construction and operation of the project from the commencement of construction in 2020 for a 30-year duration for sensitive/residential receptors, 25-year for worker receptors, and 9-year exposure time periods for school-site student receptors. Annual average emissions and impacts during operation were estimated for the Phase 1 build out year and the final full build out year, years for which detailed traffic information was available from the TIA. The annual average operational emissions were then scaled among operational years between 2021 and 2035 based on the Phase 1 build out year and final full build out year's emissions, using scaling factors that reflecting changes in EMFAC-based emission factors from 2025 or 2035 and the project occupancy schedule for each specific year. See Appendix A.1 for detail on the scaling factor development and how the in-between years' emissions were calculated.

The assessment of health impacts is a continuing evolution of science and regulation. Since December 2014, three major scientific and regulatory activities have come forward that will affect how such assessments are performed and what such impacts mean to society as described below.

On January 27, 2015, the HEI, a joint private-government partnership, released a major peer-reviewed scientific report entitled *Effects of Lifetime Exposure to Inhaled New-Technology Diesel Exhaust in Rats* (McDonald et al, 2015). This is the first study to conduct a comprehensive evaluation of lifetime inhalation exposure to emissions from heavy-duty 2007-compliant engines (referred to as “new technology diesel exhaust,” or NTDE). The study evaluated the long-term effects of multiple concentrations of inhaled NTDE, which has greatly reduced particle emissions compared with “traditional-technology diesel exhaust” (TDE) in male and female rats on more than 100 different biologic endpoints, including tumor development, and compared the results with biologic effects seen in earlier studies in rats after exposure to TDE. Lifetime inhalation exposure of rats exposed to one of three levels of NTDE from a 2007-compliant engine, for 16 hours per day, 5 days a week, with use of a strenuous operating cycle that more accurately reflected the real-world operation of a modern engine than cycles used in previous studies, did not induce tumors or pre-cancerous changes in the lung and did not increase tumors that were considered to be related to NTDE. The importance of this study is that diesel PM emissions from new technology diesel engines does not cause any increase in the risk of lung cancer or other significant adverse health effects in study animals that, in fact are more sensitive to toxics exposures than humans. While this study focused on heavy duty truck emissions, the new clean diesel technology has the potential for impacting all sectors, including passenger cars, agriculture, construction, maritime and transportation. Previous studies directed at studying the effects of diesel PM on health were based on exposure studies that date 15 to 20 years ago when diesel emissions were significantly higher than the NTDE. It is also important to highlight that the U.S. Environmental Protection Agency (EPA), the California Air Resources Board, the U.S. Department of Energy (DOE) and the U.S. Federal Highway Administration are sponsors and/or reviewers of this study in conjunction with the manufacturers of emissions control equipment.

On March 6, 2015, the OEHHA adopted a new guidance for estimating health risks from toxic air contaminants that incorporated the importance of early-in-life sensitivities of young children to exposures to toxics air contaminants and recommends a lifetime exposure duration of 30-years. Within the context of this assessment, this new assessment guidance is referred to as the “Current OEHHA Guidance”. The new guidance updates earlier guidance recommended by OEHHA and SCAQMD referred to in this assessment as the “Former OEHHA Guidance”, which was used in the 2015 Draft EIR. The “Former OEHHA Guidance” is based on a lifetime exposure of 70 years and does not incorporate early-in-life age sensitivity factors. The importance of the “Current OEHHA Guidance” is that the guidance produces much more conservative estimates of cancer risks from toxic air contaminant exposures than the “Former OEHHA Guidance.”

On December 22, 2017, the ARB released its update to the Emissions Factor Model, EMFAC2017, which is used to estimate emissions from motor vehicles in California. The EMFAC2017 model represents the ARB’s current understanding of motor vehicle technologies and regulatory implementation of rules aimed at reducing air emissions from motor vehicles. Based on the results of the EMFAC2017 model, heavy duty trucks have a higher PM deterioration and idling emission rate than previously estimated using the previous version of the EMFAC model, EMFAC2014. Since heavy duty trucks constitute nearly all of the project’s diesel PM emissions, the incorporation of the emission information from the EMFAC2017 model is important in estimating the amount of diesel PM and in assessing the project’s health risk impacts resulting from these emissions

The HRA has been conducted to allow decision makers to see the cancer-related impacts of the World Logistics Center project with the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study. The following information summarizes the main assumptions utilized in preparation of the HRA. For more detailed discussion of assumptions and methodology, refer to Appendix A.1.

*Traffic Volumes.* The HRA used the construction and operational emission values as described above in the air quality study. Note that with respect to the operational emissions, since the project may change the traffic distribution in the region, net trips and associated net emissions on each project-impacted roadway segment was calculated using the difference between the trip rates for the baseline year with-project scenario and without-project scenario. The TIA studied three with-project and without-

project scenarios, based on existing year, interim year (Phase 1 buildout), and horizon year (full project buildout); the HRA analysis is based on the existing year traffic scenario because it has the highest certainty with regard to pre-project conditions than the interim year and horizon year traffic scenarios (i.e., the pre-project traffic conditions for those future year traffic scenarios are speculative in nature). To be conservative, for segments that have net negative trips (i.e., where the project causes reduction in trip rates on some roadway segments due to traffic redistribution in the region), the HRA used a zero emission value instead of taking credit for the trip rate reductions.

*Vehicle Speeds.* In calculating the operational traffic emissions, the VMT per speed was based on daily speed data provided by the traffic consultant (WSP). Speed data accounts for variations in speed attributable to slow downs occurring during peak hours.

*Organic Gas Emissions.* The assessment of acute non-cancer hazards examined the impacts of the toxic components of the project's organic gas and PM emissions from construction equipment during project construction, and total organic gas and PM emissions from gasoline and diesel vehicles during project operation.

*Calculated Cancer Population Burden.* The health risk assessment included the computation of cancer population burden attributed to the project's diesel PM emissions.

*Maximum Exposure Duration for Sensitive/Residential Receptors.* The HRA used the SCAQMD recommended intake rate percentiles - RMP using the Derived Method, which applies to multi-pathway risk assessments in which two dominant exposure pathways use the high-end point-estimates of exposure. Furthermore, since cancer risk calculation is based on 30-year exposure duration, the HRA assumed exposure starts at the beginning of construction (Construction + Operation HRA). The revised HRA also analyzed the 30-year exposure scenario that assumed exposure starts at the beginning of full project operation (Operational HRA). The Operational HRA assumed that a receptor starts exposure at the beginning of the full project operational year of 2035 and exposure lasts for 30 years until 2064. The Operational HRA also conservatively used the 2035 emission rate for each of the 30 years of exposure.

*Maximum Exposure Duration for Worker Receptors.* The cancer risk impacts are presented in accordance with "Current OEHHA Guidance", which assumes an exposure duration of 25 years for worker receptors, which is based on labor statistics showing 95 percent of workers stay in the same job for 25 years or less.

*School Receptors.* The assessment of cancer risks at local school receptors was included based on "Current OEHHA Guidance".

The HRA methodology applied a risk characterization model to the results from an air dispersion model to estimate potential health risks at each sensitive receptor location. Because of the pervasive nature of diesel particulate matter (diesel PM) in contributing to estimated health risks in California, the focus of this assessment was on estimating the health risks from diesel PM. While the project activities may result in the emission of other TACs (e.g., Total Organic Gases (TOG) from diesel and gasoline-powered vehicles), diesel PM from the project was found to contribute approximately 98 percent of the total cancer risk from project operations (see the *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, Appendix A.1 of the Draft Recirculated Revised Sections of the FEIR). Reactive Organic Gases (ROG) and PM exhaust, brake wear and tire wear emissions from construction equipment and TOG and PM emissions from diesel and gasoline vehicles of project operation were, however, included in the assessment of acute non-cancer hazards.

The health risk calculation methodology in this HRA is consistent with *SCAQMD Health Risk Assessment Guidance* (SCAQMD, 2016) and the "Current OEHHA Guidance" set forth in the 2015 OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. The estimation of cancer risk involves the specification of several parameters including the concentration level of the toxic air contaminant, the rate of inhalation of the toxic, the exposure frequency (number of days per year), the exposure duration in years, the time period over which the

exposure takes place, what is termed a slope factor that represents an upper bound on the increased cancer risk from a lifetime exposure to a toxic by ingestion or inhalation and early-in-life age sensitivity factors. The values of these parameters depend on the type of receptor, i.e., sensitive/residential, worker, and student as discussed below.

*Cancer Risk Exposure Assumptions.* The principal focus of this HRA was on the potential health impacts to sensitive/residential receptors located within and surrounding the project site. Sensitive receptors include hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Residences are also considered sensitive receptors. An important parameter necessary to estimate cancer risk is the duration of exposure of an individual to toxic air contaminants. An assessment of population mobility can assist in determining the length of time a residential receptor is exposed in a particular location. For example, the duration of exposure to a source of toxic air contaminants will be directly related to the period of time residents live near the source of the emissions.

Table 4.3-5 summarizes the primary exposure assumptions used in this HRA to calculate individual cancer risk by receptor type, which is based on the SCAQMD HRA Guidance and the “Current OEHHA Guidance.”

**Table 4.3-5: Exposure Assumptions for Cancer Risk**

Type of Guidance	Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate (L/kg-day)
		Hours/day	Days/year				
Current OEHHA Guidance	Sensitive/Residential:						
	3rd Trimester	24	350	0.25	10	100	361
	0–2 years	24	350	2	10	100	1,090
	2–16 years	24	350	14	3	100	572
	Older than 16 years	24	350	13.75	1	73	261
	Student	8	180	9	3	NA	631
	Worker	8	250	25	1	NA	230

Time at home factor is 1 if there is a school receptor within the 1 in a million (or greater) cancer risk isopleth, which was the case for this project’s unmitigated scenario for the Construction + Operation HRA.  
 (L/kg-day) = liters per kilogram body weight per day; NA = not applicable.  
 The daily breathing rates shown are RMP using the Derived Method for residential as recommended by the SCAQMD and the 95th percentile rate for other receptors as recommended by the OEHHA.  
 Source: OEHHA, 2015; SCAQMD, 2016.

The underlying factors used in the analysis exemplify the conservative nature of utilizing the exposure scenarios and the underlying assumptions:

- The residential cancer risk calculation assumed that each resident will be exposed for 24 hours a day for 350 days a year at the location of his or her home throughout the entire 30-year residential exposure period.
- The worker and student cancer risk calculations assumed that workers or students are exposed to diesel PM for 8 hours a day, next to, but outside of the buildings in which they work or study.
- The atmospheric dispersion model and traffic model that were used to estimate risks generally provide impact estimates that are over-estimated based on the use of conservative model assumptions.

*Other Factors that Influence Health Risk Estimates: Conservative Trip Estimates.* It should also be noted that the TIA used a conservative estimate of the number of truck trips after the project begins operation. The number of truck trips is important because diesel PM emissions are directly related to both the number of trucks and the vehicle miles traveled. As mentioned above, the TIA in the Revised Sections of the FEIR uses the traffic generation rate for high-cube warehouses from the 10<sup>th</sup> edition of the Institute of Traffic Engineers’ (ITE) Trip Generation Manual which is based on the *High-Cube*

*Warehouse Vehicle Trip Generation Analysis* prepared jointly by SCAQMD and National Association of Industrial and Office Properties (NAOIP).

**Cancer Burden.** Whereas cancer risk represents the probability that an individual will develop cancer, cancer burden multiplies the cancer risk by the exposed population to estimate the number of individuals that would be expected to contract cancer from the project. The exposed population is defined as the number of persons within a facility's zone of impact, which is typically the area exposed to an incremental cancer risk of one in a million from the project. Consistent with this definition, cancer burden was calculated by first identifying all population census tracts<sup>7</sup> located within the project's zone of impact, multiplying the estimated incremental project cancer risk impact in the census tract by the population of the census tract and then summing all of products of population times estimated cancer risk in the zone of impact. Note that each census tract contributes to the cancer burden in proportion to its population and risk. For example, if a census tract has a relatively high estimated cancer risk, but no people living there, it will not contribute to the estimation of the cancer burden. In accordance with "Current OEHHA Guidance", the cancer burden was calculated assuming a 30-year exposure duration along with the appropriate exposure frequency, daily breathing rates, age sensitivity factors, and time at home factors appropriate to each age group (OEHHA, 2015). A cancer burden greater than 0.5 is considered a significant cancer burden.

**Non-cancer Hazards.** Separate from cancer risk impacts, exposures to TACs such as diesel PM can also cause chronic (long-term) and acute (short-term) related non-cancer illnesses such as reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system, birth defects, or other adverse environmental effects. Risk characterization for non-cancer health risks from TACs is expressed as a HI. The HI is a ratio of the predicted concentration of a project's emissions to a concentration considered acceptable to public health professionals, termed the Reference Exposure Level (REL). This is a separate and distinct analysis from the analysis conducted for cancer risk. A significant risk is defined by the SCAQMD as an HI of 1 or greater. For example, the California OEHHA has assigned a chronic non-cancer REL of 5  $\mu\text{g}/\text{m}^3$  for diesel PM (OEHHA, 2015). Diesel PM has effects on the respiratory system, which accounts for essentially all of its potential chronic non-cancer hazards.

Exposures to TACs can also have short-term or acute non-cancer effects, typically dealing with exposures over an hour or so. OEHHA has not defined a REL for diesel PM appropriate for estimating acute non-cancer hazards from diesel PM. Therefore, to estimate the potential acute non-cancer impacts from the project, it was necessary to examine the various individual chemical components (or chemical species) that comprise the emissions from both diesel vehicles and gasoline vehicles. For this purpose, use was made of emission source profiles that provide estimates of the various chemical components that comprise the exhaust from diesel and gasoline vehicles. From this information, an estimate was made of the maximum one-hour average concentration levels of the project's various chemical species from which an acute non-cancer HI can be determined.

**Geographic Scope of the Health Risk Assessment.** The HRA is characterized by two important differences from the localized significance threshold assessment for criteria pollutants. According to the SCAQMD localized significance threshold assessment methodology, the assessment of localized impacts addresses only those emissions that are generated "onsite", that is for the purposes of this project, emissions generated from within or along the boundaries of the Specific Plan. However, for the HRA, both the universe of the project's emission sources and air dispersion model receptors were expanded to assess the off-site impact of the project's emissions of toxics. Besides onsite emission sources and receptors, the HRA included a receptor grid that extends up to 5 kilometers (km) from the project boundary and the roadway network that extends 10 km from the project boundary (e.g.,

---

<sup>7</sup> A census tract is a geographic region defined for the purpose of taking a census. Usually these regions coincide with the limits of cities, towns, or other administrative areas. Each tract has a unique numeric code and averages about 4,000 inhabitants. The census tract centroid is the geographic center of the tract based on a weighted distribution of the population within the tract using the census blocks that comprise the tract. A census block is the smallest geographic unit used to tabulate population and each tract can be comprised of several blocks.

including 18 miles on SR-60. This study area reasonably captured the most extensive emissions from project-generated vehicles on the roadway network, since all trips to and from the project would travel on the roadway segments and freeway segments (SR-60) nearest the project site regardless of origin or destination. Since project activity is highest onsite, the project's emissions and associated health impact decreases with distance from the project site. Thus, the selected study area was capable of capturing the project's maximum impact. If the maximum risk from the study area is less than significant, project health risk impacts will be less than significant for receptors further away.

The generation of emissions from traffic traveling along the various arterial and freeway mainline roadway segments requires information on traffic volumes, length of segment, and emission factors. The emission factors, in turn, depend on vehicle type, speed, calendar year, and fuel type. Estimates of peak hour vehicle volumes and types (passenger cars, light heavy duty trucks, medium heavy duty trucks, and heavy-heavy duty trucks) were provided by the traffic consultant for each roadway segment analyzed. The TIA also provided daily vehicle volumes for freeway segments, but not for non-freeway segments. For use in the cancer risk and chronic non-cancer hazard calculations, the daily vehicle volumes for non-freeway segments were assumed to be 10 times that of the peak hour vehicle volumes. The physical length and width of each roadway segment were estimated using the segment location as provided by the traffic consultant and aerial photographs available from Google Earth. Vehicle speeds for each roadway segment and vehicle type were based on the speed groups provided by the traffic consultant.

The health risk analysis examined the following condition:

- Project Development condition which examined the effect of project-related construction and operational traffic diesel and gasoline emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the final full build out in 2035.<sup>8</sup> This condition forms the basis for quantifying the incremental impacts from the project.

Although diesel PM contributes the most to cancer risk, a multipollutant health risk assessment was performed. The analysis also included health risk impacts from the emissions of diesel reactive organic gases (ROG), gasoline PM, gasoline ROG exhaust, gasoline ROG evaporative sources, and PM from break wear and tire wear from all vehicles. The toxic compounds from each of these emission categories was determined from CARB speciation profiles.<sup>9</sup>

Annual average emissions and impacts were calculated for each year starting from 2020 based on the assumption that diesel exhaust and other TACs can cause cancer. Specifically, annual average concentrations were estimated from the construction emissions for each year of construction from 2020 to 2034 according to the construction schedule and equipment usage projected for each year of construction. Project Development examines project impacts resulting from the proposed construction and operation of the project from the commencement of construction in 2020 for a 30-year duration for sensitive/residential receptors, 25-year for worker receptors, and 9-year exposure time periods for school-site student receptors. Annual average emissions and impacts during operation were estimated for the Phase 1 build out year and the final full build out year, years for which detailed traffic information was available from the TIA. The annual average operational health risk impacts were then calculated using interpolated emission factors and net effect on VMT for years 2021 through 2024 and 2026 through 2034 based on data for years 2025 and 2035.

During years when both construction and operations occur simultaneously (2021 to 2034), the annual concentrations at the sensitive receptors from construction were added to the annual concentrations from operations to provide a total impact assessment of all TAC emissions from the project during each

---

<sup>8</sup> The year 2035 is the year the conservative construction schedule assumes full completion of project construction. However, detailed traffic volumes were provided by the project traffic consultant for the long-term planning year 2040. The use of a 2035 buildout year in the air quality analysis provides a worst-case analysis due to the use of higher vehicle emission factors.

<sup>9</sup> <https://ww3.arb.ca.gov/ei/speciate/speciate.htm>

year. The resulting total annual average concentrations calculated each year for the exposure time period (individual annual averages) multiplied by the requisite daily breathing rates, age sensitivity factors, and time-at-home factors for each year of exposure. The HRA assumed that a fetus in the 3rd trimester (within the mother's womb) commences its lifetime exposure with exposure starting in year 2020 (construction start year) for construction- only emissions, years 2021 through 2034 for construction + operations, and in year 2035 for full operations. The HRA is being provided to allow decision makers to see the cancer-related impacts of the World Logistics Center project in the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study. The mitigation conditions require that all diesel trucks accessing the project during operation be model year 2010 or newer and that all on-site equipment be Tier 4.

#### **4.3.3.5 Additional Information Regarding Health Effects of Air Quality Emissions**

In response to the December 2018 decision by the California Supreme Court in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 ("Friant Ranch"), this Draft Recirculated Revised Sections of the FEIR includes an analysis to estimate the potential health effects from criteria air pollutants emissions and their precursors. As explained in Section 4.3.6.1 and in Appendix A.2, these results involve a degree of uncertainty based on a combination of the uncertainty associated with the emissions quantification, the change in concentration resulting from the photochemical grid model (PGM) and the application of concentration-response (C-R) functions, as obtained from epidemiological studies, among other factors. Nonetheless, these results provide information sufficient to be included in this CEQA document and to be reviewed by the public and the decision-makers in their consideration of air quality.

Project emissions evaluated include NO<sub>x</sub>, SO<sub>2</sub>, CO, respirable (PM<sub>10</sub>) and fine (PM<sub>2.5</sub>) primary particulate matter (PM), and VOCs. NO<sub>x</sub> and VOCs [also known as reactive organic gases, or ROG, which are virtually the same as VOC with some slight differences]<sup>10</sup> are not criteria air pollutants but, in the presence of sunlight, they form ozone and contribute to the formation of secondary PM<sub>2.5</sub> and thus are analyzed here. As a conservative measure, SO<sub>2</sub> and CO are evaluated due to their small contribution to the formation of secondary PM<sub>2.5</sub> and ozone. The health effects from ozone and PM<sub>2.5</sub> are examined for this Project because the USEPA has determined that these criteria pollutants would have the greatest effect on human health. The emissions of other criteria and precursor pollutants, including VOC, NO<sub>x</sub>, CO and SO<sub>2</sub>, are analyzed in their contribution in the formation of ozone and secondary PM<sub>2.5</sub>. USEPA's default health effect functions for PM use fine particulate matter (PM<sub>2.5</sub>) as the causal PM agent, so the health effects of PM<sub>10</sub> are represented using PM<sub>2.5</sub> as a surrogate.

The USEPA's air quality modeling guidelines (Appendix W<sup>11</sup>) and ozone and PM<sub>2.5</sub> modeling guidance<sup>12</sup> recommend using a PGM to estimate ozone and secondary PM<sub>2.5</sub> concentrations. The USEPA's modeling guidance does not recommend specific PGMs but provides procedures for determining an appropriate PGM on a case-by-case basis. Both the modeling guidelines and guidance note that the Comprehensive Air Quality Model with extensions (CAMx)<sup>13</sup> and the Community Multiscale Air Quality (CMAQ<sup>14</sup>) PGMs have been used extensively in the past and would be acceptable PGMs. As such, the USEPA has prepared a memorandum<sup>15</sup> documenting the suitability for using CAMx and CMAQ for ozone and secondary PM<sub>2.5</sub> modeling of single-sources or group of sources.

---

<sup>10</sup> Reactive organic gas (ROG) emissions are quantified and modeled as VOCs in this assessment. ROG means total organic gases minus the California Air Resources Board's (ARB's) "exempt" compounds (e.g., methane, ethane, CFCs, etc.). ROG is similar, but not identical, to USEPA's term "VOC", which is based on USEPA's exempt list, which is slightly different from ARB's list.

<sup>11</sup> [https://www3.epa.gov/ttn/scram/appendix\\_w/2016/AppendixW\\_2017.pdf](https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf).

<sup>12</sup> [https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling\\_Guidance-2018.pdf](https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf).

<sup>13</sup> <http://www.camx.com/>.

<sup>14</sup> <https://www.epa.gov/cmaq>.

<sup>15</sup> [https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical\\_Grid\\_Model\\_Clarification\\_Memo.pdf](https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical_Grid_Model_Clarification_Memo.pdf).

To estimate the potential outcome of the Project's emissions on ambient air concentrations, the Project's unmitigated and mitigated emissions were added to the CAMx 4-km annual PGM modeling database.<sup>16</sup> For this analysis, both unmitigated and mitigated Project emissions were evaluated. In both cases, total emissions modeled reflect the maximum combined (operational + construction) emissions by pollutant. These maxima may occur in different years for different pollutants, though each pollutant's maximum year is conservatively analyzed collectively in a single year assessment. Full operational emissions (at Project buildout) were modeled for all pollutants, and the balance of emissions were allocated to construction sources, with the distribution of emissions types representative of the maximum construction years. This allows for analysis of the worst-case emissions scenario over a single construction or operational year. Full operational emissions (at Project buildout) are expected to have the greatest contribution to health effects due to the proximity of the mobile source emissions to dense population centers, and thus were modeled in full. Additional construction emissions were evaluated to conservatively represent a potential year where construction and operation may coincide, though in reality the situation of full operations plus construction is hypothetical, and conservative for the purposes of this analysis.

For use in PGMs, each Project emissions source must be spatially distributed across the modeling grid cells so that they can be incorporated into the gridded emission inventory. Operational emissions include area sources (architectural coatings, VOCs in consumer products, and landscaping equipment), emergency generators, off-road equipment, and emissions associated with motor vehicle use. Construction emissions include off-road equipment, paving, architectural coatings, fugitive dust, and emissions associated with hauling, vendor, and worker activity. Operational area sources and off-road equipment emissions were evenly distributed within the Project site. Emergency generator emissions were evenly distributed across all emergency generator point source locations. The operational mobile source category includes both passenger vehicles and trucks. The operational mobile sources are also spatially distributed in both the site's grid cells, as well as the grid cells for the local and regional roadways with Project travel. Non-road construction emissions (off-road equipment, paving, architectural coating, and fugitive dust) were allocated to specific plots within the Project area. On-road mobile construction emissions were spatially distributed to the Project site and nearby roadways. Annual emission estimates from the Project were spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modeling using the Sparse Matrix Operator Kerner Emissions (SMOKE) emissions modelling system supported by the USEPA. The emissions inventories, spatial allocation, and SMOKE inputs and outputs are shown in Appendix A.2 of this Draft Recirculated RSFEIR.

The SCAQMD's Southern California 2016 Air Quality Management Plan (AQMP)<sup>17</sup> modeling database was used for this Project. The Southern California 4-km CAMx modeling database is based on a 2012 base meteorological year and includes future year emission scenarios. The 2031 future year projections were used for this analysis, as that is the nearest future year to full operational buildout with base emissions available as of the date of this report. The Project's emissions were tagged for treatment by the source apportionment tools in CAMx to obtain the incremental ozone and PM<sub>2.5</sub> concentration changes due to the Project's emissions. More details and inputs for the PGM modeling are included in Appendix A.2 of this Draft Recirculated RSFEIR.

Following completion of the CAMx source apportionment modeling, Ramboll used the USEPA's Benefits Mapping and Analysis Program (BenMAP)<sup>18, 19</sup> to estimate the potential health effects of the

---

<sup>16</sup> SCAQMD performed Weather Research and Forecasting (WRF) meteorological modeling for the 4-km domain and 2012 calendar year that has been processed by WRF-CAMx to generate CAMx 2012 4-km meteorological inputs for the domain. The CMAQ 2012 emissions have been converted to the format used by CAMx using the CMAQ2CAMx processor.

<sup>17</sup> <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>.

<sup>18</sup> <https://www.epa.gov/benmap/how-benmap-ce-estimates-health-and-economic-effects-air-pollution>.

<sup>19</sup> [https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce\\_user\\_manual\\_march\\_2015.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf).

Project's contribution to ozone and PM<sub>2.5</sub> concentration. BenMAP uses the concentration estimates produced by CAMx, along with population and health effect concentration-response (C-R) functions, to estimate various health effects of the concentration increases. BenMAP has a wide history of applications by the USEPA and others, including for local-scale analysis<sup>20</sup> as needed for assessing the health effects of a project's emissions. The USEPA default BenMAP health effects C-R functions that are typically used in national rulemaking, such as the health effects assessment<sup>21</sup> for the 2012 PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS), were used in this assessment. The health effects that we used for PM<sub>2.5</sub> include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory) and hospital admissions (respiratory). Details on the BenMAP inputs and outputs and definitions for the health effects are shown in Appendix A.2 of this Draft Recirculated RSFEIR.

### 4.3.4 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, air quality impacts would occur if the World Logistics Center project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); and/or
- Expose sensitive receptors to substantial pollutant concentrations.

In addition to the Federal and State AAQS, there are daily emissions thresholds for construction and operation of a project in the Basin. The Basin is administered by the SCAQMD, and guidelines and emissions thresholds established by the SCAQMD in its *CEQA Air Quality Handbook* (SCAQMD, 1993) and subsequent additions to the Handbook were used in this analysis. It should be noted that the emissions thresholds were established based on the attainment status of the air basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution related to air quality and health risks.

#### 4.3.4.1 Thresholds for Construction Emissions

The following CEQA significance thresholds for regional construction emissions have been established by the SCAQMD for the Basin:

- 75 pounds per day of VOC, also known as reactive organic compounds (ROC).
- 100 pounds per day of NO<sub>x</sub>.
- 550 pounds per day of CO.
- 150 pounds per day of PM<sub>10</sub>.
- 150 pounds per day of SO<sub>x</sub>.
- 55 pounds per day of PM<sub>2.5</sub>.

---

<sup>20</sup> <https://www.epa.gov/benmap/benmap-ce-applications-articles-and-presentations#local>.

<sup>21</sup> [https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM\\_RA\\_FINAL\\_June\\_2010.pdf](https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf).

Projects in the Basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under CEQA.

### 4.3.4.2 Thresholds for Operational Emissions

Projects with regional operation-related emissions that exceed any of the regional emission thresholds listed below are considered significant under the SCAQMD guidelines.

- 55 pounds per day of VOC, also known as ROC.
- 55 pounds per day of NO<sub>x</sub>.
- 550 pounds per day of CO.
- 150 pounds per day of PM<sub>10</sub>.
- 150 pounds per day of SO<sub>x</sub>.
- 55 pounds per day of PM<sub>2.5</sub>.

### 4.3.4.3 Air Pollutant Standards for CO with Localized Effects

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards (previously referenced Table 4.3-1). If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase one-hour CO concentrations by 1.0 ppm or more or eight-hour CO concentrations by 0.45 ppm or more. The Basin meets State and Federal attainment standards for CO; therefore, the project would have a significant CO impact if project emissions result in an exceedance of State or Federal one-hour or eight-hour standard. The following emission concentration standards for CO, based on the SCAQMD *CEQA Air Quality Handbook* (1993), apply to the project:

- California State one-hour CO standard of 20.0 ppm.
- California State eight-hour CO standard of 9.0 ppm.

### 4.3.4.4 Localized Significance Thresholds

The SCAQMD published its Final Localized Significance Threshold Methodology in June 2003 (SCAQMD, 2003), revised July 2008 and Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM<sub>2.5</sub> Significance Thresholds (SCAQMD, 2006), recommending that all air quality analyses include a localized assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. LSTs represent the maximum emissions from a project site that are not expected to result in an exceedance of Federal or State AAQS. LSTs are based on the ambient concentrations of that pollutant within the Source Receptor Area (SRA) where a project is located and the distance to the nearest sensitive receptor. The project site is located in the northern portions of SRAs 24 (Moreno Valley) and 28 (San Jacinto).

In the case of CO and NO<sub>2</sub>, if ambient levels are below the air standards for these pollutants, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM<sub>10</sub> and PM<sub>2.5</sub>, both of which are nonattainment pollutants in the Basin. For these latter two pollutants, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403 and 1301. The Rule 403 threshold of 10.4 µg/m<sup>3</sup> applies to construction emissions (and may apply to operational emissions at aggregate handling facilities). The Rule 1301 threshold of 2.5 µg/m<sup>3</sup> applies to non-aggregate handling operational activities.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. There are currently six occupied single-family homes and associated ranch/farm buildings in various locations on the World Logistics Center project site. These residences are existing on-site sensitive receptors. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, and west of Redlands Boulevard, and scattered residences along Gilman Springs Road.

Following the SCAQMD LST methodology, for sites larger than 5 acres, air dispersion modeling needs to be conducted. Because the project site greatly exceeds 5 acres, the localized significance for project air pollutant emissions was determined by performing dispersion modeling to determine if the pollutant concentrations would exceed relevant significance thresholds established by the SCAQMD.

The following LSTs were applied to the construction and operation of the project:

- 0.18 ppm (State 1-hour); 0.100 ppm (Federal 1-hour); and 0.03 ppm (Annual) of NO<sub>2</sub> for construction or operations.
- 20 ppm (1-hour) and 9.0 ppm (8-hour) of CO for construction or operation.
- 10.4 µg/m<sup>3</sup> (24-hour) and 1 µg/m<sup>3</sup> of PM<sub>10</sub> (Annual) for construction.
- 2.5 µg/m<sup>3</sup> (24-hour) and 1.0 ppm (Annual) of PM<sub>10</sub> for operations.
- 10.4 µg/m<sup>3</sup> (24-hour) of PM<sub>2.5</sub> for construction.
- 2.5 µg/m<sup>3</sup> (24-hour) of PM<sub>2.5</sub> for operation.

Note that when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operation apply in determining emission significance

#### **4.3.4.5 Health Risk Significance Thresholds**

For pollutants without defined significance standards or air contaminants not covered by the standard criteria cited above, the definition of substantial pollutant concentrations varies. For toxic air contaminants (TAC), “substantial” is taken to mean that the individual cancer risk exceeds a threshold considered to be a prudent risk management level.

The SCAQMD has defined several health risk significance thresholds that it recommends to Lead Agencies in assessing a project’s health risk impacts. The City of Moreno Valley has not adopted its own set of thresholds. Therefore, the following SCAQMD thresholds were adopted for the project.

- **Maximum Individual Cancer Risk (MICR) and Cancer Burden.** MICR is the estimated increase in lifetime probability of the maximally exposed individual contracting cancer as a result of exposure to TACs over the applicable exposure period. Cancer burden multiplies the cancer risk by the exposed population to estimate the number of individuals that would be expected to contract cancer from the project.

A significant impact would occur for:

- (A) An increased MICR greater than 10 in 1 million at any receptor location; or
  - (B) A cancer burden greater than 0.5
- **Chronic Hazard Index (HI).** This is the ratio of the estimated long-term level of exposure to a TAC for a potential maximally exposed individual to its chronic reference exposure level. A reference exposure level is the exposure level below which an adverse health effect will not occur as determined by health professionals. The chronic HI calculations include multi-pathway consideration, when applicable.

A significant impact would occur if the increase in total chronic HI for any target organ system due to exposure to total TAC emissions from the project exceeds 1.0 at any receptor location.

- **Acute Hazard Index (HI).** This is the ratio of the estimated maximum one-hour concentration of a TAC for a potential maximally exposed individual to its acute reference exposure level, the exposure level below which an adverse health effect will not occur as determined by health professionals (see Section 4.3.2.3).

A significant impact would occur if the increase in total acute HI for any target organ system due to exposure to total TAC emissions from the project exceeds 1.0 at any receptor location.

### **4.3.5 Less than Significant Impacts**

The following impact was determined to be less than significant (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

#### **4.3.5.2 Long-Term Microscale (CO Hot Spot) Emissions**

**Impact 4.3.5.2:** *The World Logistics Center project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation for CO.*

<b>Threshold</b>	Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?  For CO, the applicable thresholds are: <ul style="list-style-type: none"><li>• California State one-hour CO standard of 20.0 ppm; and</li><li>• California State eight-hour CO standard of 9.0 ppm.</li></ul>
------------------	---

Vehicular trips associated with the development of the World Logistics Center project could contribute to congestion at intersections and along roadway segments in the project vicinity resulting in potential local CO “hot spot” impacts. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle travel speeds and idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, schoolchildren, etc.). High CO concentrations are typically associated with roadways or intersections operating at unacceptable levels of service or with very high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project’s effect on local CO levels.

Carbon monoxide (CO) “hot spot” thresholds ensure that emissions of CO associated with traffic impacts from a project in combination with CO emissions from existing and forecast regional traffic do not exceed State or Federal standards for CO at any traffic intersection affected by the project. Project concentrations may be considered significant if a CO hot spot intersection analysis determines that project-generated CO concentrations cause a localized violation of the State CO 1-hour standard of 20 ppm, State CO 8-hour standard of 9 ppm, Federal CO 1-hour standard of 35 ppm, or Federal CO 8-hour standard of 9 ppm.

A CO hot spot is a localized concentration of CO that is above the State or Federal 1-hour or 8-hour CO ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at project-impacted intersections where the concentrations would be the greatest.

This analysis follows guidelines recommended by the CO Protocol (University of California, Davis, 1997) and the SCAQMD. According to the CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis. The LOS for intersections is determined in the TIA (refer to Section 4.15 of this Revised FEIR, Traffic and Circulation). The SCAQMD recommends that a local CO hot spot analysis be conducted if the intersection meets one of the following criteria: (1) the intersection is at LOS D or worse and where the project increases the volume to capacity ratio by 2 percent, or (2) the project decreases LOS at an intersection from C to D. A decrease in LOS, i.e., from C to D, means that there is more traffic and more delay at the intersection.

For this project analysis, the intersections with the highest traffic volumes and the LOS E or F before mitigation were identified for 2025 using information from the table in the TIA “Intersection LOS under 2025 Plus Phase 1 Conditions.” The intersections with the greatest LOS before mitigation were also identified for buildout using information from the table in the TIA “Intersection LOS under 2040 Plus Build-out Conditions.”

The CO concentrations were estimated using the CALINE4 model using 2025 and 2035 emission factors. The emission factors are for “all” vehicle classes and are not adjusted for a project-specific fleet to provide a worst-case scenario. In addition, the emission factors do not take into account the project mitigation reductions from requiring that all diesel trucks are model year 2010 or newer.

Table 4.3-6 shows estimated CO concentrations at year 2025 plus project traffic conditions. The estimated CO concentrations at buildout are shown in Table 4.3-7. As shown in the tables, the estimated 1-hour and 8-hour average CO concentrations from project-generated and cumulative traffic plus the background concentrations are below the State and Federal standards. No CO hot spots are anticipated because of traffic-generated emissions by the project in combination with other anticipated development in the area. Therefore, the mobile emissions of CO from the project are not anticipated to contribute substantially to an existing or projected air quality violation of CO. Therefore, according to this criterion, air pollutant emissions during operation would result in a less than significant impact. No mitigation is required.

**Table 4.3-6: Carbon Monoxide Concentrations at Intersections, 2025**

Intersection	Peak Hour	CO Concentration (ppm)		Significant Impact?
		1 Hour	8 Hour	
Alessandro Boulevard and Chicago Avenue	PM	2.0	1.3	No
Alessandro Boulevard and Canyon Crest Drive	PM	1.6	1.1	No
Alessandro Boulevard and Mission Grove Parkway	PM	1.4	0.9	No
Arlington Avenue and Victoria Avenue	PM	1.1	0.7	No
Alessandro Boulevard and Sycamore Canyon Boulevard	AM	1.1	0.7	No

Notes:

- A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

ppm = parts per million

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 4.3-7: Carbon Monoxide Concentrations at Intersections, 2035**

Intersection	Peak Hour	CO Concentration (ppm)		Significant Impact?
		1 Hour	8 Hour	
Alessandro Boulevard and Chicago Avenue	PM	1.9	1.3	No
Alessandro Boulevard and Canyon Crest Drive	PM	1.8	1.2	No
Alessandro Boulevard and Sycamore Canyon Boulevard	PM	1.6	1.1	No
Ramona Expressway and Sanderson Avenue	PM	2.2	1.5	No
Alessandro Boulevard and Mission Grove Parkway	PM	1.5	1.0	No

Notes:

- A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

ppm = parts per million

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

### 4.3.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

#### 4.3.6.1 Air Quality Plan Management Plan Consistency

**Impact 4.3.6.1:** *Implementation of the World Logistics Center project has the potential to conflict with implementation of the SCAQMD 2012 AQMP.*

Threshold	Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?
-----------	---

According to the 1993 SCAQMD Handbook, there are two key indicators of consistency with the Air Quality Management Plan (AQMP):

1. Indicator: Whether the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
2. Indicator: A project would conflict with the AQMP if it would exceed the assumptions in the AQMP in 2012 or increments based on the year of project buildout and phase. The Handbook indicates that key assumptions to use in this analysis are population number and location and a regional housing needs assessment. The parcel-based land use and growth assumptions and inputs used in the Regional Transportation Model run by the Southern California Association of Governments that generated the mobile inventory used by the SCAQMD for AQMP are not available and assumed not to include the project; therefore, the SCAQMD's significance thresholds are used to determine if the project exceeds the assumptions in the AQMP.

Considering the recommended criteria in the SCAQMD's 1993 Handbook, this analysis utilizes the following criteria to address this potential impact:

- Project's contribution to air quality violations (SCAQMD's first indicator, 1 as listed above);
- Assumptions in AQMP (SCAQMD's second indicator, 2, as listed above); and
- Compliance with applicable emission control measures in the AQMPs.

**Project's Contribution to Air Quality Violations and Assumptions in AQMP.** According to the SCAQMD, the project is consistent with the AQMP if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay

timely attainment of air quality standards or the interim emission reductions specified in the AQMP (SCAQMD, 1993, page 12-3). As shown in analyses in Impacts 4.3.6.2, 4.3.6.3, and 4.3.6.4, the project could violate an air quality standard and therefore could contribute substantially to an existing or projected air quality violation.

If a project's emissions exceed the SCAQMD regional thresholds for NO<sub>x</sub>, VOC, PM<sub>10</sub>, or PM<sub>2.5</sub>, it follows that the emissions could cumulatively contribute to an exceedance of a pollutant for which the Basin is in nonattainment (ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>) at a monitoring station in the Basin. The thresholds are criteria for determining environmental significance and are discussed in the SCAQMD's 1993 Handbook for Air Quality Analysis. An exceedance of a nonattainment pollutant at a monitoring station would not be consistent with the goals of the AQMP—to achieve attainment of pollutants. As discussed in the analyses below (Impact 4.3.6.2, Construction Emissions, and Impact 4.3.6.4, Long-Term Operational Emissions), the project would exceed the regional emission significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and/or PM<sub>2.5</sub> prior to the application of mitigation. This means that project emissions could combine with other sources and could result in an ozone, PM<sub>10</sub>, or PM<sub>2.5</sub> exceedance at a nearby monitoring station. The Basin in which the project is located is in nonattainment for these pollutants; therefore, according to this criterion, the project would not be consistent with the AQMP. The regional emissions assume a zero baseline for existing emissions on the project site and therefore assumes that the AQMP had no emissions for the project site. The regional significance thresholds can be interpreted to mean that if project emissions exceed the thresholds, then the project would also not be consistent with the assumptions in the AQMP. Therefore, based on this criterion, the project could contribute to air quality violations and would not be consistent with the AQMP.

**Compliance with Emission Control Measures.** The second indicator of whether the project could conflict with or obstruct implementation of the AQMP is by assessing the project's compliance with the control measures in the AQMPs and the State Implementation Plan (SIP).

**2012 AQMP.** The project would comply with all applicable rules and regulations enacted as part of the AQMP. In addition, the AQMP relies upon the SCAG regional transportation strategy, which is in its adopted 2012–2035 RTP/SCS and 2011 FTIP. Included in the RTP/SCS are transportation control measures including active transportation (non-motorized transportation, e.g., biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground access; highways; arterials; and operations and maintenance.

**2016 AQMP.** As stated previously, the SCAQMD recently approved on March 3, 2017 the Final 2016 AQMP. Currently, the 2016 AQMP is being reviewed by the U.S. EPA and CARB. Until the approval of the EPA and CARB, the current regional air quality plan is the Final 2012 AQMP adopted by the SCAQMD on December 7, 2012. Therefore, consistency analysis with the 2016 AQMP has not been included. Nonetheless, the project would comply with all applicable rules and regulations enacted as part of the 2016 AQMP, including transportation control measures from the 2016 RTP/SCS.

**State Implementation Plans.** Geographical areas in the State that exceed the Federal air quality standards are called nonattainment areas. The project area is in nonattainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. SIPs show how each area will attain the Federal standards. To do this, the SIPs identify the amount of pollutant emissions that must be reduced in each area to meet the standard and the emission controls needed to reduce the necessary emissions. On September 27, 2007, the CARB adopted its State Strategy for the 2007 SIP. In 2009, the SIP was revised to account for emissions reductions from regulations adopted in 2007 and 2008 and clarifies CARB's legal commitment. Additional recent revisions to the SIP are as follows:

- In 2008, the EPA revised the lead<sup>22</sup> national ambient air quality standard by reducing it to 0.15 µg/m<sup>3</sup>. On December 31, 2010, the Los Angeles County portion of the Basin was designated as nonattainment for the 2008 lead national standard as a result of exceedances measured near a

---

<sup>22</sup> Lead referred to here is a chemical element; a heavy metal.

large lead-acid battery recycling facility. The 2012 Lead SIP for Los Angeles County was prepared by the SCAQMD and addresses the recent revision to the lead national standard, and outlines the strategy and pollution control activities that demonstrate attainment of the lead national standard before December 31, 2015. The 2012 Lead SIP was approved May 4, 2012.

- A SIP revision for the federal nitrogen dioxide standard was prepared in 2012, to address the new 1-hour federal ambient air quality standard for nitrogen dioxide.
- The proposed California Infrastructure SIP revision was considered by the CARB on January 23, 2014. The proposed Infrastructure SIP revision is administrative in nature and covers the National Ambient Air Quality Standards (federal standards) for ozone (1997 and 2008), fine particulate matter (PM<sub>2.5</sub>; 1997, 2006, and 2012), lead (2008), nitrogen dioxide (2010), and sulfur dioxide (2010). The proposed revision describes the infrastructure (authorities, resources, and programs) California has in place to implement, maintain, and enforce these federal standards. It does not contain any proposals for emission control measures.

The SIP takes into account CARB rules and regulations. The project will comply with applicable rules and regulations as identified in the AQMPs and SIPs and therefore, complies with this criterion.

**Summary.** Although the project would be consistent with the policies, rules, and regulations in the AQMPs and SIPs, the project must meet all the criteria listed above to be consistent with the AQMPs. The project could impede AQMP attainment because its construction and operation emissions exceed the SCAQMD regional significance thresholds, so the project is considered to be inconsistent with the AQMP.

**Mitigation Measures.** Applicable SCAQMD regulatory requirements are restated in the mitigation measures identified below in Section 4.3.6.2 and 4.3.6.3. These measures shall be incorporated in all project plans, specifications, and contract documents. **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.4A** are required.

**Level of Significance After Mitigation.** Implementation of the World Logistics Center project would exceed applicable thresholds for all criteria pollutants, with the exception of SO<sub>x</sub>, as noted below. Despite the implementation of mitigation measures, emissions associated with the project cannot be reduced below the applicable thresholds. Construction and operational emissions would be reduced to the extent feasible through implementation of mitigation measures listed above and described below. Construction emissions would be reduced through implementation of mitigation measures that require the use of Tier 4 construction equipment, reduced idling time, use of non-diesel equipment where feasible, low-VOC paints and cleaning solvents, and dust suppression measures. Operational emissions would be reduced through implementation of mitigation measures that require reduced vehicle idling, use of non-diesel on-site equipment, meeting or exceeding 2010 engine emission standards for all diesel trucks entering the site, electric vehicle charging stations, and prohibition of refrigerated warehouses. In the absence of further feasible mitigation to reduce the project's emission of criteria pollutants to below SCAQMD thresholds, potential air quality impacts resulting from exhaust from construction equipment will remain significant and unavoidable.

**4.3.6.2 Regional Construction Emissions**

**Impact 4.3.6.2:** *Construction of the World Logistics Center project has the potential to exceed applicable daily thresholds that may affect sensitive receptors.*

<b>Threshold</b>	Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  For construction operations, the applicable daily thresholds are: <ul style="list-style-type: none"><li>• 75 pounds per day of ROC/VOC;</li><li>• 100 pounds per day of NO<sub>x</sub>;</li><li>• 550 pounds per day of CO;</li><li>• 150 pounds per day of PM<sub>10</sub>;</li><li>• 150 pounds per day of SO<sub>x</sub>; and</li><li>• 55 pounds per day of PM<sub>2.5</sub>.</li></ul>
------------------	--

Grading and other construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions during these construction activities will vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Activity during peak grading days typically generates a greater amount of air pollutants than other project construction activities.

While the actual details of the future construction schedule are not known, it is expected that project construction would occur in two phases with the construction of Phase 1 occurring over five years and the construction of Phase 2 occurring over ten years. Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR includes details of the emission factors and other assumptions.

Table 4.3-8 identifies projected emissions resulting from grading and construction activities for the World Logistics Center project and shows the estimated maximum daily construction emissions over the course of project construction prior to the application of mitigation.

The construction emissions estimates summarized in Table 4.3-8 are based on the assumed construction scenario described in Appendix A.1, of this Draft Recirculated Revised Sections of the FEIR. Using emission factors from the CalEEMod model for off-road sources and EMFAC2017 emission factors for on-road sources, Table 4.3-8 indicates that construction emissions of criteria pollutants would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>. This is a significant impact requiring mitigation.

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially by project, depending on the level of activity, the specific operations and equipment, local soils, and weather conditions at the time of construction. The World Logistics Center project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust. There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM<sub>10</sub> emissions from construction.

As identified in Table 4.3-8, fugitive dust and exhaust emissions during the anticipated peak construction day for the World Logistics Center project would exceed SCAQMD daily construction thresholds. The percentage of dust and exhaust varies by year but for PM<sub>10</sub> is an average of 85 percent dust and 15 percent exhaust. PM<sub>2.5</sub> has an average of 54 percent dust and 46 percent exhaust.

**Table 4.3-8: Short-Term Regional Construction Emissions–Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	319	989	701	2	127	42	168	27	38	66
2021	333	1124	832	2	126	47	172	26	43	69
2022	333	1103	865	2	154	45	199	37	41	78
2023	328	1010	858	2	170	41	211	40	37	77
2024	312	811	771	2	151	32	184	31	30	61
2025	285	529	576	1	124	20	144	27	19	46
2026	270	405	401	1	91	16	107	18	14	33
2027	267	380	376	1	40	15	55	10	14	24
2028	272	423	400	1	172	16	188	24	14	39
2029	268	390	378	1	114	15	129	18	14	32
2030	272	206	324	1	114	6	120	18	6	24
2031	263	163	292	1	108	5	113	15	5	20
2032	261	151	267	1	103	4	107	14	4	19
2033	251	110	226	1	81	3	84	11	3	14
2034	250	111	221	1	99	3	102	13	3	15
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>

Notes:

- The emissions assume all construction activities (mass grading, fine grading, building, utilities, curbing, landscaping, painting, paving, and/or interchange) occur on the same day, depending on the year in which the activity occurs.
- Emissions assume compliance with SCAQMD Rule 403.

\* PM totals may not add up due to rounding.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter; NA = not applicable as there is no separate threshold for dust/exhaust

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

Concrete pouring would likely occur during nighttime hours due to limitations high temperatures pose for concrete work during the day. On-site equipment used during concrete pouring would involve daytime prep with actual concrete pouring occurring during the nighttime hours. On average, the total hours of operation for each piece of equipment during the concrete phase would be approximately 10 hours. Therefore, maximum daily emissions presented in Table 4.3-8 represent the average concrete pour day. However, under rare occurrences, extended concrete pour days may be required. Table 4.3-9 summarizes daily maximum emissions for each year of construction associated with 24-hour operation of on-site building concrete equipment. As shown in Table 4.3-9, maximum 24-hour concrete pour days would exceed SCAQMD thresholds for NO<sub>x</sub>. However, all maximum daily emissions are less than those for the worst-case construction day as summarized in Table 4.3-8. Therefore, rare 24-hour concrete pour days would be within the estimated worst-case construction day assumptions. No further analysis of 24-hour concrete pour days is required.

Similar to extended concrete pouring days, other phases of construction such as utility installation and building construction may require an occasional extended construction day based on the task at hand and schedule goals. Occasional extended construction hours would occur for specific tasks within specific planning areas as needed (determined on a day-to-day basis) and would not occur site-wide throughout the 15-year construction period. Therefore, it is anticipated that estimated yearly maximum construction day emissions, as summarized in Table 4.3-8, represent the realistic worst-case regional

construction emissions for the 15-year construction duration. Therefore, no further analysis of potential extended construction days is required.

**Table 4.3-9: Short-Term Regional 24-hour Concrete Pour Emissions–Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	18	155	165	0	12	9	20	1	8	9
2021	17	144	164	0	12	8	19	1	7	8
2022	15	131	163	0	12	7	18	1	6	7
2023	15	123	163	0	12	6	17	1	6	7
2024	14	117	163	0	12	5	17	1	5	6
2025	13	110	163	0	12	4	16	1	4	5
2026	13	110	163	0	12	4	16	1	4	5
2027	13	110	163	0	12	4	16	1	4	5
2028	13	110	163	0	12	4	16	1	4	5
2029	13	110	163	0	12	4	16	1	4	5
2030	14	87	167	0	12	2	14	1	2	3
2031	14	87	167	0	12	2	14	1	2	3
2032	14	87	167	0	12	2	14	1	2	3
2033	14	87	167	0	12	2	14	1	2	3
2034	14	87	167	0	12	2	14	1	2	3
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

\* PM totals may not add up due to rounding.  
 VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 NA = not applicable as there is no separate threshold for dust/exhaust  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

The World Logistics Center project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires implementation of dust-suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component). Compliance with these rules would reduce impacts on nearby sensitive receptors. The applicable Rule 403 measures are as follows:

- All clearing, grading, earthmoving, or excavation activities shall cease when winds exceed 25 miles per hour per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the project are watered at least three times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meter (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicular Code Section 23114.
- The contractor shall ensure that traffic speeds on unpaved roads and project site areas are 15 miles per hour or less to reduce fugitive dust haul road emissions.

As previously discussed, SCAQMD Rule 1113 regulates the sale and application of architectural coatings. Rule 1113 is applicable to any person who applies or solicits the application of any architectural coating within the Basin. Rule 1113 sets limits on the amount of ROG or VOC emissions allowed for all types of architectural coatings. Compliance with Rule 1113 means that architectural coatings used during construction would have ROG or VOC emissions that comply with these limits.

**Mitigation Measures.** The following measures are recommended to reduce the level of emissions of criteria pollutants:

- 4.3.6.2A** Construction equipment maintenance records (including the emission control tier of the equipment) shall be kept on site during construction and shall be available for inspection by the City of Moreno Valley.
- a) Off-road diesel-powered construction equipment greater than 50 horsepower shall meet United States Environmental Protection Agency Tier 4 off-road emissions standards. A copy of each unit's certified tier specification shall be available for inspection by the City at the time of mobilization of each applicable unit of equipment.
  - b) During all construction activities, off-road diesel-powered equipment may be in the "on" position not more than 10 hours per day.
  - c) Construction equipment shall be properly maintained according to manufacturer specifications.
  - d) All diesel powered construction equipment, delivery vehicles, and delivery trucks shall be turned off when not in use. On-site idling shall be limited to three minutes in any one hour.
  - e) Electrical hook ups to the power grid shall be provided for electric construction tools including saws, drills and compressors, where feasible, to reduce the need for diesel-powered electric generators. Where feasible and available, electric tools shall be used.
  - f) The project shall demonstrate compliance with South Coast Air Quality Management District Rule 403 concerning fugitive dust and provide appropriate documentation to the City of Moreno Valley.
  - g) All construction contractors shall be provided information on the South Coast Air Quality Management District Surplus Off-road Opt-In "SOON" funds which provides funds to accelerate cleanup of off-road diesel vehicles.
  - h) Construction on-road haul trucks shall be model year 2010 or newer if diesel-fueled.
  - i) Information on ridesharing programs shall be made available to construction employees.
  - j) During construction, lunch options shall be provided onsite.
  - k) A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints per AQMD Standards.
  - l) Off-site construction shall be limited to the hours between 6 a.m. to 8 p.m. on weekdays only. Construction during City holidays shall not be permitted.

- 4.3.6.2B** Prior to issuance of any grading permits, a Construction Staging Plan shall be submitted to and approved by the City of Moreno Valley that describes in detail the location of equipment staging areas, stockpiling/storage areas, construction parking areas, safe detours around the project construction site, as well as provide temporary traffic control (e.g., flag person) during construction-related truck hauling activities. Construction trucks shall be rerouted away from sensitive receptor areas. Trucks shall use State Route 60 using World Logistics Center Parkway (formerly Theodore Street), Redlands Boulevard (north of Eucalyptus Avenue), and Gilman Springs Road. In addition to its traffic safety purpose, the Construction Staging Plan can minimize traffic congestion and delays that increase idling emissions. A copy of the approved Traffic Control Plan shall be retained on site in the construction trailer.
- 4.3.6.2C** The following measures shall be applied during construction of the project to reduce volatile organic compounds (VOC):
- a) Non-VOC containing paints, sealants, adhesives, solvents, asphalt primer, and architectural coatings (where used), or pre-fabricated architectural panels shall be used in the construction of the project to the maximum extent practicable. If such products are not commercially available, products with a VOC content of 100 grams per liter or lower for both interior and exterior surfaces shall be used.
  - b) Leftover paint shall be taken to a designated hazardous waste center.
  - c) Paint containers shall be closed when not in use.
  - d) Low VOC cleaning solvents shall be used to clean paint application equipment.
  - e) Paint and solvent-laden rags shall be kept in sealed containers.
- 4.3.6.2D** No grading shall occur on days with an Air Quality Index forecast greater than 150 for particulates or ozone as forecasted for the project area (Source Receptor Area 24).
- 4.3.6.2E** The project shall comply with the SCAQMD proposed Indirect Source Rule for any warehouses that are constructed after the rule goes into effect. This rule is expected to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions during construction and operation. Emission reductions resulting from this rule were not included in the project analysis.

**Level of Significance After Mitigation.** Significant and unavoidable. As shown in Table 4.3-10, construction emissions are still significant after mitigation, with the exception of PM<sub>2.5</sub> and SO<sub>2</sub>. The reduction in PM<sub>2.5</sub> emissions is by a reduction in exhaust from the application of Tier 4 off-road equipment. PM<sub>10</sub> emissions are still significant because emissions in 2022, 2023, 2024, and 2028 exceed the threshold; however, emissions of PM<sub>10</sub> during all other years of construction are less than significant. Although mitigation reduces emissions of all pollutants (with the exception of CO due to how CalEEMod calculates Tier 4 emissions) during construction, potential air quality impacts resulting from exhaust from construction equipment and fugitive dust will remain significant and unavoidable.

**Table 4.3-10: Mitigated Short-Term Regional Construction Emissions**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total <sup>2</sup>	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total <sup>2</sup>
2020	160	148	789	2	127	4	130	27	4	31
2021	163	172	943	2	126	4	130	26	4	30
2022	166	191	995	2	154	5	159	37	5	42
2023	164	172	996	2	170	4	174	40	4	44
2024	162	165	939	2	151	4	155	31	4	35
2025	155	126	709	1	124	3	126	27	3	30
2026	149	87	493	1	91	2	93	18	2	20
2027	147	71	454	1	40	2	42	10	2	12
2028	151	103	476	1	172	2	174	24	2	26
2029	148	87	451	1	114	2	116	18	2	20
2030	148	82	430	1	114	2	116	18	2	20
2031	147	77	375	1	108	1	109	15	1	16
2032	145	72	348	1	103	1	104	14	1	16
2033	143	61	270	1	81	1	82	11	1	12
2034	143	64	263	1	99	1	100	13	1	14
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

Notes:

- Mitigation Measure 4.3.6.2A(a) was estimated by CalEEMod using its mitigation module by assuming Tier 4 off-road equipment for equipment greater than 50 horsepower.
- Mitigation Measure 4.3.6.2A(b) restricts equipment from operating more than 10 hours per day in the on position, which is estimated in CalEEMod in both the unmitigated and mitigated estimates.
- Mitigation Measures 4.3.6.2A(c) through (e), 4.3.6.2A(g) through (m), 4.3.6.2B, and 4.3.6.2D are not quantified.
- Mitigation Measure 4.3.6.2A(f) is assumed in the unmitigated and mitigated estimates (Rule 403).
- Mitigation Measure 4.3.6.2A(i) requires that construction haul trucks be 2010 model year or greater. Mitigated model years are reflected in EMFAC2017 emission factors.
- Mitigation Measure 4.3.6.2C reduces VOC emissions during painting and is calculated as demonstrated in the spreadsheets in Appendix A of the Air Quality, Greenhouse Gas, and Health Risk Assessment Report (Appendix A.1 of this Draft Recirculated RSFEIR).

<sup>1</sup> There is an error in the way CalEEMod estimates the effect of a higher tier (such as Tier 3 or 4) on mitigated CO; therefore, the mitigated CO values are greater than unmitigated values.

<sup>2</sup> PM totals may not add up due to rounding.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**4.3.6.3 Localized Construction and Operational Air Quality Impacts**

**Impact 4.3.6.3:** *Construction and operation of the World Logistics Center project has the potential to exceed localized daily thresholds that may affect sensitive receptors.*

<b>Threshold</b>	Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  The applicable localized thresholds are: <ul style="list-style-type: none"><li>• 20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction or operation;</li><li>• 0.18 ppm (State 1 hour), 0.100 ppm (National 1 hour), and 0.030 ppm (Annual) of NO<sub>x</sub> during construction or operation;</li><li>• 10.4 µg/m<sup>3</sup> (24 hours) 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction;</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub>; during operation; and</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operation</li><li>• During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operations to assess the significance of the activities</li></ul>
------------------	--

The localized significance threshold analysis evaluated four conditions:

- Project Build Out (2020): this condition assumes that Phase 1 and Phase 2 of the project are fully built out in 2020 as a worst-case scenario.
- 2022, the year when the project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur near the existing residences west of the project boundary along Merwin Street;
- 2025, the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase I operations would occur (approximately 57 percent of entire project floor space); and
- 2035 when Phase 1 and Phase 2 of the project are fully operational.

Project Full Build Out under 2020 conditions represents hypothetical worst-case conditions in that the project physically could not be built-out in 2020 or, in fact, in any single year due to the size of the project. These conditions have been included in this assessment to correspond to the analysis scenarios examined in the project TIA. These conditions also do not account for the fact that vehicle emissions are expected to decline over time as vehicle emission control technologies improve. Thus, consideration of these conditions will significantly overestimate the project's potential air quality impacts. The 2022, 2025, and 2035 conditions represent the logical and realistic development of the project over a period of 15 years as represented by the project applicant. The LST analysis is presented for each condition below.

Pursuant to the SCAQMD's LST methodology, only emissions generated from emission sources located within and along the project boundaries are included in the LST assessment. These emission sources include vehicle travel on the roadway network within and along the borders of the project and emissions from support equipment including forklifts, yard/hostler trucks, and emergency standby electric generators.

The Project Full Build Out (2020) LST Assessment

The localized assessment results for the Project Phase 1 and Phase 2 Full Build Out (2020) condition are provided in Table 4.3-11 for receptors located within the project boundaries and in Table 4.3-12 for

receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.

As noted from Table 4.3-11, the project would exceed the SCAQMD's significance thresholds for the annual PM<sub>10</sub> threshold for receptors located within the project's boundaries. As shown in Table 4.3-12, the significance thresholds would not be exceeded at any sensitive receptor located outside of the project boundaries.

**Table 4.3-11: Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.05	2.2	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.019	0.092	0.180	No
	National 1 hour, ppm	0.058	0.018	0.076	0.100	No
	Annual, ppm	0.015	0.004	0.019	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	7.2	7.2	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	4.0	4.0	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.0	2.0	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences within the project boundaries.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 4.3-12: Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.03	2.2	20.0	No
	8 hour, ppm	2.0	0.02	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.015	0.088	0.180	No
	National 1 hour, ppm	0.058	0.015	0.073	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.9	2.9	2.5	No
	Annual, µg/m <sup>3</sup>	NA	1.8	1.8	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5	No

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>.

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences along Gilman Springs Road to the east of the project.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

It is important to note the Project Phase 1 and Phase 2 Full Build Out (2020) condition assumes that the project's emissions are at the levels that would occur in 2020. The majority of the project's operational emissions are from on-road mobile sources, more particularly, heavy-duty trucks that contribute a disproportionate amount of emissions compared to passenger vehicles. Emissions from on-road mobile sources are regulated at the State and Federal levels and, therefore, are outside of the control of local agencies such as the City and the SCAQMD. For example, the CARB is working closely with the USEPA, engine and vehicle manufacturers, and other interested parties to identify programs that will reduce emissions from heavy-duty diesel vehicles in California. Emission reductions arise from a combination of measures including the use of ultra-low sulfur diesel fuel, new emission standards for large diesel engines, restrictions on diesel engine idling, addition of post-combustion filter and catalyst equipment, and retrofits for business and government diesel truck fleets. The implementation of these emission reductions will also result in reductions of other pollutants such as NO<sub>x</sub>, VOC, and CO. As these emission reduction programs are implemented and there is a turnover in the use of older vehicles with newer and cleaner vehicles, the project's operational emissions are expected to decline significantly in the future. Emission controls on mobile source vehicles already adopted by the CARB particularly dealing with NO<sub>x</sub> and PM<sub>10</sub> controls on heavy duty trucks will reduce truck emissions significantly over time. Thus, Project (2020) conditions represent highly conservative estimates, in terms of overestimating of the project's operational impacts.

Project Development Schedule LST Assessment

The final localized threshold assessment condition examined potential local project impacts considering the proposed construction and build out schedule of the project over a time period of 15 years from the commencement of construction in 2020 to the final build out and occupation in 2035. This condition examined three specific time periods:

- The project's onsite maximum daily and annual construction emissions were estimated using the CalEEMod land use emission model and the construction equipment inventory and activities provided by the applicant. The project's onsite operational emissions, principally from the project's mobile sources, were derived from detailed traffic volume data provided by the project's TIA that reflects a completely operational Phase 1. The TIA applied a comprehensive regional transportation model to develop daily and peak hour traffic volumes for 2025 and buildout from the project's mobile sources.

Peak hour and daily project traffic volumes were developed for each year from 2020 to buildout for roadway segments within and along the boundaries of the project using the following assumptions:

- Project operational traffic volumes were assumed to be zero in 2020, the year that project construction would commence.
- Traffic volumes for the years 2021 to 2024 (the completion year for Phase 1 operations) were interpolated from 2025 volumes provided in the TIA by applying the annual project occupancy schedule to the 2025 traffic volumes.
- Traffic volumes for the years 2026 to 2034 were interpolated from the provided traffic volumes at buildout by applying the annual project occupancy schedule.

**Localized Impact Analysis, 2025.** The localized impacts for the short-term construction and operational activities were analyzed using an air dispersion model (EPA AERMOD Model) to simulate the transport and dispersion of project-related emissions through the air. These impacts were then compared to the applicable SCAQMD localized concentration thresholds.

The estimated maximum localized air quality impacts from the construction and operation of the project at Phase 1 buildout are summarized in Table 4.3-13 for locations within the project’s boundaries. These maximum impacts were found at the locations of the existing residences within the project boundaries. Table 4.3-14 summarizes the highest air quality impacts for sensitive receptors located outside of the project boundaries. These maximum impacts were found at the locations of the existing residences outside of the project boundary located west of the project boundary along Merwin Street. As noted from these two tables, project impacts would exceed the significance thresholds for PM<sub>10</sub> for locations within and outside the project boundaries, thus represents a significant impact without mitigation.

**Table 4.3-13: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.09	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.030	0.104	0.180	No
	National 1 hour, ppm	0.058	0.021	0.079	0.100	No
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.7	5.7	2.5 <sup>2</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	2.6	2.6	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.5	1.5	2.5 <sup>2</sup>	No

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 4.3-14: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.037	0.110	0.180	No
	National 1 hour, ppm	0.058	0.024	0.082	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.4	5.4	2.5 <sup>2</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	0.6	0.6	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.3	1.3	2.5 <sup>2</sup>	No

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 ug/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Localized Air Quality Impact Analysis, 2022.** The year 2022 was selected for the LST Analysis for two principal reasons: 1) the year 2022 corresponds to the year with the highest combined total onsite construction and operational emissions for NO<sub>x</sub> and PM<sub>2.5</sub>, the second highest onsite emissions for CO, and the fourth highest onsite emissions of PM<sub>10</sub>; and 2) the location of the building construction in 2022 places the construction emissions nearest to the existing residences located west of the project boundary along Merwin Street.

The project’s maximum combined impacts from construction and operations during 2022 are shown in Table 4.3-15 for the existing sensitive receptors located within the project boundaries along with the SCAQMD-recommended significance thresholds. Table 4.3-16 shows the maximum combined impacts for sensitive receptors located outside of the project boundaries. Maximum impacts outside of the project boundary were found within the residential areas located to the west of the project boundary. As shown in these tables, the project would exceed the SCAQMD’s significance thresholds for PM<sub>10</sub> at locations within the project boundary and outside of the project boundary and NO<sub>x</sub> within the project boundary.

**Table 4.3-15: Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.13	2.3	20.0	No
	8 hour, ppm	2.0	0.04	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.056	0.129	0.180	No
	National 1 hour, ppm	0.058	0.048	0.106	0.100	Yes
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.2	5.2	2.5 <sup>3</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	1.4	1.4	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.6	1.6	2.5 <sup>3</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project.

<sup>3</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 4.3-16: Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.041	0.115	0.180	No
	National 1 hour, ppm	0.058	0.036	0.094	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	4.0	4.0	2.5 <sup>3</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	0.8	0.8	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.3	1.3	2.5 <sup>3</sup>	No

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project.

<sup>3</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 ug/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Localized Air Quality Impact Analysis, 2035.** The year 2035 represents a long-term planning year when both phases of the project would be fully in operation. Operational emissions during 2035 were estimated based on the project’s trip generation and project-related travel along the local roadway network within and along the project boundaries. Table 4.3-17 shows the maximum localized air quality impacts for 2035 relative to the background air quality levels at the existing sensitive receptors located within the project boundaries. Table 4.3-18 identifies the highest localized impacts for sensitive receptors located outside of the project boundaries. As shown in Table 4.3-17 and Table 4.3-18, the project would exceed PM<sub>10</sub> LSTs for receptors within and outside the project boundary, and would, therefore, represent a significant impact without mitigation.

**Summary.** The localized significance analysis demonstrates that without mitigation, the project would exceed the localized significance thresholds for NO<sub>x</sub> and PM<sub>10</sub> for one or more of the LST assessment years (2022, 2025, or 2035) analyzed. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an exceedance of the national 1-hour NO<sub>2</sub> annual, as well as the 24-hour and annual PM<sub>10</sub> ambient air quality standards.

**Table 4.3-17: Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	2.0	0.02	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.018	0.091	0.180	No
	National 1 hour, ppm	0.058	0.016	0.074	0.100	No
	Annual, ppm	0.015	0.003	0.018	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	8.3	8.3	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	4.6	4.6	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.1	2.1	2.5	No

Notes:

<sup>(1)</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Table 4.3-18: Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>(1)</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.03	2.2	20	No
	8 hour, ppm	2.0	0.01	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.013	0.086	0.180	No
	National 1 hour, ppm	0.058	0.012	0.070	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.50	2.50	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	0.95	0.95	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.66	0.66	2.5	No

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Mitigation Measures.** Mitigation measures identified previously under Impact 4.3.6.2 (**Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2D and 4.3.6.2E**) to reduce construction emissions of criteria pollutants are required. The project will also be required to comply with SCAQMD Rules 402 and 403. Additionally, the following mitigation measures are required to reduce emissions of criteria pollutants during project operations.

**4.3.6.3A** Prior to issuance of occupancy permits for each warehouse building within the WLCSP, the developer shall demonstrate to the City that vehicles can access the building using paved roads and parking lots.

**4.3.6.3B** The following shall be implemented as indicated:

**Prior to Issuance of a Certificate of Occupancy**

- a) Signs shall be prominently displayed informing truck drivers about the California Air Resources Board diesel idling regulations, and the prohibition of parking in residential areas.
- b) Signs shall be prominently displayed in all dock and delivery areas advising of the following: engines shall be turned off when not in use; trucks shall not idle for more than three consecutive minutes; telephone numbers of the building facilities manager and the California Air Resources Board to report air quality violations.
- c) Signs shall be installed at each exit driveway providing directional information to the City's truck route. Text on the sign shall read "To Truck Route" with a directional arrow. Truck routes shall be clearly marked per the City Municipal Code.

**On an Ongoing Basis**

- d) Tenants shall maintain records on fleet equipment and vehicle engine maintenance to ensure that equipment and vehicles are maintained pursuant to manufacturer's specifications. The records shall be maintained on site and be made available for inspection by the City.
- e) Tenant's staff in charge of keeping vehicle records shall be trained/certified in diesel technologies, by attending California Air Resources Board approved courses (such as the free, one-day Course #512). Documentation of said training shall be maintained on-site and be available for inspection by the City.
- f) Tenants shall be encouraged to become a SmartWay Partner.
- g) Tenants shall be encouraged to utilize SmartWay 1.0 or greater carriers.
- h) Tenants' fleets shall be in compliance with all current air quality regulations for on-road trucks including but not limited to California Air Resources Board's Heavy-Duty Greenhouse Gas Regulation and Truck and Bus Regulation.
- i) Information shall be posted in a prominent location available to truck drivers regarding alternative fueling technologies and the availability of such fuels in the immediate area of the World Logistics Center.
- j) Tenants shall be encouraged to apply for incentive funding (such as the Voucher Incentive Program [VIP], Carl Moyer, etc.) to upgrade their fleet.
- k) All yard trucks (yard dogs/yard goats/yard jockeys/yard hostlers) shall be powered by electricity, natural gas, propane, or an equivalent non-diesel fuel. Any off-road engines in the yard trucks shall have emissions standards equal to Tier 4 Interim or greater. Any on-road engines in the yard trucks shall have emissions standards that meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1, Section 2025.
- l) All diesel trucks entering logistics sites shall meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1,

Section 2025 or be powered by natural gas, electricity, or other diesel alternative. Facility operators shall maintain a log of all trucks entering the facility to document that the truck usage meets these emission standards. This log shall be available for inspection by City staff at any time.

- m) All standby emergency generators shall be fueled by natural gas, propane, or any non-diesel fuel.
- n) Truck and vehicle idling shall be limited to three (3) minutes.

**4.3.6.3C** Prior to the issuance of building permits for more than 25 million square feet of logistics warehousing within the Specific Plan area, a publically-accessible fueling station shall be operational within the Specific Plan area offering alternative fuels (natural gas, electricity, etc.) for purchase by the motoring public. Any fueling station shall be placed a minimum of 1000 feet from any off-site sensitive receptors or off-site zoned sensitive uses. This facility may be established in connection with the convenience store required in Mitigation Measure 4.3.6.3D.

**4.3.6.3D** Prior to the issuance of building permits for more than 25 million square feet of logistics warehousing within the Specific Plan area a site shall be operational within the Specific Plan area offering food and convenience items for purchase by the motoring public. This facility may be established in connection with the fueling station required in Mitigation Measure 4.3.6.3C.

**4.3.6.3E** Refrigerated warehouse space is prohibited unless it can be demonstrated that the environmental impacts resulting from the inclusion of refrigerated space and its associated facilities, including, but not limited to, refrigeration units in vehicles serving the logistics warehouse, do not exceed any environmental impact for the entire World Logistics Center identified in the Revised Sections of the FEIR. Such environmental analysis shall be provided with any warehouse plot plan proposing refrigerated space. Any such proposal shall include electrical hookups at dock doors to provide power for vehicles equipped with Transportation Refrigeration Units (TRUs).

**4.3.6.3F** The project shall comply with the SCAQMD proposed Indirect Source Rule for any warehouses that are constructed after the rule goes into effect. This rule is expected to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions during construction and operation. Emission reductions resulting from this rule were not included in the project analysis.

**Level of Significance After Mitigation.** Significant and unavoidable. Table 4.3-19 compares the project impacts before and after mitigation for those assessment conditions and pollutants that indicated a significant impact before mitigation. After application of mitigation, the project would continue to exceed the localized significance thresholds at one or more of the existing residences located within and outside the project boundaries for PM<sub>10</sub> (24-hour and/or annual).

**Table 4.3-19: Comparison of Local Project Air Quality Impacts Before and After Mitigation**

<b>Assessment Condition</b>	<b>Location</b>	<b>Pollutant, Averaging Time, Units</b>	<b>Total Impact Before Mitigation<sup>1</sup></b>	<b>Total Impact After Mitigation</b>	<b>Significance Threshold</b>	<b>Exceeds Threshold After Mitigation?</b>
Project Development Schedule Year 2025	Inside Project Boundaries	PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	5.7	5.6	2.5	<b>Yes</b>
		PM <sub>10</sub> , Annual, µg/m <sup>3</sup>	2.6	2.6	1.0	<b>Yes</b>
Project Development Schedule Year 2025	Outside Project Boundaries	PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	5.4	5.2	2.5	<b>Yes</b>
Project Development Schedule Year 2022	Inside Project Boundaries	NO <sub>x</sub> National 1 hour, ppm	0.106	0.068	0.100	<b>No</b>
		PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	5.2	5.2	2.5	<b>Yes</b>
		PM <sub>10</sub> Annual, µg/m <sup>3</sup>	1.4	1.4	1.0	<b>Yes</b>
	Outside Project Boundaries	PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	4.0	4.0	2.5	<b>Yes</b>
Project Development Schedule Year 2035 Build Out	Inside Project Boundaries	PM <sub>10</sub> 24 hour, µg/m <sup>3</sup>	8.3	8.3	2.5	<b>Yes</b>
		PM <sub>10</sub> Annual, µg/m <sup>3</sup>	4.6	4.6	1.0	<b>Yes</b>
	Outside Project Boundaries	PM <sub>10</sub> 24 hour, µg/m <sup>3</sup>	2.50	2.49	2.5	<b>No</b>

Notes:

<sup>1</sup> Total Impacts include the incremental impacts from the project plus the pollutant background; see Tables 4.3-13 to 4.3-22 for the total impacts for the various assessment conditions prior to the application of mitigation.

µg/m<sup>3</sup> = micrograms per cubic meter (a unit of concentration); ppm = parts per million (a unit of concentration)

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**4.3.6.4 Long-Term Operational Emissions**

**Impact 4.3.6.4:** *Implementation of the World Logistics Center project may have the potential to exceed applicable daily thresholds for operational activities.*

<b>Threshold</b>	<p>Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?</p> <p>For long-term operations, the applicable daily thresholds are:</p> <ul style="list-style-type: none"> <li>• 55 pounds of VOC;</li> <li>• 55 pounds of NO<sub>x</sub>;</li> <li>• 550 pounds of CO;</li> <li>• 150 pounds of PM<sub>10</sub>;</li> <li>• 55 pounds of PM<sub>2.5</sub>; and</li> <li>• 150 pounds of SO<sub>x</sub>.</li> </ul>
------------------	--

Long-term air pollutant emission impacts that would result from the World Logistics Center project are those associated with stationary sources (generators, forklifts, etc.), area sources (landscaping and maintenance activities), and mobile sources (e.g., emissions from the use of motor vehicles by project-generated traffic). As discussed above in Section 4.3.3.2, the TIA provides VMT attributable to the project based on the net effect the project would have on regional travel as well as project VMT without consideration of a net effect. The emissions from the net effect on VMT, in conjunction with the proposed stationary and area sources, are shown in the tables below for determination of significance. For informational purposes only the *Air Quality, Greenhouse Gas, and Health Risk Assessment Report* (Appendix A.1) of this Draft Recirculated Revised Section of the FEIR includes operational mobile emissions without consideration of a net effect in regional traffic volumes.

**Worst-Case Scenario.** Projected emissions resulting from operational activities of the project under the worst-case scenario are identified in Table 4.3-20.

There may be minor emissions of VOC from the fueling station, depending on what type of fuel is used. However, details regarding the fueling station are currently unknown so the emission source is not estimated. This is a worst-case analysis because it assumes that the entire project would be built-out in 2020. The motor vehicle and truck emission factors are from 2020, which assumes a “dirtier” fleet than would be the case in later years. In addition, no reductions are taken for mitigation measures.

**Table 4.3-20: Operational Regional Air Pollutant Emissions (Worst-Case Scenario)**

Scenario Source	Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Buildout 2020 emission factors Mobile	161	3,500	1,377	14	260	131
Area	311	<1	4	0	<1	<1
Onsite equipment	9	245	89	0	2	2
<b>Total</b>	<b>481</b>	<b>3,745</b>	<b>1,470</b>	<b>14</b>	<b>263</b>	<b>134</b>
<b>Significance Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:  
 VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter;  
 <1 = less than one  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

As identified in Table 4.3-20, operational emissions for the project would exceed SCAQMD daily operational thresholds for all criteria pollutants with the exception of SO<sub>x</sub> for the “worst-case” 2020 scenario.

**Operational Regional Emissions.** Table 4.3-21 shows the detailed operational emission sources generated both on site and off site for Phase 1 and buildout. The table shows particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) divided into dust (roadway and tire and brake wear) and exhaust sources. As shown in the table, emissions of VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> are significant after completion of Phase 1 and after full buildout.

Table 4.3-22 shows the operational emissions year by year using emission factors interpolated from 2025 and 2035 emission factors. The VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions would be over the SCAQMD’s significance thresholds for most years. The emissions demonstrate that although the number of vehicles and trucks would increase year by year, the emissions do not increase dramatically because the per-vehicle emission factors decrease over time as cleaner vehicles enter the fleet over time.

**Combined Construction and Operation.** There would be overlapping of construction and operational emissions with project implementation. The maximum daily operational emissions were added to the maximum daily construction emissions and are shown in Table 4.3-23, which shows all pollutants for all years exceed the SCAQMD thresholds, with the exception of SO<sub>x</sub> emissions.

As identified in the preceding tables, project-related air quality impacts for all criteria pollutants, with the exception of SO<sub>x</sub>, would be significant and mitigation measures are required.

**Table 4.3-21: Operational Regional Air Pollutant Emissions (Detail, Unmitigated)**

Phase	Source	Emissions (pounds/day)									
		VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> Dust	PM <sub>10</sub> Exh.	PM <sub>10</sub> Total	PM <sub>2.5</sub> Dust	PM <sub>2.5</sub> Exh.	PM <sub>2.5</sub> Total
Phase 1	Mobile	24	849	277	5	129	13	141	40	7	47
	Area	203	0	3	0	0	0	0	0	0	0
	On-site Equipment	5	138	51	0	0	1	1	0	1	1
	<b>Total</b>	<b>232</b>	<b>988</b>	<b>331</b>	<b>5</b>	<b>129</b>	<b>14</b>	<b>143</b>	<b>40</b>	<b>9</b>	<b>48</b>
Buildout	Mobile	45	1,361	867	10	375	13	388	113	12	125
	Area	311	0	4	0	0	0	0	0	0	0
	On-site Equipment	9	245	89	0	0	2	2	0	2	2
	<b>Total</b>	<b>364</b>	<b>1,606</b>	<b>961</b>	<b>10</b>	<b>375</b>	<b>15</b>	<b>390</b>	<b>113</b>	<b>15</b>	<b>127</b>
<b>Significance Threshold</b>		<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>None</b>	<b>None</b>	<b>150</b>	<b>None</b>	<b>None</b>	<b>55</b>
<b>Significant Impact?</b>		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>--</b>	<b>--</b>	<b>Yes</b>	<b>--</b>	<b>--</b>	<b>Yes</b>

Notes:

- On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.
- VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter; Exh. = exhaust; <1 = less than 1  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 4.3-22: Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

<b>Year</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2020	0	0	0	0	0	0
2021	51	338	111	1	34	14
2022	97	608	200	2	67	27
2023	138	808	269	3	97	37
2024	174	941	315	4	125	45
2025	205	988	330	5	138	48
2026	221	1,033	417	6	169	57
2027	238	1,109	494	6	195	65
2028	255	1,184	570	7	220	73
2029	272	1,255	639	7	245	81
2030	289	1,323	705	8	271	89
2031	305	1,388	766	8	296	97
2032	321	1,451	825	9	321	105
2033	337	1,511	879	9	346	113
2034	353	1,568	930	9	371	121
2035	364	1,606	961	10	390	127
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:

- Emissions are from local vehicles, trucks, natural gas, emergency generators, forklifts, yard trucks, painting, and consumer products. There is no reduction from existing onsite emissions.
- Operational emissions are assumed to be zero in 2020 when project construction commences.
- PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.
- Landscaping emissions are negligible.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; SO<sub>2</sub> = sulfur dioxide; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-23: Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

<b>Year</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2020 (construction only)	319	989	701	2	168	66
2021	384	1,463	943	3	207	83
2022	429	1,710	1,066	4	266	105
2023	465	1,818	1,127	5	308	114
2024	486	1,751	1,086	6	309	106
2025	490	1,517	906	7	282	94
2026	491	1,438	817	7	276	90
2027	505	1,489	870	7	250	89
2028	528	1,607	970	8	408	112
2029	540	1,645	1,017	8	374	113
2030	560	1,529	1,029	9	391	114
2031	568	1,551	1,058	9	408	117
2032	582	1,602	1,092	9	428	124
2033	588	1,620	1,105	10	429	127
2034	603	1,679	1,150	10	473	137
2035 (operations only)	364	1,606	961	10	390	127
<b>Max Daily Emissions</b>	<b>603</b>	<b>1,818</b>	<b>1,150</b>	<b>10</b>	<b>473</b>	<b>137</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:

- Year 2020 contains construction emissions only; buildout contains operational emissions only
- Reduction from existing onsite emissions are not included.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Mitigation Measures.** The mitigation measures previously identified under Impact 4.3.6.3 (**Mitigation Measures 4.3.6.3A through 4.3.6.3E**) would reduce operational emissions of criteria pollutants associated with the project.

Additionally, the following mitigation measure is required:

**4.3.6.4A** The following measures shall be incorporated as conditions to any Plot Plan approval within the Specific Plan:

- All tenants shall be required to participate in Riverside County's Rideshare Program.
- Storage lockers shall be provided in each building for a minimum of three percent of the full-time equivalent employees based on a ratio of 0.50 employees per 1,000 square feet of building area. Lockers shall be located in proximity to required bicycle storage facilities.
- Class II bike lanes shall be incorporated into the design for all project streets.
- The project shall incorporate pedestrian pathways between on-site uses.
- Site design and building placement shall provide pedestrian connections between internal and external facilities.
- The project shall provide pedestrian connections to residential uses within 0.25 mile from the project site.

- g) A minimum of two electric vehicle-charging stations for automobiles or light-duty trucks shall be provided at each building. In addition, parking facilities with 200 parking spaces or more shall be designed and constructed so that at least six percent of the total parking spaces are capable of supporting future electric vehicle supply equipment (EVSE) charging locations. Sizing of conduit and service capacity at the time of construction shall be sufficient to install Level 2 Electric Vehicle Supply Equipment (EVSE) or greater.
- h) Each building shall provide indoor and/or outdoor - bicycle storage space consistent with the City Municipal Code and the California Green Building Standards Code. Each building shall provide a minimum of two shower and changing facilities for employees.
- i) Each building shall provide preferred and designated parking for any combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles equivalent to the number identified in California Green Building Standards Code Section 5.106.5.2 or the Moreno Valley Municipal Code whichever requires the higher number of carpool/vanpool stalls.
- j) The following information shall be provided to tenants: onsite electric vehicle charging locations and instructions, bicycle parking, shower facilities, transit availability and the schedules, telecommunicating benefits, alternative work schedule benefits, and energy efficiency.

It is important to note that, in addition to the operational activity mitigation measures identified previously, future development would need to incorporate physical attributes and operational programs that will act to generally reduce operational-source pollutant emissions including GHG emissions. These project characteristics are identified in Section 4.7, *Climate Change and Greenhouse Gas Emissions*, and Section 4.17, *Energy*, of this Draft Recirculated Revised Sections of the FEIR.

On October 21, 2016, the Project's developers entered into a settlement agreement with the SCAQMD which requires the payment to the SCAQMD of an Air Quality Improvement Fee of 64 cents per square foot for each building as the Project is constructed. The settlement agreement states:

*"[T]he payment of the Air Quality Improvement Fee will adequately mitigate heavy-duty truck related air quality impacts that may result from the construction and operation of the World Logistics Center as described in the EIR and that no additional charges will be imposed on the World Logistics Center to mitigate emissions, including NO<sub>x</sub>, described in the EIR from heavy-duty trucks."*

Funds may be used by SCAQMD for any purpose to improve air quality in the South Coast Air Basin although the SCAQMD has indicated that the funds will be used "to develop mitigation efforts focused on reducing emissions in the areas affected by the warehouse project."<sup>23</sup> One possible use might be that individual or fleet truck owners servicing the Project could be offered a financial incentive to purchase a near-zero or zero-emission truck model, similar to the Carl Moyer Program. This type of program has been an effective tool for more than 19 years in speeding the transition of heavy-duty trucks and other equipment to cleaner models. In the 2017 Reporting Cycle for the Carl Moyer Program (Funding Years 8-19), \$87,373,480 was funded for "On-Road" vehicles by the SCAQMD for a reduction of 6,265 tons of NO<sub>x</sub> and ROG emissions, and a reduction of 145.3 tons of PM emissions, with an average cost effectiveness of \$11,612. Using those costs and resulting reductions in emissions, the \$26,000,000 Air Quality Improvement Fee could result in a reduction of 1,864 tons of NO<sub>x</sub> and ROG emissions, and a PM reduction of 43 tons of PM emissions. Therefore, with the payment of the Air Quality Improvement Fee through the 2016 settlement, the Project's net contribution to regional air quality would be further reduced. Because the use of the funds will be determined by the SCAQMD's

---

<sup>23</sup> SCAQMD press released October, 21, 2016, announcing the settlement.

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

Governing Board and because it is not yet known how the Board will allocate the funds, no credit in emissions has been taken by the Project.

**Level of Significance after Mitigation.** Significant and unavoidable. Mitigated operational emissions for full buildout are shown in Table 4.3-24. Note that the emissions are based on conservative assumptions and does not subtract existing emissions that would cease to exist (i.e., assumes all emissions are net new). Additionally, mitigation requiring the use of natural gas and propane equipment lead to decreases in PM and NO<sub>x</sub>, but may lead to increases in CO. As shown on Table 4.3-24, even with implementation of the mitigation measures, emissions are still significant. Despite implementation of mitigation measures, emissions of criteria pollutants would still exceed SCAQMD significance thresholds resulting in a significant and unavoidable operational air quality impact.

**Table 4.3-24: Operational Regional Air Pollutant Emissions (Buildout Mitigated)**

Source	Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Vehicles: Local and trucks	45	1,341	867	10	387	125
Area	311	0	4	0	0	0
Onsite Equipment	8	91	107	0	0	0
<b>Total Project Emissions</b>	<b>363</b>	<b>1,432</b>	<b>978</b>	<b>10</b>	<b>388</b>	<b>125</b>
<b>Significance Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:

- PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.
- Landscaping emissions are negligible.
- On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

<sup>1</sup> Mitigation requiring the use of natural gas and propane equipment lead to decreases in PM and NO<sub>x</sub>, but may lead to increases in CO; therefore, the mitigated CO values are greater than unmitigated values.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

During overlap of construction and operation, VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> would continue to exceed SCAQMD significance thresholds after mitigation, as shown in Table 4.3-25. Therefore, impacts are significant and unavoidable.

**Table 4.3-25: Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day) – Mitigated**

<b>Year</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2020 (construction only)	160	148	789	2	130	31
2021	207	369	1,032	3	160	40
2022	251	574	1,164	4	220	62
2023	290	730	1,236	5	264	74
2024	328	885	1,238	6	275	75
2025	359	982	1,049	7	263	77
2026	369	983	920	7	261	76
2027	384	1,036	959	7	235	76
2028	406	1,138	1,057	8	393	98
2029	420	1,187	1,103	8	360	100
2030	436	1,245	1,148	9	385	108
2031	451	1,301	1,156	9	403	112
2032	466	1,355	1,188	9	423	119
2033	479	1,401	1,165	10	426	123
2034	495	1,459	1,210	10	469	133
2035 (operations only)	363	1,432	978	10	388	125
<b>Max Daily Emissions</b>	<b>495</b>	<b>1,459</b>	<b>1238</b>	<b>10</b>	<b>469</b>	<b>133</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:

- Year 2020 contains construction emissions only; buildout contains operational emissions only.
- Emissions do not include existing onsite emissions.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**4.3.6.5 Impacts to Sensitive Receptors**

**Impact 4.3.6.5:** *Implementation of the World Logistics Center project may have the potential to result in impacts to sensitive receptors.*

<b>Threshold</b>	<p>Would the proposed project expose sensitive receptors to substantial pollutant concentrations?</p> <p>For localized air quality impacts, the applicable thresholds are:</p> <ul style="list-style-type: none"> <li>• 20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction and operation;</li> <li>• 0.18 ppm (State 1 hour), 0.100 ppm National 1 hour), and 0.030 ppm (Annual) of NO<sub>x</sub> during construction and operation;</li> <li>• 10.4 µg/m<sup>3</sup> (24-hours) and 1 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction</li> <li>• 2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during operations; and</li> <li>• 2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operations.</li> </ul> <p>During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance threshold for operations.</p>
------------------	---

For health risk impacts, the applicable thresholds are:

- Maximum Individual Cancer Risk: An increased cancer risk greater than 10 in 1 million at any receptor location;
- Cancer burden: An increase in cancer burden of 0.5 or
- Non-cancer chronic hazard indices (HI): A cumulative increase for any target organ system exceeding 1.0 at any receptor location.

**Acute and Chronic Health Risk Impacts.** Acute and chronic health risk impact analyses examine the increased risk for non-cancer health outcomes associated with project-related air pollutant emissions. Since these are non-cancer health impacts, as described below, the impacts are analyzed separately from increased cancer risk associated with air pollution.

The construction and operation of the project would not emit any toxic chemicals in any significant quantity other than vehicle exhaust. While there may be other toxic substances in use on site, risk would be negligible due to intermittent use (i.e., chemicals from periodic maintenance), dispersion of chemicals throughout the project site, and compliance with State and Federal handling regulations.

Exposure to diesel exhaust can have immediate (acute) health effects, such as irritation of the eyes, nose, throat, and lungs, and can cause coughs, headaches, light headedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. However, according to the rulemaking on *Identifying Particulate Emissions from Diesel-Fueled Engines as a Toxic Air Contaminant* (CARB 1998), the available data from studies of humans exposed to diesel exhaust are not sufficient for deriving an acute non-cancer REL.

The analysis, however, does derive an estimate of acute non-cancer risks by examining the acute health effects of the various toxic components that comprise diesel and gasoline emissions. There is specific guidance for estimating the acute non-cancer hazards from these toxic components based on chemical profiles established by the CARB which was used in the analysis to determine the project's acute non-cancer hazards.

To determine the project's *chronic* non-cancer hazard impact, the highest annual emissions concentrations were determined covering the years 2020 (the commencement of project construction) to 2035 (the full build out of the project). In this regard, the highest annual average concentrations prior to mitigation determined through air dispersion modeling occurred at an existing residence located within the project boundaries. This concentration was due to the impacts of emissions from the off-road construction equipment and operation equipment. This level of impact results in a chronic non-cancer HI of 0.14. This HI is less than the SCAQMD's significance level of 1.0, and is, therefore, less than significant.

The estimation of the *acute* non-cancer HI requires the estimation of the maximum 1-hour impacts of TAC components in organic gases and PM emissions. For project construction, estimates of the maximum 1-hour ROG and PM exhaust emissions were derived from the project's peak daily construction equipment emissions; for project operation, estimates of the project's maximum 1-hour TOG and PM emissions were derived from the project's peak hour traffic data along the nearly 230 roadway segments contained within the study area and then speciated or broken down into the various TAC components by fuel type, gasoline and diesel, and emission type (i.e., exhaust, evaporative, brake wear and tire wear). The acute non-cancer HI was determined for a worst-case condition that assumed the project would be constructed between 2020 and 2034 and full operation starts in 2035. Based on this information, the maximum acute non-cancer HI found at any receptor within the model domain prior

to mitigation was 0.07 during any year of project construction and operation, which is less than the SCAQMD's non-cancer HI of 1.0, and, therefore, is less than significant without mitigation.

Therefore, the potential for short-term acute and chronic exposure from TAC emissions are considered to be less than significant and no mitigation is required.

**Cancer Risks.** As noted in Section 4.3.3, *Methodology*, the project health risk assessment examined the following condition for impacts to both sensitive/residential and worker receptors:

*Project Development condition which evaluates the impacts of project-related construction and operational traffic diesel PM emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the full build out in 2035.*

This HRA is being provided to allow decision makers to see the cancer-related impacts of the World Logistics Center project in the assumption that new technology diesel exhaust causes cancer, contrary to what was found by the HEI study. The mitigation conditions require that all diesel-fueled haul trucks during construction be 2010 or newer, diesel trucks accessing the project during operation be model year 2010 or newer, and that all on-site equipment greater than 50 horsepower be Tier 4 (see MM 4.3.6.2A[h] and MM 4.3.6.2A[a], respectively).

To be conservative, the HRA relied on EMFAC2017 to determine the breakdown of vehicle types and fuel types and did not consider the potential reductions in TACs emissions and health risks from increased penetration of zero emission vehicles (ZEVs). The increased penetration of ZEVs is speculative, but likely given rapid technology advancement and more stringent legislation. For example, this HRA assumed that the 2035 heavy duty truck fleet would be made up of 89 percent diesel, 9 percent gasoline, 3 percent natural gas, and 0 percent electric. According to the WLC Transportation Energy Technical Report (ESA, 2019), a High EV Penetration scenario projects that the heavy duty truck fleet could consist of 30 percent electric by 2035. Therefore, accounting for the High EV Penetration scenario would result in a greatly reduced health risk impact than what has been calculated in this analysis.

### **Localized Risk**

*Cancer Risk for Sensitive/Residential Receptors.* For reference, a risk level of 1 in a million implies a likelihood that up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration of TAC emissions over the duration of the exposure. This risk would be an excess cancer risk that is in addition to any cancer risk borne by a person not exposed to these air toxics (USEPA, 2017).

Table 4.3-26 presents the estimated cancer risks for the 30-year exposure scenario that starts from the beginning of project construction (Construction + Operation HRA), which uses updated construction and operational emissions values. The results are provided separately for project construction emissions, operational emissions, and the total project emissions prior to the application of emission mitigation. Table 4.3-27 shows the estimated cancer risk for the 30-year residential exposure scenario that starts from the beginning of project full operation in 2035 (Operational HRA), which used the 2035 emission levels to represent the emissions for 2035 to 2064.

On the basis of the results shown in Table 4.3-26, the project would exceed the SCAQMD's cancer risk significance threshold of an incremental increase of 10 in a million prior to the application of mitigation and would represent a significant impact. Table 4.3-27 shows that during full project operation, the estimated maximum cancer risk would exceed the 10 in a million threshold within and outside of the Project boundary and would represent a significant impact. Overall, without mitigation, the project is expected to have a significant impact mainly due to diesel PM emissions from construction and heavy-duty diesel truck activities.

Figures 4.4-3 and 4.3-4 show the incremental cancer risks for the project location. The figures show the results prior to the application of mitigation.

*Estimates of Cancer Risk for School Site Receptors.* Cancer risk estimates at school sites in the area were prepared assuming a 9-year exposure during construction and operation as well as operation at full buildout. Prior to the application of the mitigation, the maximum cancer risk is at Ridgecrest Elementary School for the construction + operational scenario and would be approximately 12.6 in a million. Similarly, the maximum cancer risk for the full operational scenario is 3.54 in one million is at Bear Valley Elementary School. Therefore, maximum impacts at schools are greater than the 10 in one million significance threshold prior to mitigation and are potentially significant without mitigation.

*Estimates of Cancer Risk for Worker Receptors.* Estimates of worker exposures were prepared based on the assumption of a 25-year exposure duration for 250 days per year and 8 hours per day as described in the methodology section above. Note that the OEHHA early-in-life age factors do not apply to worker receptors. The highest worker cancer risk estimates prior to the application of mitigation is approximately 10.9 in one million for the construction + operational scenario and 3.8 in one million for the full operational scenario, both at one onsite location. Therefore, cancer risk for worker receptors anywhere in the revised HRA's study area is greater than the 10 in one million significance threshold. Projected impacts are potentially significant without mitigation.

*Estimates of Cancer Burden.* The cancer burden calculation provides an estimate of the increased number of cancer cases as a result of exposures to TAC emissions. The total cancer burden is the product of the number of persons in a population area (such as a census tract) and the estimated individual risk from TACs in that population area and then summed over all of the population areas. The SCAQMD indicates that the burden calculation includes those population units having an incremental cancer risk of 1 in a million or greater.

Cancer risks were estimated at the geographical center (centroid) of census tracts that are within the study area of the HRA. For the 30-year exposure duration in accordance with "Current OEHHA Guidance", the cancer burden is estimated to be 0.64 out of a population of about 176,824 individuals that were estimated to have a cancer risk of 1 in a million or more prior to mitigation. The SCAQMD has established a threshold for cancer burden of 0.5. Therefore, the project would potentially exceed the SCAQMD's cancer burden significance threshold prior to the application of mitigation.

These analyses are based on the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study and discussed in more detail below.

**Table 4.3-26: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation**

Receptor Location	Incremental Increase in Cancer Risk During Project Construction (risk/million)	Incremental Increase in Cancer Risk During Project Operation (risk/million)	Total Incremental Increase in Cancer Risk <sup>1</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>2</sup>	49.5	17.3	66.8	10	Yes
Maximum risk within the project boundaries <sup>3</sup>	49.5	17.3	66.8	10	Yes
Maximum risk at any area outside of the project boundaries <sup>4</sup>	46.46	8.76	55.22	10	Yes

Notes:

<sup>1</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the updated construction emission estimate, TIA, EMFAC2014 emission model, SCAQMD HRA guidance and “Current OEHHA Guidance” for estimating cancer risks.

<sup>2</sup> Location is at the existing residences within the boundaries of the project, located at the 13241 World Logistic Parkway (formerly Theodore Street).

<sup>3</sup> Location is at the existing residences within the boundaries of the project, located at the 13241 World Logistic Parkway (formerly Theodore Street).

<sup>4</sup> Location is adjacent to the southwestern boundary of the project.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Table 4.3-27: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation**

<b>Receptor Location</b>	<b>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</b>	<b>SCAQMD Cancer Risk Significance Threshold (risk/million)</b>	<b>Exceeds Threshold?</b>
Maximum risk anywhere in the modeling domain <sup>2</sup>	34.0	10	Yes
Maximum risk within the project boundaries <sup>3</sup>	34.0	10	Yes
Maximum risk at any area outside of the project boundaries <sup>4</sup>	29.9	10	Yes
Maximum risk along SR 60 freeway <sup>5</sup>	34.0	10	No

Notes:

<sup>1</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2040 to 2069 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2014 emission model, SCAQMD HRA guidance and “Current OEHHA Guidance” for estimating cancer risks.

<sup>2</sup> Location is at the existing residence immediately to the north of the project boundary at 13241 World Logistics Center Parkway (formerly Theodore Avenue).

<sup>3</sup> Location is at the existing residence located at 30220 Dracaea Avenue.

<sup>4</sup> Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.

<sup>5</sup> Location is south of SR 60 freeway, same as the location in footnote (2).

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

### Regional Freeway Network Risk

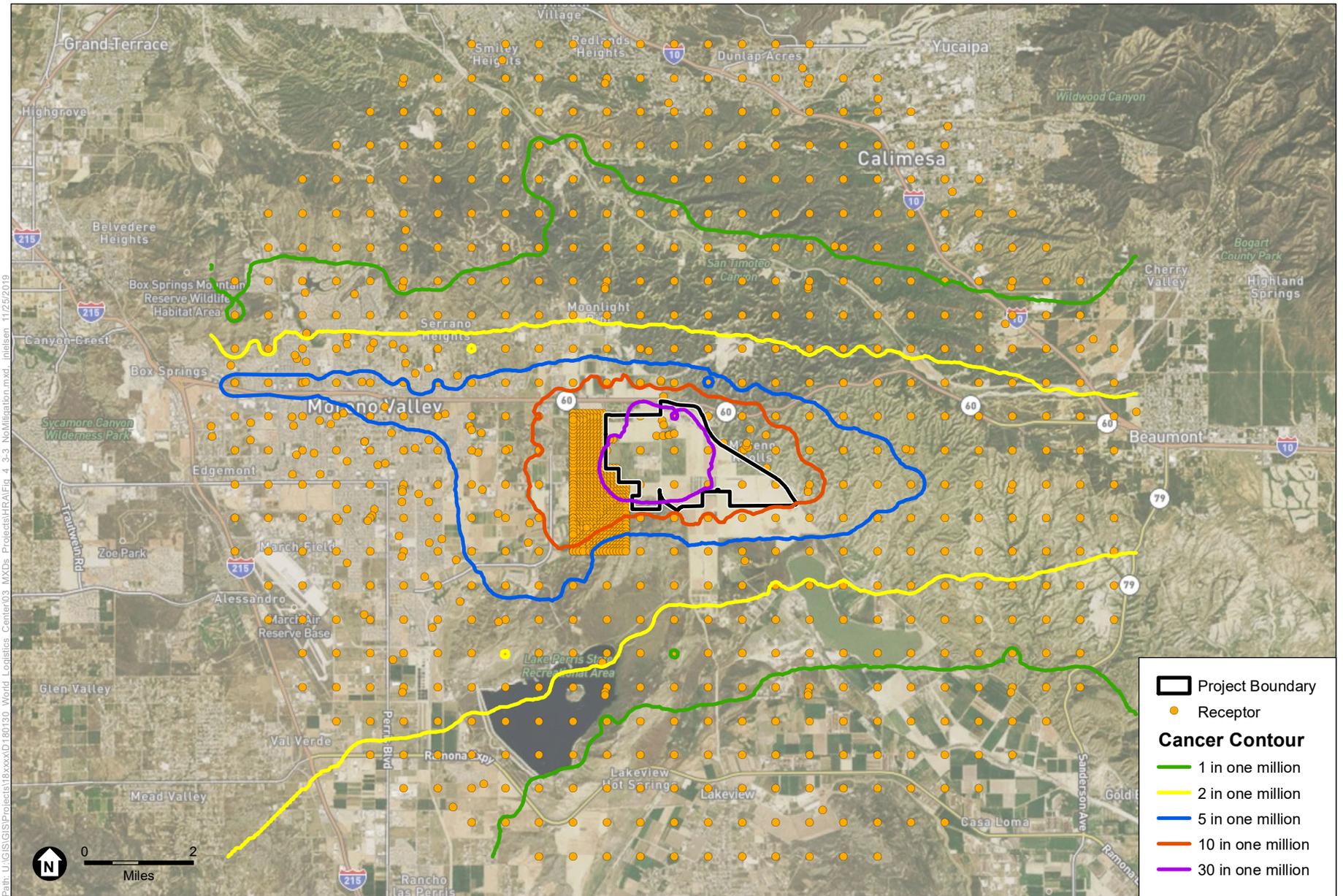
As mentioned in the methodology section, the HRA study area was focused on the most extensive emissions from project-related activities. Because project activity is highest on-site and surrounding the project boundary, the project's emissions and associated health impact decrease with an increase in distance from the project site. This is demonstrated by the cancer risk contours in Figures 4.3-3 and 4.3-4. The HRA study area includes approximately 18 miles of freeway segments along SR60 that extend from north of the project boundary 8.6 miles toward the west (toward Port of Long Beach) and 9 miles toward the east (toward Palm Springs), and the HRA receptor grids include receptors along the SR-60 freeway. Based on the results shown in Figure 4.3-3 for the construction plus operation scenario, without mitigation, a section surrounding the project boundary will potentially have an incremental cancer risk exceeding the SCAQMD 10 in one million threshold at an approximate distance of 2.5 miles away from the project boundary. Based on results shown in Figure 4.3-4 for 30 years of the full project operation, without mitigation, a similar section surrounding the project boundary out to an approximate distance of 2.5 miles will potentially have an incremental cancer risk exceeding 10 in one million. Some receptors near the SR-60 could also exceed the 10 in one million cancer risk threshold.

The project's mitigation conditions require that all construction equipment over 50 horsepower would be Tier 4, all diesel trucks accessing the project during operation be model year 2010 or newer, that all on-site equipment be Tier 4. Also, air filtration system meeting ASHRAE Standard 52.2 MERV-13 standards will be offered to the owners of the houses located at 13100 World Logistics Center Parkway (formerly Theodore Street) and 12400 World Logistics Center Parkway (formerly Theodore Street).

Because project-generated vehicle trips and associated impacts decrease with an increase in distance from the project site, the project impact along the regional freeway network outside the HRA's study area will be less than those presented in Figures 4.3-3 and 4.3-4. The project's impact to the regional freeway network will be the greatest during project full operation, as shown in Table 4.3-27 and Tables 4.3-29 and 4.3-30, the maximum cancer risk for receptors along the SR-60 freeway would be near the project boundary and 9.5 in one million with mitigation, which is less than the 10 in one million threshold with mitigation.

As shown in Figure 4.3-6, with mitigation, the incremental cancer risk along SR-60 may exceed the 10 in one million threshold promulgated by SCAQMD and be greater than significant for the 30 years of full operation. However, Figure 4.3-6 conservatively portrays each and every receptor as residents. This means that the more-conservative residential assumptions were also applied to worker receptors and may show extraneous exceedances of the 10 in one million threshold. The purpose of Figure 4.3-6 is to identify the 1 in one million isopleth in order to determine whether any schools fall within. The isopleth presented in Figure 4.3-6 does not ultimately apply for significance determination, which differentiates between receptor type. The maximum residential cancer risk for significance determination is presented, with mitigation, in Tables 4.3-29 and 4.3-30. As shown in Figure 4.3-5, with mitigation, the incremental cancer risk along SR-60 will be less than 10 in one million and less than significant for the 30 years of combined construction and operation.

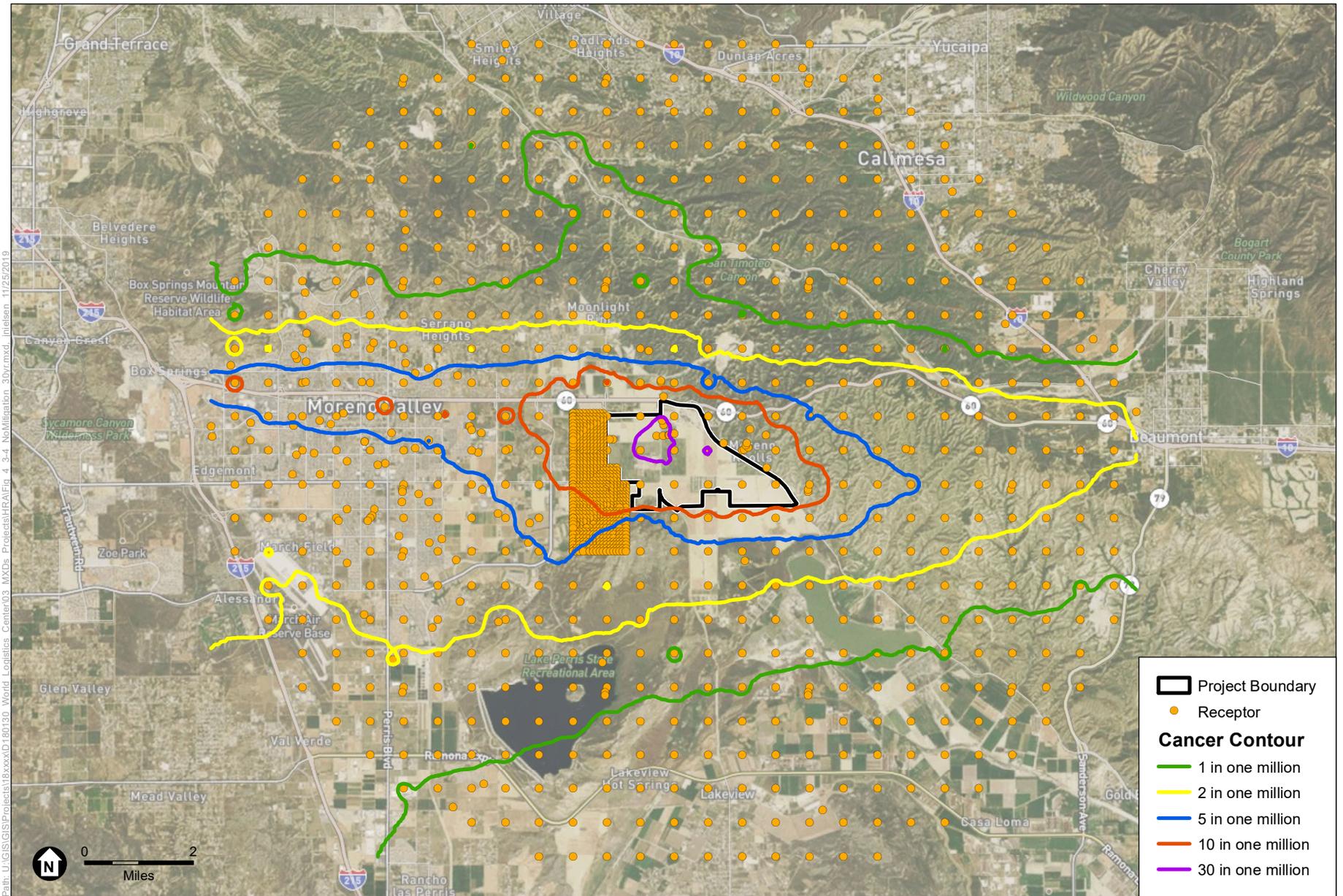
Of note, results in Figure 4.3-3 are based on project construction overlapping with project operations (partial project operation since the project is not built out yet) while Figure 4.3-4 is based on full project operation. The difference between the two sets of results indicates that the incremental cancer risk in Figure 4.3-3 is mainly driven by the DPM emissions from onsite construction equipment whereas the incremental cancer risk in Figure 4.3-4 is primarily driven by the DPM emissions from freeway truck travel.



SOURCE: ESRI 2019; ESA 2019

World Logistics Center

**Figure 4.3.3**  
Incremental Project Cancer Risk – No Mitigation  
(Construction and Operation)



SOURCE: ESRI 2019; ESA 2019.

World Logistics Center

**Figure 4.3-4**  
 Incremental Project Cancer Risk – No Mitigation  
 (30 Years of Full Operation)

**Mitigation Measures.** The mitigation measures previously identified under other impact sections are required (**Mitigation Measures 4.1.6.1A, 4.3.6.2A, 4.3.6.2B, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.3E**) to reduce construction and operational emissions of criteria pollutants would reduce the estimated cancer risks associated with the project. Additionally, the following mitigation measure is required to ensure that significant health risk does not occur at on-site residential receptor.

**4.3.6.5A** (a) The house at 30220 Dracaea Avenue shall be demolished prior to the issuance of the first grading permit for grading within the World Logistics Center.

(b) An air filtration system meeting ASHRAE Standard 52.2 MERV-13 standards shall be offered to the owners of the houses located at 13100 World Logistics Center Parkway (formerly Theodore Street) and 12400 World Logistics Center Parkway (formerly Theodore Street). The developer shall offer to install the air filtration system to the owners of the two properties within two months of the certification of the Final Revised FEIR. Prior to the issuance of the first grading permit within the World Logistics Center, documentation shall be provided to the City confirming that an offer to install the air filtration system has been extended to the owners of each of the two properties. The owners of the two properties shall be under no obligation to accept the offer. Each property owner shall have two years from the receipt of the offer to accept the offer. Upon acceptance of each offer, the developer shall work with each owner to ensure the air filtration system is properly installed within one year of acceptance.

**Mitigation Measure 4.3.6.3B(l)** would require that all diesel trucks that access the project site be model year 2010 or later and limits truck and vehicle idling to 3 minutes. **Mitigation Measure 4.3.6.2A(a)** would require that Tier 4 construction equipment be used on the project site. These mitigation measures would reduce the cancer risk from the project.

**Mitigation Measure 4.3.6.3C** may encourage alternative fueled vehicles and trucks on the project site. As discussed above, a High EV Penetration scenario assumes that up to 30 percent of the project's heavy duty trucks would be electric-powered; however, no reduction is taken. **Mitigation Measure 4.3.6.3D** may reduce vehicle miles traveled to food establishments; however, no direct reduction is taken. **Mitigation Measure 4.3.6.3E** requires that if transportation refrigeration units are to be used, electrical hookups would be required. In addition, refrigerated space is prohibited unless the impacts do not exceed any environmental impacts identified in this Revised FEIR. Therefore, it is assumed in the unmitigated and mitigated estimates that there would be no transportation refrigeration units. **Mitigation Measure 4.3.6.5A** requires that the Applicant install MERV 13 air filters at the residences located at 13100 Theodore Street and 12400 Theodore Street. The measure also requires that the residence located at 30220 Dracaea Avenue be demolished prior to the issuance of grading permits. The Applicant currently retains ownership of this property and can arrange for demolition.

**Level of Significance after Mitigation for Sensitive Receptor Cancer Risk.** Less than significant. Table 4.3-28 and Figure 4.3-5 show the cancer risks for the construction and operation HRA after application of mitigation. As noted, the cancer risks are substantially lower after mitigation, and the SCAQMD cancer risk significance threshold would not be exceeded at any of the onsite or offsite receptors within the study area. The large reduction in cancer risk after mitigation is attributable principally to the reduced diesel PM associated with the commitment to Tier 4 construction equipment. The impact of this mitigation is largely felt during the first 3 to 5 years of construction when the "Current OEHHA Guidance" assigns large age sensitivity factors to the first few years of the 30-year exposure duration. Table 4.3-29 and Figure 4.3-6 show the mitigated cancer risk from the 30-year full project buildout. The extent of the modeling domain is shown in Figure 4.3-5 and Figure 4.3-6.

**Table 4.3-28: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation**

<b>Receptor Location</b>	<b>Incremental Increase in Cancer Risk During Project Construction (risk/million)</b>	<b>Incremental Increase in Cancer Risk During Project Operation (risk/million)</b>	<b>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</b>	<b>SCAQMD Cancer Risk Significance Threshold (risk/million)</b>	<b>Exceeds Threshold?</b>
Maximum risk anywhere in the modeling domain <sup>2</sup>	4.9	4.2	9.1	10	No
Existing residences within the project boundaries					
13241 World Logistics Center Pkwy	4.9	4.2	9.1	10	No
13100 World Logistics Center Pkwy	3.3	4.6	7.9	10	No
13200 World Logistics Center Pkwy	4.0	3.8	7.8	10	No
30220 Dracaea Ave	4.1	4.8	8.9	10	No
29080 Dracaea Ave	2.3	2.5	4.8	10	No
29140 Dracaea Ave	2.5	2.7	5.2	10	No
Maximum risk at any area outside of the project boundaries <sup>3</sup>	1.4	4.3	5.7	10	No

Notes:

\* Pursuant to Mitigation Measure 4.3.6.5A, the Applicant shall install MERV-13 air filters at the residences located at 13100 World Logistics Center Parkway (formerly Theodore Avenue) and 12400 World Logistics Center Parkway (formerly Theodore Avenue).

<sup>1</sup> Cancer risk calculation conservatively assumed all receptors modeled are residential receptors. 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the EMFAC2014 emission model and "Current OEHHA Guidance" for estimating cancer risks.

<sup>2</sup> Location is at existing residences within the boundaries of the project.

<sup>3</sup> Location is adjacent to the midwestern boundary of the project.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 4.3-29: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation**

Receptor Location	Total Incremental Increase in Cancer Risk <sup>1</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>2</sup>	14.2	10	Yes
Maximum risk within the project boundaries <sup>3</sup>	10.7	10	Yes
Maximum risk at any area outside of the project boundaries <sup>4</sup>	9.5	10	No
Maximum risk along SR60 freeway outside of the project boundaries <sup>5</sup>	9.5	10	No

Notes:

- <sup>1</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2040 to 2069 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2014 emission model, SCAQMD HRA guidance and “Current OEHHA Guidance” for estimating cancer risks.
- <sup>2</sup> Location is at the existing residence immediately to the north of the project boundary and is owned by the project sponsor.
- <sup>3</sup> Location is at the existing residence located at 30220 Dracaea Avenue.
- <sup>4</sup> Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.
- <sup>5</sup> Location is south of SR 60 freeway, same as the location in footnote (4), which to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

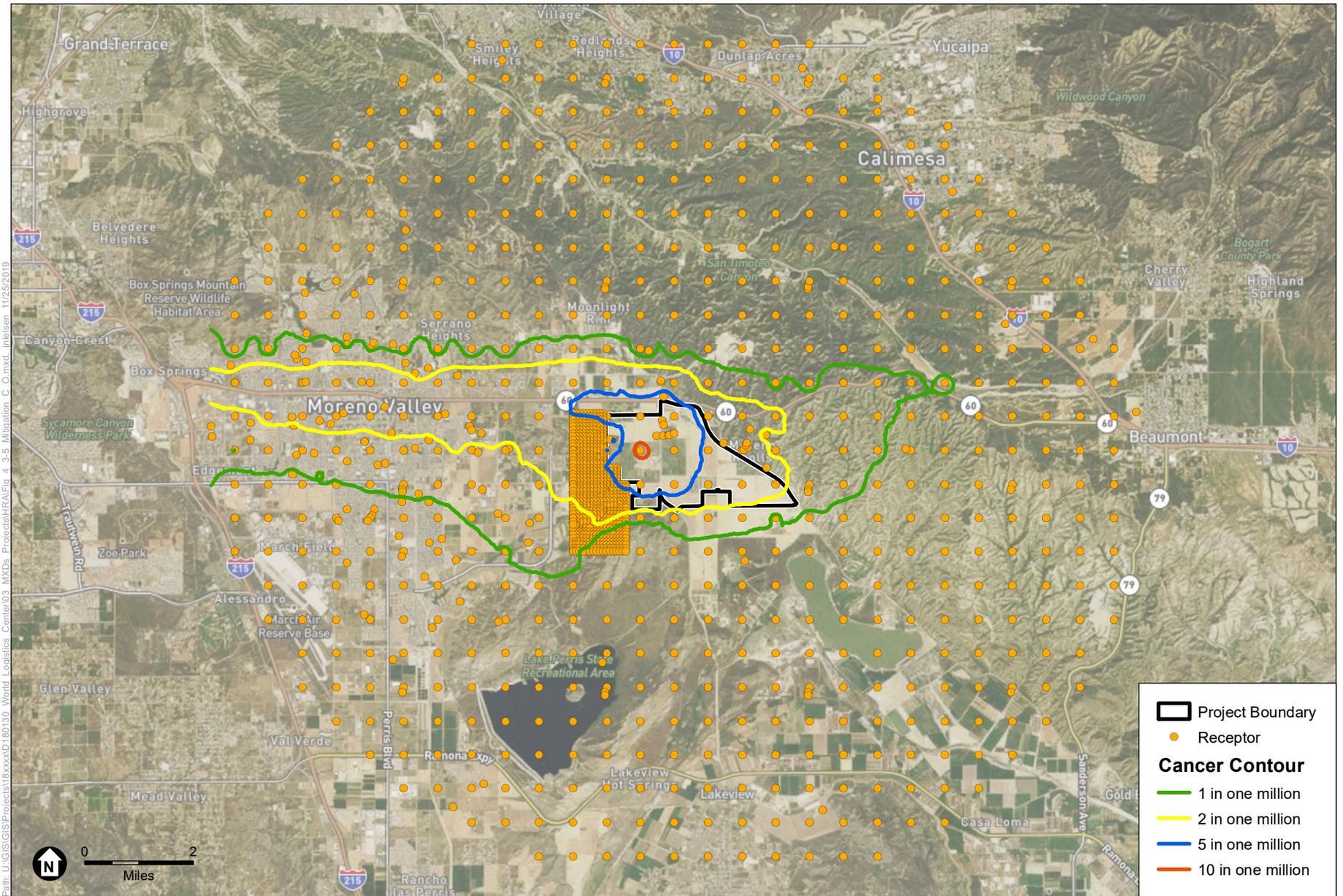
**Table 4.3-30: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Onsite Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation & Installation of MERV-13 Filters**

Receptor Location	Total Incremental Increase in Cancer Risk <sup>1</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
12400 World Logistics Center Parkway	7.1	10	No
30220 Dracaea Avenue	5.35	10	No
13241 World Logistics Center Parkway	4.75	10	No

Notes:

- <sup>1</sup> DieselNet.com, 2002

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

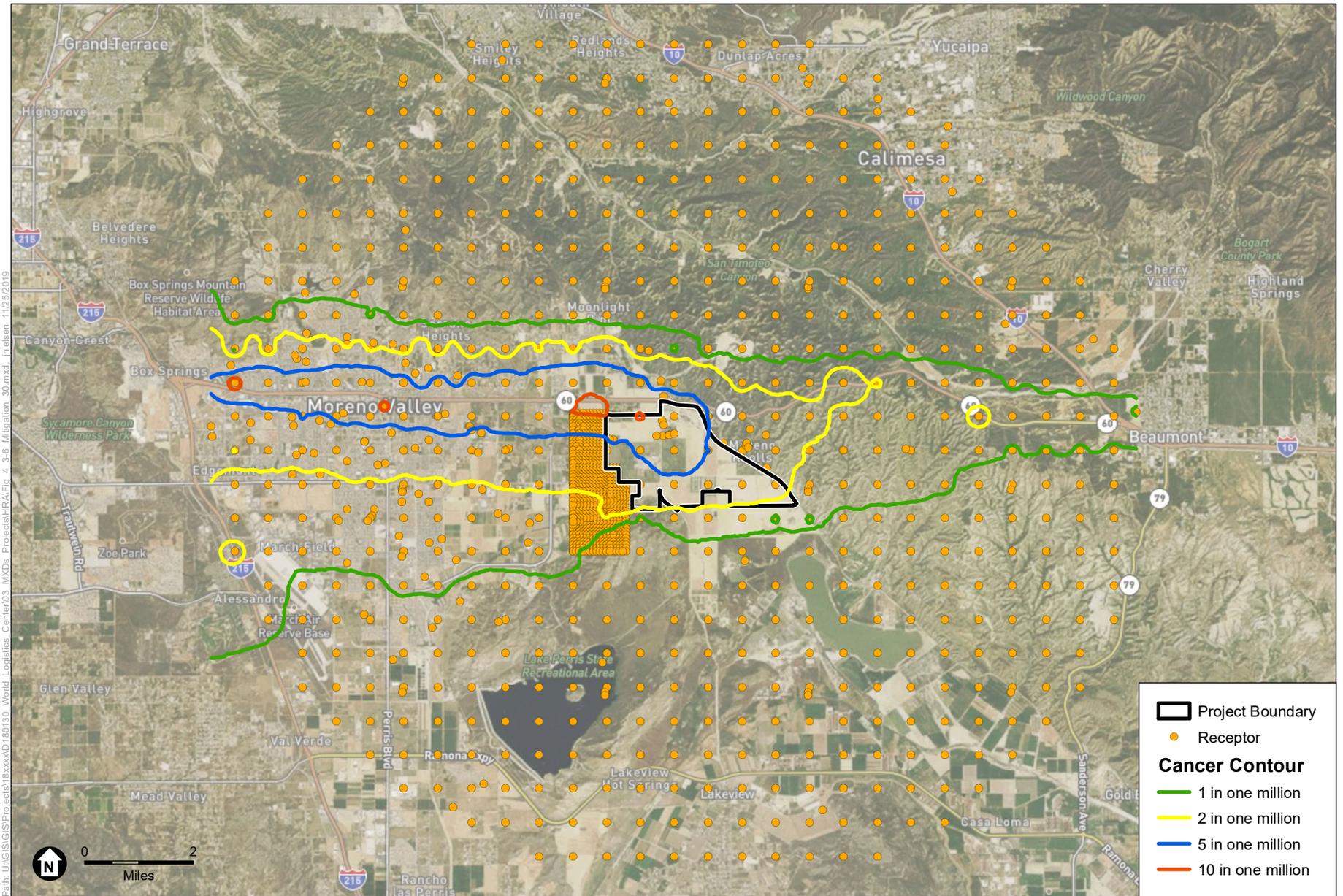


SOURCE: ESRI 2019; ESA, 2019.

World Logistics Center



**Figure 4.3-5**  
Incremental Project Cancer Risk – with Mitigation  
(Construction and Operation)



SOURCE: ESRI 2019; ESA 2019.

World Logistics Center



**Figure 4.3-6**  
Incremental Project Cancer Risk – with Mitigation  
(30 Years of Full Operation)

Through mitigation requirements, new technology diesel engines are required for the WLC project. The mitigation conditions require that all diesel trucks accessing the project during operation be model year 2010 or newer and that all on-site equipment be Tier 4. The results of the HEI Study indicate that the project mitigation requiring the application of Model Year 2010 engines as well as the use of Tier 4-compliant off-road construction equipment are not expected to result in emissions that would be associated with the formation of cancer in exposed individuals. The HEI study clearly demonstrates that the application of new emissions control technology to diesel engines have virtually eliminated the health impacts of diesel exhaust.

Mitigation measures 4.3.6.2A(a) and 4.3.6.3B(l) require 2010-compliant trucks for operation and Tier 4 equipment for construction and require 2010-compliant trucks for operation, respectively, both of which rely on diesel particulate filters similar to those tested in the HEI study. These vehicles reduce emissions by 90 percent when compared to 2006 vehicles and by 99 percent when compared to uncontrolled diesel engines. Recent emissions testing by CARB revealed that these diesel engines are cleaner than originally estimated.

Beginning in 2001, USEPA and CARB began issuing a series of regulations that require new diesel-powered vehicles and equipment to use the latest emissions control technology. This technology relies on two components. The first is a diesel particulate filter, which is capable of reducing particulate matter emissions by over 90 percent (required for new engines beginning in 2007). The second technology is selective catalytic reduction, which reduces emissions of nitrogen oxides by over 90 percent (required for new engines beginning in 2010). Diesel emissions from equipment equipped with this technology is referred to as NTDE. As a result of the advances in emission control technology, USEPA, CARB, and other government and industry stakeholders commissioned a series of studies called the Advanced Collaborative Emissions Study (ACES). ACES has been guided by an ACES Steering Committee consisting of representatives of HEI and the Coordinating Research Council (CRC: a nonprofit organization that directs engineering and environmental studies on the interaction between automotive or other mobility equipment and petroleum products), along with the U.S. Department of Energy, U.S. EPA, engine manufacturers, the petroleum industry, CARB, emission control manufacturers, the National Resources Defense Council, and others. The HEI, funded in part by USEPA, was selected to oversee Phase 3 of ACES.

Phase 3 of ACES evaluated whether emissions from new technology diesel engines cause cancer or other health effects. Specifically, it evaluated the health impacts of a 2007-compliant engine equipped with a diesel particulate filter. HEI found that lifetime exposure to NTDE did not cause carcinogenic lung tumors. The study also confirmed that the concentrations of particulate matter and toxic air pollutants emitted from NTDE are more than 90 percent lower than emissions from traditional older diesel engine.

As a result of the very low emissions from NTDE and the research conducted by HEI, it is projected that the project would not result in a significant increase in cancer health risks from the project's diesel emissions. Therefore, the project would have a less than significant health risk impact.

#### Residential Receptors

As discussed above, the HRA analysis assumed DPM emissions from NTDE causes cancer (contrary to the HEI findings) and used a very conservative application of the "Current OEHHA Guidance" to the World Logistics Center project (which was provided for informational purposes). Although air quality significance thresholds have been established for outdoor environments, a significant portion of human exposure to air pollutants occurs indoors where people spend more than 90 percent of their time (USEPA, 2011). One approach to reduce exposure is the installation of high efficiency panel filters inside the HVAC system. Air filters and other air-cleaning devices are designed to remove pollutants from indoor air. Some are installed in the ductwork of a home's central heating, ventilating, and air-conditioning (HVAC) system to clean the air in the entire house. In studies of the effectiveness of air filtration systems in classrooms (SCAQMD, 2003) and by the EPA in residences (USEPA, 2010), the combination of an HVAC system with a high performance panel filter reduced indoor levels of fine particulate matter, PM<sub>2.5</sub> and smaller particles by 70 to 90 percent.

The use of a filtration system consisting of the application of filters with a rating of ASHRSE Standard 52.2 MERV-13, as required by Mitigation Measure 4.3.5.4.A, is sufficient to capture a significant portion of the diesel particulate matter. However, the filtration system would not remove the smallest of particles (less than approximately 0.01 to 0.2 micrometer (µm) in diameter). MERV-13 filters would, however, reduce particles in the range of 0.3 to 1 µm by up to 75 percent and particles larger than 1 µm by 90 percent (see Table 1 of the Addendum to CARB, 2013b). Based on measurement studies of the size distribution of the collected DPM, approximately 0.1 to 10 percent of the total DPM mass includes particles between 0.01 and 0.2 µm in diameter, particles between 0.3 and 1 µm in diameter comprise 70 percent of the total DPM mass, and particles above 1 µm comprise 5 to 20 percent of the total DPM mass (DieselNet.com, 2002).

Since the cancer risk from DPM is calculated from the mass of DPM emitted, the quantity of DPM reduced by the action of air filters would thus equate to a reduction in cancer risk. The application of MERV-13 air filter filtration system would result in a reduction of DPM exposures by approximately 70 percent, as calculated below.

<b>DPM size:</b>	0.01 to 0.2 µm	0.3 to 1 µm	Greater than 1 µm
<b>Calculation:</b>	10% mass x 0% reduction	70% mass x 75% reduction	20% mass x 90% reduction
<b>Reduction:</b>	0% reduction	52.5% reduction	18% reduction

Attributing an adjustment for time that windows might be open, residents would be outside, or for different compounds that result in the cancer risk would reduce the efficacy of the filters by about 20 percent, bringing the total cancer risk reduction from the filters to 50 percent.

The use of the filters would bring the OEHHA-calculated risk below the SCAQMD threshold eliminating any possible risk from the project on any onsite or offsite receptors within the study area. Health risk impacts are less than significant and no further mitigation is required.

School Site Receptors

With the application of the mitigation measures discussed above, the maximum cancer risk would be approximately 3.0 in one million at Bear Valley Elementary School for both the construction + operational scenario and the full operational scenario. Therefore, maximum impacts at schools are less than the 10 in one million significance threshold with the implementation of mitigation and are less than significant.

Worker Receptors

The highest worker cancer risk estimates after the application of mitigation is approximately 1.8 in one million for the construction + operational scenario and 1.6 in one million for the full operational scenario. Therefore, cancer risk for worker receptors anywhere in the revised HRA's study area is less than the 10 in one million significance threshold with the implementation of mitigation and are less than significant.

Cancer Burden

With the application of mitigation measures, the cancer burden is estimated to be 0.48 out of a population of about 142,397 individuals that were estimated to have a cancer risk of 1 in a million or more after mitigation. This is less than the SCAQMD threshold for cancer burden of 0.5. Therefore, the project would not exceed the SCAQMD's cancer burden significance threshold after the application of mitigation.

In summary, the implementation of all the recommended mitigation measures, including the requirement to use 2010 diesel engine emissions standards, Tier 4 construction equipment, and

installation of air filters at the identified on-site residence will reduce the OEHHA-calculated cancer risk to below 10 in one million at all sensitive receptors. Therefore, impacts would be less than significant.

Summary of Project-Related Air Quality Impacts

Based on the preceding analyses in Sections 4.3.5.1 through 4.3.6.5, the WLC project will have the following direct air quality impacts:

**Table 4.3-31: Summary of Project-Related Air Quality Impacts**

<b>Impact</b>	<b>Air Quality Topic/Issue</b>	<b>Impact Conclusion</b>
<b>Project Impacts</b>		
4.3.5.1	Odors (addressed in 2015 FEIR)	Less than Significant No Mitigation Required
4.3.5.2	Long-Term Micro-Scale CO Hotspot Emissions	Less than Significant No Mitigation Required
4.3.6.1	Air Quality Management Plan Consistency	Significant (inconsistent) and Unavoidable with Mitigation
4.3.6.2	Regional Construction Emissions	Significant and Unavoidable with Mitigation (VOC, NO <sub>x</sub> , CO, and PM <sub>10</sub> ; regional health effects from ozone and particulate matter)
4.3.6.3	Localized Construction and Operation (LSTs)	Significant and Unavoidable with Mitigation (PM <sub>10</sub> ) (onsite and offsite)
4.3.6.4	Regional Long-Term Operational Emissions	Significant and Unavoidable with Mitigation (VOC, NO <sub>x</sub> , CO, PM <sub>10</sub> , and PM <sub>2.5</sub> ; regional health effects from ozone, PM <sub>10</sub> , and PM <sub>2.5</sub> )
4.3.6.5	Sensitive Receptors (a) Localized PM <sub>10</sub>	Significant and Unavoidable for PM <sub>10</sub> with Mitigation (onsite and offsite)
	(b) Non-Cancer Acute and Chronic Health Risks	Less than Significant
	(c) Cancer Risks– Sensitive Receptors	Less than Significant with Mitigation
	(d) Cancer Burden	Less than Significant with Mitigation
	(e) Cancer Risks –Workers	Less than Significant with Mitigation
	(f) Cancer Risks – School Sites	Less than Significant with Mitigation

**4.3.6.6 Summary of Health Effects of Air Quality Emissions**

Overall, the estimated health effects from ozone and PM<sub>2.5</sub> are minimal in light of background incidences. **Tables 4.3-32 through 4.3-35** below show the annual percent of background health incidence for PM<sub>2.5</sub> and Ozone health effects associated with the Unmitigated and Mitigated Project, respectively. The “background health incidence” is the actual incidence of health effects (based on available data) as estimated in the local population in the absence of additional emissions from the Project.<sup>1</sup> When taken into context, the small increase in incidences and the very small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment. There are no significance thresholds for health effects, thus this information is provided for background understanding regarding the air quality emissions.

<sup>1</sup> Background health statistics were obtained from data included in the BenMAP model, and the sources are referenced in the BenMAP manual (USEPA, 2018). For example, EPA obtained mortality rates from the Centers for Disease Control (CDC) WONDER database, and hospital admissions rates from the Healthcare Cost and Utilization Project (HCUP).

Unmitigated Project Health Effects

**Table 4.3-32: BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.0051%	130,805
Mortality, All Cause [30-99]	0.0047%	325,048
Hospital Admissions, Asthma [0-64]	0.0029%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00063%	224,047
Hospital Admissions, All Respiratory [65-99]	0.0016%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0020%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0021%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0020%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0020%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0019%	40,966

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences or “background health incidence”). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential PM<sub>2.5</sub>-related health effects associated with unmitigated Project-related increases in ambient air concentrations include asthma-related emergency room visits (6.63 incidences per year), asthma-related hospital admissions (0.52 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (1.42 incidences per year), all respiratory-related hospital admissions (3.17 incidences per year), mortality (15.19 incidences per year), and nonfatal acute myocardial infarction (less than 0.78 incidences per year for all age groups).

**Table 4.3-33: BenMAP-Estimated Annual Mean Ozone Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00075%	193,354
Mortality, Non-Accidental [0-99]	0.00033%	210,692
Emergency Room Visits, Asthma [0-17]	0.014%	50,722
Emergency Room Visits, Asthma [18-99]	0.010%	80,084

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences, or “background health incidence”). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential ozone-related health effects associated with unmitigated Project-related increases in ambient air concentrations include respiratory-related hospital admissions (1.46 incidences per year), mortality (0.69 incidences per year), and asthma-related emergency room visits for any age range (lower than 8.20 incidences per year for all age groups).

Mitigated Potential Health Effects

**Table 4.3-34: BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.0047%	130,805
Mortality, All Cause [30-99]	0.0044%	325,048
Hospital Admissions, Asthma [0-64]	0.0028%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00059%	224,047
Hospital Admissions, All Respiratory [65-99]	0.0015%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0019%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0020%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0019%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0019%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0018%	40,966

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences or “background health incidence”). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential PM<sub>2.5</sub>-related health effects associated with mitigated Project-related increases in ambient air concentrations include asthma-related emergency room visits (6.2 incidences per year), asthma-related hospital admissions (0.49 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (1.33 incidences per year), all respiratory-related hospital admissions (2.98 incidences per year), mortality (14.17 incidences per year), and nonfatal acute myocardial infarction (less than 0.724 incidences per year for all age groups).

**Table 4.3-35: BenMAP-Estimated Annual Mean Ozone Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00062%	193,354
Mortality, Non-Accidental [0-99]	0.00027%	210,692
Emergency Room Visits, Asthma [0-17]	0.011%	50,722
Emergency Room Visits, Asthma [18-99]	0.0085%	80,084

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences, or “background health incidence”). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential ozone-related health effects associated with mitigated Project-related increases in ambient air concentrations include respiratory-related hospital admissions (1.20 incidences per year), mortality (0.56 incidences per year), and asthma-related emergency room visits for any age range (lower than 6.84 incidences per year for all age groups).

Because the health effects from ozone and PM<sub>2.5</sub> are minimal in light of background incidences, and health effects from other criteria pollutants would be even smaller, the health effects of those other criteria pollutants were not quantified.

**Uncertainty.** Analyses that evaluate the increases in concentrations resulting from individual sources, and the health effects of increases or decreases in pollutants as a result of regulation on a localized basis, are routinely done. This analysis does not tie the increase in concentration to a specific health effect in an individual; however, it does use scientific correlations of certain types of health effects from pollution to estimate increases in effects to the population at large.

Aside from the uncertainty as to the causal basis of the statistical associations in air pollution epidemiology studies of PM and mortality, some epidemiological studies have found no correlation between mortality and increased PM (Enstrom, 2005; 2017; Lipfert et al., 2000; Murray and Nelson, 2000; Greven et al., 2011; You et al., 2018; Zhou et al., 2015). Although there are a greater number of publications reporting a positive PM association for mortality compared to those reporting no association.

There is a degree of uncertainty in these results from a combination of the uncertainty in the emissions themselves, the increase in concentration resulting from the PGM and the uncertainty of the application of the C-R increase. All simulations of physical processes, whether ambient air concentrations, or health effects from air pollution, have a level of uncertainty associated with them, due to simplifying assumptions. The overall uncertainty is a combination of the uncertainty associated with each piece of the modeling study, in this case, the emissions quantification, the emissions model, the PGM, and BenMAP. While these results reflect a level of uncertainty, regulatory agencies, including the USEPA have judged that, even with the uncertainty in the results, the results provide sufficient information to the public to allow them to understand the potential health effects of increases or decreases in air pollution (USEPA 2012).

**NOTE TO READERS:** Section 4.7, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 4.7 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of reference to a portion of Section 4.7 means that the corresponding portion of Section 4.7 in the FEIR prepared in 2015 remains unchanged or has been deleted.

## **4.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE, AND SUSTAINABILITY**

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and an analysis of greenhouse gas (GHG) emissions associated with the World Logistics Center project. This analysis examines the short-term construction and long-term operational impacts and evaluates the effectiveness of measures incorporated as part of the project design.

This section analyzes the World Logistics Center project’s potential climate impacts based on the following technical studies:

*Air Quality, Greenhouse Gas, and Health Risk Assessment Report World Logistics Center Specific Plan* (Environmental Science Associates, dated November 2019) contained in Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR.

*World Logistics Center (WLC) Transportation Energy Technical Study* (Environmental Science Associates and CALSTART, dated November 2019) contained in Appendix E.1 of this Draft Recirculated Revised Sections of the FEIR.

*World Logistics Center (WLC) Comparison of Renewable Energy Technologies Report (WSP USA, Inc., dated May 2018)* contained in Appendix E.2 of the Revised Sections of the FEIR.

### **4.7.1 Existing Setting**

#### **4.7.1.1 Global Climate Change**

Global climate change is the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The term “global climate change” is often used interchangeably with the term “global warming,” but “global climate change” is preferred by some scientists and policy makers to “global warming” because it helps convey the notion that there are other changes in addition to rising temperatures.

Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind, lasting for decades or longer (U.S. Environmental Protection Agency [EPA], 2007). Climate change may result from:

- Natural factors, such as changes in the sun’s intensity or slow changes in the Earth’s orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere’s composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

The primary observed effect of global climate change has been a rise in the average global tropospheric<sup>1</sup> temperature of 0.36 degrees Fahrenheit (°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California

---

<sup>1</sup> The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold and increased intensity of tropical cyclones (hurricanes). Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Delta.

Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO<sub>2</sub>) and other compounds, cumulatively termed greenhouse gases (GHGs). GHGs are effective in trapping infrared radiation that otherwise would have escaped the atmosphere, thereby warming the atmosphere, the oceans, and earth's surface (USEPA, 2007). Many scientists believe that "most of the warming observed over the last 50 years is attributable to human activities" (Intergovernmental Panel on Climate Change [IPCC], 2007d). The increased amounts of CO<sub>2</sub> and other GHGs are alleged to be the primary causes of the human-induced component of warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>). In the last 200 years, substantial quantities of GHGs have been released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, enhancing the natural greenhouse effect, which is believed to be causing global climate change. While human-made GHGs include CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere.

GHGs vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO<sub>2</sub>, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one-unit mass of the GHG to the ratio of heat trapped by one unit mass of CO<sub>2</sub> over a specified time period. GHG emissions are typically measured in terms of metric tons of "CO<sub>2</sub> equivalents" (mt CO<sub>2</sub>e or MTCO<sub>2</sub>e).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Human-made sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. As for CO<sub>2</sub>, the major removal process of atmospheric CH<sub>4</sub>—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH<sub>4</sub> concentrations in the atmosphere are increasing.

Worldwide emissions of GHGs in 2010 were approximately 47,351 million mt CO<sub>2</sub>e (World Resources Institute [WRI], 2018). Emissions from the top five countries and the European Union accounted for approximately 57 percent of the total global GHG emissions, according to the most recently available data. The United States was the number two producer of GHG emissions, contributing 13 percent of the emissions. The primary GHG emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 82 percent of total GHG emissions. CO<sub>2</sub> from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 85 percent of the GHG emissions (WRI, 2018).

In 2016, the United States emitted approximately 5.3 billion mt CO<sub>2</sub>e or approximately 16.5 tons per year (tpy) per person. Of the six major sectors nationwide (electric power industry, transportation, industry, agriculture, commercial, and residential), the electric power industry and transportation sectors combined account for approximately 72 percent of the GHG emissions; the majority of the electrical power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2016, total United States GHG emissions rose approximately 2.8 percent (USEPA, 2018b).

World carbon dioxide emissions are expected to increase by 1.9 percent annually between 2001 and 2025 (USEIA, 2017). Much of the increase in these emissions is expected to occur in the developing world where emerging economies, such as China and India, fuel economic development with fossil energy. Developing countries' emissions are expected to grow above the world average at 2.7 percent annually between 2001 and 2025; and surpass emissions of industrialized countries near 2018.

The California Air Resources Board (CARB) is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the State of California and supports the Assembly Bill (AB) 32 Climate Change Program. The most recent inventory of GHG emissions in California estimated 440.4 million mt CO<sub>2</sub>e in 2015 (CARB, 2017d). This is a 2.2 percent increase in GHG emissions from 1990. The top contributor of emissions in 2015 was transportation, which contributed 37 percent of the emissions. The second highest sector was industrial (21 percent), which includes sources from refineries, general fuel use, oil and gas extraction, and cement plants. According to CARB, California is on track to meet the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32) (CARB, 2016a).

#### **4.7.1.2 Effects of Global Climate Change**

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use these data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The International Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean surface temperature change for 2081-2100 relative to the period from 1986 to 2005, given six scenarios, could range from 0.3 degrees Celsius (°C) to 4.8 °C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC, 2007c). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many of the aspects of global warming or climate change, including actual temperature changes during the 20<sup>th</sup> century, the accuracy of the IPCC report, and contributions of human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

Additionally, the following climate change effects, which are based on trends established by the IPCC, can be expected in California over the course of the next century:

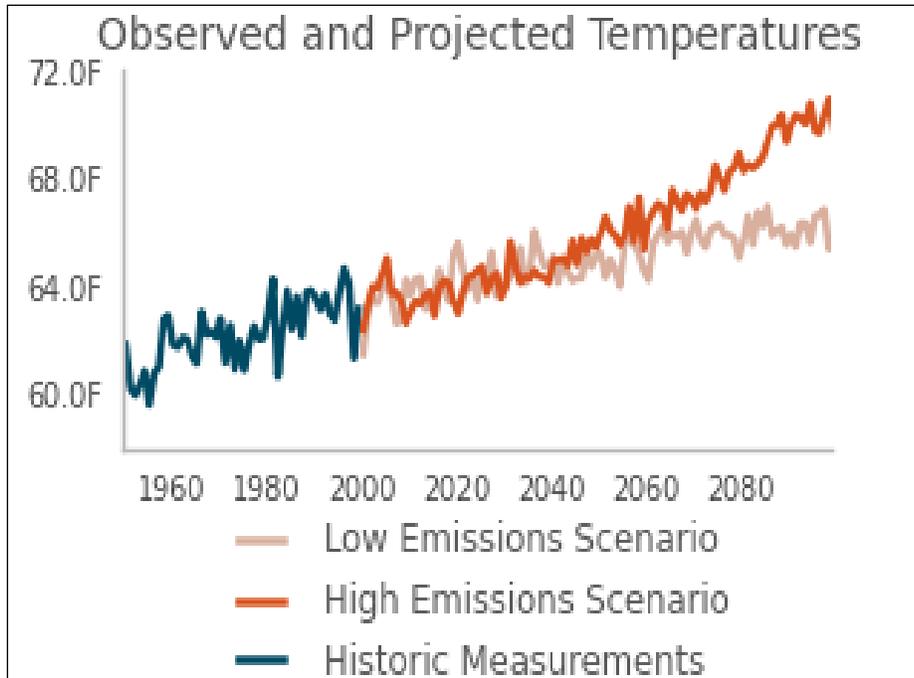
- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply. If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier.
- A rise in sea levels resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions

continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the project area as it is a significant distance away from coastal areas.)

- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Precipitation, winds, temperature, and vegetation influence wildfire risk; therefore, wildfire risk is not uniform throughout the state. Changes in current precipitation patterns could influence that risk. As an example, wildfires in the grasslands and chaparral ecosystems of *southern* California are estimated to increase by approximately 30 percent toward the end of the 21<sup>st</sup> century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more *northern* California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas (see below).
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

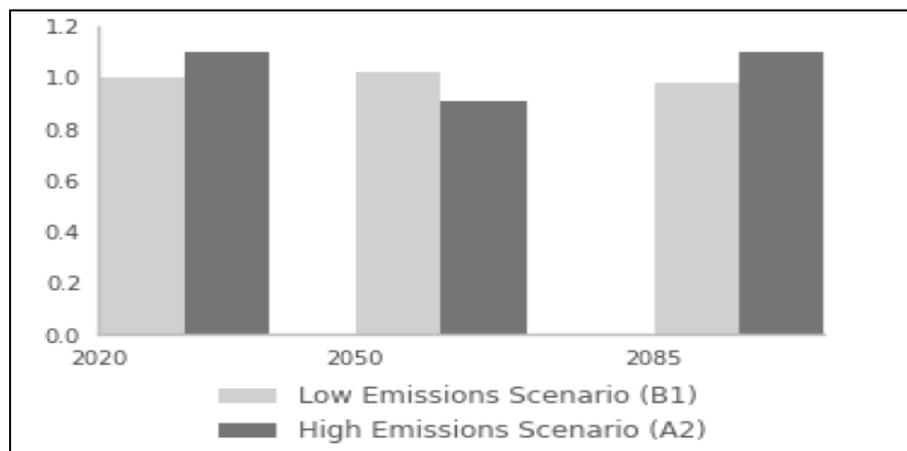
**Consequences of Climate Change in Moreno Valley.** The figure below displays a chart of measured historical and projected annual average temperatures in the Moreno Valley area. As shown in the figure, temperatures are expected to rise in the low and high GHG emissions scenarios.

Water for the project would be provided by the Eastern Municipal Water Department (EMWD). The EMWD 2015 Urban Water Management Plan considered the impact of climate change on water supplies as part of its long-term strategic planning. One of the outcomes of climate change could be more frequent limitations on imported supplies. To limit the impact of climate change, EMWD's long-term planning focuses on the development of reliable local resources and the implementation of water use efficiency. This includes the full utilization of recycled water and the recharge of local groundwater basins to increase supply reliability during periods of water shortage. EMWD is also focused on reducing demand for water supplies, especially outdoors. Increasing the use of local resource and reducing the need for imported water has the dual benefit of not only improving water quality reliability, but reducing the energy required to import water to EMWD's service area.



The figure below displays the fire risk in Moreno Valley relative to 2010 levels. The figure displays the projected increase in potential area burned given three different 30-year averaging periods ending in 2020, 2050, and 2085 and two different scenarios (A2, B1). The data are modeled solely on climate projections and do not take landscape and fuel sources into account (there is very little combustible material in the project area). The data are shown in the figure below and indicate that under the low-emissions scenario, the additional wildfire risk is about 1, which means that wildfire risk is expected to remain about the same. Under the high-emission scenario, additional risk is variable with a slight increase.

Wildfire Risk in Moreno Valley



## **4.7.2 Regulatory Setting**

### **4.7.2.1 Federal Regulations/Standards**

**Clean Vehicles.** Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's Highway Traffic and Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The vehicles had to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards were designed to cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO<sub>2</sub> per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (EPA 2012).

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses (also known as "Phase 1"). For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and up to a 15 percent reduction for diesel vehicles by 2018 model year (12% and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles (includes other vehicles like buses, refuse trucks, concrete mixers; everything except for combination tractors and heavy-duty pickups and vans), the agencies are proposing engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by the 2018 model year. Building on the success of the standards, the EPA and U.S. Department of Transportation jointly finalized additional standards (called "Phase 2") for medium- and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. The final standards are expected to lower CO<sub>2</sub> emissions by approximately 1.1 billion metric tons.

### **4.7.2.2 State Regulations/Standards**

**California Code of Regulations Title 24, Part 6.** The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include mandatory requirements for efficiency and design of energy systems, including space conditioning (cooling and heating), water heating, and indoor and outdoor lighting systems and equipment, and appliances. California's Building Energy Efficiency Standards are updated on an approximately three-year cycle as technology and methods have evolved. The 2016 Standards, effective January 1, 2017, focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, and include requirements that will enable both demand reductions during critical peak periods and future solar electric and thermal system installations. The

next code update (2019) is expected to focus on integrating solar photovoltaic (PV) and other renewables with energy storage, taking Title 24 another step closer toward the state's zero net energy (ZNE) goals as spelled out in the California Energy Efficiency Strategic Plan (CEC, 2011), calling for all new residential construction to be ZNE by 2020 and all new commercial construction to be ZNE by 2030.

**California Code of Regulations Title 24, Part 11.** The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

**Renewable Electricity Standards.** There have been several renewable electricity senate bills in California. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard (RPS) target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the CARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. Senate Bill X1-2 (2011) codifies the Renewable Electricity Standard into law.

**Senate Bill 100.** On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by December 31, 2030. Incrementally, these energy providers must also have a renewable energy supply of 44 percent by December 31, 2024, and 52 percent by December 31, 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

**Senate Bill 350.** The Clean Energy and Pollution Reduction Act of 2015 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator (ISO) into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the Legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

**Pavley Regulation, Advanced Clean Cars (ACC), and the California Mobile Source Strategy.** Assembly Bill 1493 (2002) requires CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In setting these standards, CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The federal Clean Air Act ordinarily preempts state regulation of motor vehicle emission standards;

however, California is allowed to set its own standards with a federal waiver from the USEPA, granted in 2009. Known as the Pavley Clean Car Standards, AB 1493 regulated GHG emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for model years 2015 through 2025. The program includes components to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. The zero emissions vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEV) in the 2018 to 2025 model years (CARB, 2017f).

In May 2016, CARB released the updated Mobile Source Strategy that demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years, through a transition to zero-emission vehicles (ZEVs), cleaner transit systems and reduction of vehicle miles traveled. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 “last mile” delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels (CARB, 2016c).

**Executive Order B-16-2012 (Zero-Emission Vehicles).** This executive order indicates that all State entities under the Governor’s control support and facilitate the rapid commercialization of zero-emission vehicles. The order contains a target similar to Executive Order S-3-05, but for the transportation sector instead of all sectors: that California target for 2050 a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels. Executive order B-16-2012 also indicates that the CARB, the California Energy Commission, the Public Utilities Commission and other relevant agencies are ordered to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following:

- By 2015: The State’s major metropolitan areas able to accommodate zero-emission vehicles, each with infrastructure plans and streamlined permitting; the State’s manufacturing sector expend zero-emission vehicle and component manufacturing; an increase in the private sector’s investment in zero-emission vehicle infrastructure; and the State’s academic and research institutions contributing to zero-emission vehicle research, innovation and education.
- By 2020: The State’s zero-emission vehicle infrastructure ability to support up to one million vehicles; the costs of zero-emission vehicles competitive with conventional combustion vehicles; zero-emission vehicles accessible to mainstream consumers; widespread use of zero-emission vehicles for public transportation and freight transport; and a decrease in transportation sector GHG emissions as a result of the switch to zero-emission vehicles; electric vehicle charging integrated into the electricity grid.
- By 2025: over 1.5 million zero-emission vehicles on California roads; easy access to zero-emission vehicle infrastructure in California; the zero-emission vehicle industry strong and sustainable part of California’s economy; and California’s vehicles displace at least 1.5 billion gallons of petroleum fuels per year.

**Sustainable Freight Action Plan.** Executive Order B-32-15 directed the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California’s freight transport system. The targets are not mandates, but rather aspirational measures of progress towards sustainability for the State to meet and try to exceed. The targets include:

- **System Efficiency Target:** Improve freight system efficiency by 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030.
- **Transition to Zero Emission Technology Target:** Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
- **Increased Competitiveness and Economic Growth Targets:** Establish a target or targets for increased State competitiveness and future economic growth within the freight and goods movement industry based on a suite of common-sense economic competitiveness and growth metrics and models developed by a working group comprised of economists, experts, and industry. These targets and tools will support flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes and jobs, while working with industry to mitigate potential negative economic impacts. The targets and tools will also help evaluate the strategies proposed under the Action Plan to ensure consideration of the impacts of actions on economic growth and competitiveness throughout the development and implementation process.

**California Transportation Plan 2040.** The California Transportation Plan (CTP) 2040 provides a long-range policy framework to meet future mobility needs and reduce GHG emissions. The CTP defines goals, performance-based policies, and strategies to achieve maximum feasible emission reductions in order to attain a statewide reduction in GHG emissions.

The CTP 2040 recognizes that the Governor is committed to reduce by one-half current petroleum use in cars and trucks; increase from one-third to one-half the electricity derived from renewable sources; double the efficiency savings of existing buildings and make heating fuels cleaner; reduce the release of methane, black carbon, and other short-lived climate pollutants; and manage farm and rangelands, forests, and wetlands to store more carbon.

Transportation GHG reduction strategies within the CTP 2040 include demand management (including telecommuting/working at home, increased carpoolers, and increase car sharing), mode shift (including transit service improvements, high-speed rail, bus rapid transit, expanded bike and pedestrian facilities, carpool land occupancy requirements, and increased HOV lanes), travel cost (implement expanded pricing policies), and operational efficiency (incident/emergency management, Caltrans' Master Plan, ITS/TSM, and eco-driving).

**Low Carbon Fuel Standard, Executive Order S-01-07.** The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandated that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission (CEC), the CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. The Low Carbon Fuel Standard requires producers of petroleum based fuels to reduce the carbon intensity of their products, beginning with a quarter of a percent in 2011, ending in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS Credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas or hydrogen. The Low Carbon Fuel Standard was challenged in the United States District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against the CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the CARB to continue to implement and enforce the regulation and vacated the injunction on September 18, 2013, and remanded the case to the district court for further consideration. With the adoption of the 2017 Scoping Plan Update, the Low Carbon Fuel Standard has been increased to an 18 percent reduction in carbon intensity by 2030.

**Senate Bill 1383.** This bill creates goals for short-lived climate pollutant (SLCP) reductions in various industry sectors. The SLCPs included under this bill – including methane, fluorinated gases, and black carbon – are GHGs that are much more potent than carbon dioxide and can have detrimental effects on human health and climate change. SB 1383 requires the CARB to adopt a strategy to reduce methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030. The methane emission reduction goals include a 75% reduction in the level of statewide disposal of organic waste from 2014 levels by 2025. **Executive Order S-3-05.** Executive Order S-3-05 was signed by Governor Schwarzenegger in 2005 proclaiming California is vulnerable to the impacts of climate change. It states that increased temperatures could reduce the Sierra Nevada's snowpack, worsen California's air quality problems, and potentially cause a rise in sea levels. The Executive Order establishes total GHG emission targets including emissions reductions to the 2000 level by 2010, and the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target.

**Assembly Bill 32 (AB 32).** California's major initiative for reducing GHG emissions is outlined in AB 32, the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. The original 2020 GHG emissions limit was 427 million mt CO<sub>2</sub>e. The current 2020 GHG emissions limit is 431 million mt CO<sub>2</sub>e. AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change.

The Scoping Plan was approved by the CARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures (CARB, 2008b). The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, even after Board approval, remains a recommendation. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process. The CARB rule-making process includes preparation and release of each of the draft measures, public input through workshops and a public comment period, followed by a CARB hearing and rule adoption.

Pursuant to AB 32, the CARB and the Climate Action Team (CAT)<sup>2</sup> did the following:

- Adopted a list of discrete early action measures;
- Established a statewide GHG emissions cap for 2020 based on 1990 emissions and adopted mandatory reporting rules for significant sources of GHG;
- Indicated how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions; and
- Adopted regulations to achieve the maximum technologically feasible and cost-effective reductions in GHG, including provisions for using both market mechanisms and alternative compliance mechanisms.

In June 2007, the CARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The CARB adopted additional early action measures in October 2007 (CARB, 2007a) that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons

---

<sup>2</sup> CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of CARB's jurisdiction.

from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and sulfur hexafluoride (SF<sub>6</sub>) reductions from the non-electricity sector. The combination of early action measures was estimated to reduce statewide GHG emissions by nearly 16 million mt CO<sub>2</sub>e (CARB, 2007b).

AB 32 codifies Executive Order S-3-05's<sup>3</sup> year 2020 goal by requiring that statewide GHG emissions be reduced to 1990 levels by the year 2020.

The first AB 32 Scoping Plan, published in 2008, identified a future cap-and-trade program covering refineries, power plants, industrial facilities, and transportation fuels as a central element of California's overall strategy to reduce GHG emissions to 1990 levels. More information on the Scoping Plan and California's Cap and Trade program is provided below.

**Amendments to California Global Warming Solutions Act of 2006: Emission Limit (Senate Bill 32):** Signed into law on September 8, 2016, Senate Bill (SB) 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit) amends HSC Division 25.5 and codifies the 2030 target in the recent Executive Order B-30-15 (40 percent below 1990 levels by 2030). The 2030 target is intended to ensure that California remains on track to achieve the goal set forth by Executive Order B-30-15 to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels. SB 32 states the intent of the legislature to continue to reduce GHGs for the protection of all areas of the state and especially the state's most disadvantaged communities, which are disproportionately impacted by the deleterious effects of climate change on public health (California Legislative Information Website 2017). SB 32 was passed with companion legislation AB 197, which provides additional direction for developing the Scoping Plan. In 2016, the California State Legislature adopted SB 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030, while AB 197 includes provisions to ensure the benefits of state climate policies reach into disadvantaged communities.

**California Cap and Trade Program.** Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is a core strategy that California is using to meet its statewide GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020 (CA, 2013a). Under the Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production, fuel suppliers, and large industrial facilities that emit more than 25,000 metric tons CO<sub>2</sub>e per year) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program's duration (CA, 2013b). On July 17, 2017 the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through 2030.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are assured on a State-wide basis.

Since 2015, fuels, such as gasoline, diesel, and natural gas, have been covered under the Cap-and-Trade Program. Fuel suppliers are required to reduce GHG emissions by supplying low carbon fuels or purchasing pollution permits, called "allowances," to cover the GHGs produced when the conventional petroleum-based fuel they supply is combusted.

---

<sup>3</sup> Executive Order S-3-05 establishes greenhouse gas emission reduction targets for California.

**2008 Scoping Plan.** The California State Legislature adopted AB 32 in 2006 which focuses on reducing greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an “ambitious but achievable” reduction in California’s greenhouse gas emissions, cutting approximately 30 percent from BAU emission levels projected for 2020, or about 10 percent from today’s levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman, and child in California down to about 10 tons per person by 2020.

The Scoping Plan (CARB, 2008b) contains the following 18 strategies to reduce the State’s emissions:

1. *California Cap-and-Trade Program Linked to Western Climate Initiative.* Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California’s program meets all applicable AB 32 requirements for market-based mechanisms.
2. *California Light-Duty Vehicle Greenhouse Gas Standards.* Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. *Energy Efficiency.* Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.
4. *Renewable Portfolio Standard.* Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.
5. *Low Carbon Fuel Standard.* Develop and adopt the Low Carbon Fuel Standard.
6. *Regional Transportation-Related Greenhouse Gas Targets.* Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.
7. *Vehicle Efficiency Measures.* Implement light-duty vehicle efficiency measures.
8. *Goods Movement.* Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. *Million Solar Roofs Program.* Install 3,000 MW of solar-electric capacity under California’s existing solar programs.
10. *Medium/Heavy-Duty Vehicles.* Adopt medium and heavy-duty vehicle efficiency measures.
11. *Industrial Emissions.* Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. *High Speed Rail.* Support implementation of a high-speed rail system.
13. *Green Building Strategy.* Expand the use of green building practices to reduce the carbon footprint of California’s new and existing inventory of buildings.
14. *High Global Warming Potential Gases.* Adopt measures to reduce high global warming potential gases.
15. *Recycling and Waste.* Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.

16. *Sustainable Forests*. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.
17. *Water*. Continue efficiency programs and use cleaner energy sources to move and treat water.
18. *Agriculture*. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

**2014 Scoping Plan Update.** This First Update to California's Climate Change Scoping Plan (2014 Scoping Plan Update) was developed by the CARB in collaboration with the Climate Action Team and reflects the input and expertise of a range of state and local government agencies. The Update reflects public input and recommendations from business, environmental, environmental justice, utilities and community-based organizations provided in response to the release of prior drafts of the Update, a Discussion Draft in October 2013, and a draft Proposed Update in February 2014.

This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The First Update includes recommendations for establishing a mid-term emissions limit that aligns with the State's long-term goal of an emissions limit 80 percent below 1990 levels by 2050 and sector-specific discussions covering issues, technologies, needs, and ongoing State activities to significantly reduce emissions throughout California's economy through 2050. The focus areas include energy, transportation, agriculture, water, waste management, and natural and working lands (CARB, 2014a). With respect to the transportation sector, California has outlined several steps in the State's zero emission vehicle (ZEV) Action Plan to further support the market and accelerate its growth. Committed implementation of the actions described in the plan will help meet Governor Brown's 2012 Executive Order (EO) B-16-2012, which—in addition to establishing a more specific 2050 GHG target for the transportation sector of 80 percent from 1990 levels—called for 1.5 million ZEVs on California's roadways by 2025.

Achieving such an aggressive 2050 target will require innovation and unprecedented advancements in energy demand and supply (CARB, 2014a). Emissions from 2020 to 2050 will have to decline at more than twice the rate of that which is needed to reach the 2020 statewide emissions limit. In addition to our climate objectives, California also must meet federal clean air standards. Emissions of criteria air pollutants, including ozone precursors (primarily oxides of nitrogen, or NOX) and particulate matter, must be reduced by an estimated 90 percent by 2032 to comply with federal air quality standards. The scope and scale of emission reductions necessary to improve air quality is similar to that needed to meet long-term climate targets. Achieving both objectives will align programs and investments to leverage limited resources for maximum benefit.

**2017 Scoping Plan Update.** On December 14, 2017, CARB approved the final version of California's 2017 Climate Change Scoping Plan (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels (CARB, 2017e). The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target Statewide 2030 emissions limit is 260 MMTCO<sub>2e</sub>, and that further commitments will need to be made to achieve an additional reduction of 50 MMTCO<sub>2e</sub> beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by E.O. B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030. These include:

- Extending the low carbon fuel standard (LCFS) beyond 2020 and increasing the carbon intensity reduction requirement to 18 percent by 2030;
- SB 350, which increase renewables portfolio standard (RPS) to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030;
- The 2016 Mobile Source Strategy is estimated to reduce emissions from mobile sources including an 80 percent reduction in smog-forming emissions and a 45 percent reduction in diesel particulate matter from 2016 level in the South Coast Air Basin, a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels;
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies (described in more detail below);
- SB 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- Assembly Bill 398, which extends the state Cap-and-Trade Program through 2030.

With respect to project-level GHG reduction actions and thresholds for individual development projects, the 2017 Scoping Plan Update Indicates,

*Beyond plan-level goals and actions, local governments can also support climate action when considering discretionary approvals and entitlements of individual projects through CEQA. Absent conformity with an adequate geographically-specific GHG reduction plan as described in the preceding section above, CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development (CARB, 2017e).*

#### **4.7.2.3 Regional Regulations**

Southern California Association of Governments (SCAG) Sustainable Communities Strategy (SCS) within Regional Transportation Plan (RTP) demonstrates the region's ability to attain and exceed the GHG emission reduction targets set by the CARB. The SCS outlines the plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as evidenced by several Compass Blueprint Demonstration Projects and various county transportation improvements. The SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network, which emphasizes system preservation, active transportation, and transportation demand management measures.

The RTP/SCS exceeds its greenhouse gas emission-reduction targets set by the CARB by achieving an 8 percent reduction by 2020, an 18 percent reduction by 2035, and a 21 percent reduction by 2040 compared to the 2005 level on a per capita basis. Table 4.7-1 shows the assumptions regarding Moreno Valley that SCAG used in its 2016 analysis.

**Table 4.7-1: SCAG Assumptions for Moreno Valley**

<b>Year</b>	<b>Population</b>	<b>Households</b>	<b>Employment</b>
2012	197,600	51,800	31,400
2040	256,600	73,000	83,200

Source: Southern California Association of Governments 2016  
 ([http://scagrtpscscs.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf))

The RTP also includes an appendix on Goods Movement, which describes a process to develop and deploy needed technologies for improving efficiency of goods movement, along with key action steps for public sector agencies to help move the region to that objective. The 2016 RTP/SCS reaffirms zero- and near zero-emission technologies as a priority, and establishes the regional path forward towards improving the goods movement system.

**4.7.2.4 City of Moreno Valley Climate Action Strategy**

The City of Moreno Valley approved the Energy Efficiency and Climate Action Strategy (Strategy) in October 2012. The Strategy identifies ways that the City can reduce energy and water consumption and greenhouse gas emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and greenhouse gas emissions. The Strategy contains the following policies to reduce greenhouse gas emissions in 2010 by 15 percent by 2020:

- R2-T1 *Land Use Based Trips and VMT Reduction Policies.* Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3 *Employment-Based Trip Reductions.* Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1 *New Construction Residential Energy Efficiency Requirements.* Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.
- R2-E2 *New Construction Residential Renewable Energy.* Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off site.
- R2-E5 *New Construction Commercial Energy Efficiency Requirements.* Require energy efficient design for all new commercial buildings to be 10 percent beyond the current Title 24 standards.
- R3-E1 *Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining.* Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy-efficient projects.
- R3-L2 *Heat Island Plan.* Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.
- R2-W1 *Water Use Reduction Initiative.* Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.

- R3-W1      *Water Efficiency Training and Education.* Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1      *City Diversion Program.* For solid waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

### **4.7.3 Methodology**

Bearing in mind that CEQA does not require “perfection” but instead “adequacy, completeness, and a good faith effort at full disclosure,” the analysis of project GHG emissions and climate change is based on methodologies and information available at the time the Revised Sections of the FEIR was prepared. Many uncertainties exist regarding the precise relationship between specific levels of GHG emissions and the ultimate impact on global climate. Significant uncertainties also exist regarding the reduction potential of mitigation strategies. Thus, while information is presented below to assist the public and the City’s decision-makers in understanding the project’s potential contribution to global climate change impacts, the information available to the City is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

The recommended approach for GHG analysis included in the California Governor’s Office of Planning and Research (OPR’s) June 2008 release is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance (Governor’s Office of Planning and Research, 2008). Neither the CEQA statute nor Guidelines prescribe quantitative thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the lead agency.

The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: “CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of General Plan policies and certification of General Plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews.”

Pursuant to SB 97, the OPR must develop guidelines for analysis of the effects of GHG emissions. As part of this process, the OPR asked CARB technical staff to recommend statewide interim thresholds of significance for GHGs. The CARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for significance criteria related to industrial, commercial, and residential projects. However, CARB’s staff did not adopt or suggest any new statewide thresholds. The OPR finalized its revised *CEQA Guidelines* without reference to CARB’s draft proposal.

In March 2010, *CEQA Guidelines* amendments were adopted and include the following direction regarding determination of significant impacts from GHG emissions (Section 15064.4):

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
  - (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The

lead agency should explain the limitations of the particular model or methodology selected for use; or

- (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:
- (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
  - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
  - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

*CEQA Guidelines* Section 15064(b) provides that the “determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data,” and further, states that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

The updated analysis takes into account the following:

- *Operational Mobile Assumptions.* Operational mobile GHG emissions were estimated using the same procedures for the air quality analysis (which includes using EMFAC2017), which is consistent with updated Traffic Impact Analysis. Please refer to Section 4.3.3.2 in the Air Quality Section of this Draft Recirculated Sections of the FEIR or the revised Air Quality, Greenhouse Gas, and Health Risk Assessment (2019) for a list of those changes.
- *Vehicle Fuel Assumptions:* Mobile emissions in this analysis utilizes EMFAC2017's projected vehicle fuel mix for Phase 1 buildout year 2025 and project buildout year 2035. Section 4.17, Energy, of this Recirculated Sections of the Revised Sections of the FEIR addresses the potential penetration of electric trucks and potential use in association with the project. Although the State has set targets for zero-emission vehicles, it would be speculative to assume that the High Penetration scenario discussed in Section 4.17 would be practicable or feasible by 2025 or by 2035. The Low and Medium Penetration scenarios discussed in Section 4.17 are possible; however, as a worst-case analysis, the greenhouse gas analysis included herein does not factor in any potential emissions reductions provided by electric or natural gas-fueled trucks. For informational purposes only, emissions associated with the Medium Penetration scenario has been taken into account to show further emissions reduction potential.

For a detailed discussion of GHG emissions source and methodology, refer to Appendix A.1 of this Recirculated Sections of the Revised Sections of the FEIR.

#### **4.7.4 Thresholds of Significance**

Based on Appendix G of the *CEQA Guidelines*, climate change/greenhouse gas emissions impacts would occur if the World Logistics Center project would:

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., exceeds the SCAQMD's 10,000 mt CO<sub>2</sub>e emissions screening threshold of significance); and/or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Global climate change may result in significant adverse effects to the environment that will be experienced worldwide, with some specific effects observed in California. AB 32 requires statewide GHG emissions reductions to 1990 levels by 2020, and SB 32 requires statewide GHG emissions reductions to 40 percent below 1990 levels by 2030. Although these statewide reductions are now mandated by law, no generally applicable GHG emission threshold has yet been established.

*State CEQA Guidelines Section 15064(b)* provides that "...the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting." The *State CEQA Guidelines* further indicate that even when thresholds are established, they may include "identifiable quantitative, qualitative or performance level of a particular environmental effect" (*State CEQA Guidelines*, Section 15064.7).

Some policymakers and regulators suggest that a zero emissions threshold would be appropriate when evaluating GHGs and their potential effect on climate change. Such a rule appears inconsistent with the State's approach to mitigation of climate change impacts. AB 32 and SB 32 do not prohibit all new GHG emissions; rather, they require a reduction in statewide emissions to a given level. Thus, AB 32 and SB 32 recognize that GHG emissions will continue to occur; increases will result from certain activities, but reductions must occur elsewhere.

Individual projects incrementally contribute toward the potential for global climate change (GCC) on a cumulative basis in concert with all other past, present, and probable future projects. While individual projects are unlikely to measurably affect GCC, each of these projects incrementally contributes toward the potential for GCC on a cumulative basis, in concert with all other past, present, and probable future projects. This analysis examines whether the project's emissions should be considered cumulatively significant.

In order to evaluate the significance of a proposed project's environmental impacts related to GHG emissions, it is necessary to identify quantitative or qualitative thresholds which, if exceeded, would constitute a finding of significance. As previously described, while project-related GHG emissions can be estimated the direct impact of such emissions on climate change and global warming cannot be determined on the basis of available science. There is no evidence at this time that the World Logistics Center project would directly affect GCC. The SCAQMD has adopted a quantitative GHG emission significance threshold to assess direct impacts from industrial projects where the SCAQMD is the lead agency. The SCAQMD and other air quality agencies agree that GHG and GCC should be assessed as a potentially significant cumulative impact rather than a project-specific impact.

The following is an excerpt from the SCAQMD (Draft Guidance Document – Interim CEQA Greenhouse Gas [GHG] Significance Threshold, October 2008):

*"The overarching policy objective with regard to establishing a GHG significance threshold for the purposes of analyzing GHG impacts pursuant to CEQA is to establish a performance standard or target GHG reduction objective that will ultimately contribute to reducing GHG emissions to stabilize climate change. Full implementation of the Governor's Executive Order S-3-05 would reduce GHG emissions 80 percent below 1990 levels or 90 percent below current levels by 2050. It is anticipated that achieving the Executive Order's objective would contribute to worldwide efforts to cap GHG concentrations at 450 ppm, thus, stabilizing global climate."*

*As described below, staff's recommended interim GHG significance threshold proposal uses a tiered approach to determining significance. Tier 3, which is expected to be the primary tier by which the AQMD will determine significance for projects where it is the lead agency, uses the Executive Order S-3-05 goal as the basis for deriving the screening level."*

This project utilizes Tier 3 of the SCAQMD's draft threshold and compares the project's greenhouse gas emissions to the SCAQMD's threshold for industrial projects, 10,000 mt CO<sub>2</sub>e per year. Therefore, the threshold used for this project was based on the goal in Executive Order S-3-05. If the project's emissions are under the threshold, then the project would be in compliance with Executive Order S-3-05.

In September 2013, the SCAQMD adopted two Negative Declarations stating that GHG emissions subject to the ARB Cap-and-Trade Program (so called "capped" emissions) do not count against the 10,000 MT CO<sub>2</sub>e significance threshold the SCAQMD applies when acting as a lead agency. In addition, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has recently taken this one issue a step further and adopted a policy: "CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation." This policy applies when the SJVAPCD is the lead agency and when it is a responsible agency. In short, the SJVAPCD "has determined that GHG emissions increases that are covered under ARB's Cap-and-Trade regulation cannot constitute significant increases under CEQA..." The SJVAPCD classifies ARB's Cap-and-Trade Program as an approved GHG emission reduction plan or GHG mitigation program under CEQA Guidelines Section 15064(h) (3). Here are some other pertinent excerpts from that policy:

- "Consistent with CCR §15064(h)(3), the District finds that compliance with ARB's Cap-and-Trade regulation would avoid or substantially lessen the impact of project-specific GHG emissions on global climate change."
- "The District therefore concludes that GHG emissions increases subject to ARB's Cap-and-Trade regulation would have a less than significant individual and cumulative impact on global climate change."
- "[I]t is reasonable to conclude that implementation of the Cap-and-Trade program will and must fully mitigate project-specific GHG emissions for emissions that are covered by the Cap-and-Trade regulation."
- "[T]he District finds that, through compliance with the Cap-and-Trade regulation, project-specific GHG emissions that are covered by the regulation will be fully mitigated."

The policy acknowledges that "combustion of fossil fuels including transportation fuels used in California (on and off road including locomotives), not directly covered at large sources, are subject to Cap-and-Trade requirements, with compliance obligations starting in 2015." As such, the SJVAPCD concludes that GHG emissions associated with vehicle miles traveled (VMT) cannot constitute significant increases under CEQA. The consideration of only uncapped GHG emissions to determine the significance of those emissions under CEQA used by the SCAQMD and the SJVAPCD was validated in *Association of Irrigated Residents v. Kern County Board of Supervisors*, 17 Cal. App. 5th 708 (2017). The EIR's GHG analysis properly relied on compliance with California's cap-and-trade program to conclude that GHG emissions would be less than significant.

Table 4.7-4 shows project emissions separated into capped and uncapped sectors, as defined by California's cap-and-trade program. California's cap-and-trade program is enforceable and meets the requirements of AB 32 and SB 32. The program began on January 1, 2012, placing GHG emissions limits on capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 MT CO<sub>2</sub>e per year), and enforcing compliance obligations beginning with 2013 emissions. Vehicle fuels were placed under the cap in 2015, and with the passage of AB 398, the program was extended through 2030. The Cap-and-Trade Program allocates emissions permits across covered entities in each sector.

This regulatory conclusion is therefore directly applicable to the WLC project because VMT is by far the largest source of project GHG emissions. The analysis considers both the inclusion and exclusion of capped emissions, notably with the inclusion of mitigation measure 4.7.6.1E-1 and 4.7.6.1E-2 in Section 4.7.6, below. The applicable mitigation measure taken relies on the outcome of *Paulek v. Moreno Valley Community Services District*, Case No. E071184, in the Fourth District Court of Appeal, Second Division.

#### **4.7.5 Less than Significant Impacts**

Due to the size of the project, all potential impacts related to greenhouse gas emissions are considered to be potentially significant.

#### **4.7.6 Significant Impacts**

##### **4.7.6.1 Greenhouse Gas Emissions**

Impact	Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
--------	---

Future development that could occur within the World Logistics Center project site could generate GHG emissions during both construction and operation activities. The following activities are associated with the World Logistics Center project and could directly or indirectly contribute to the generation of GHG emissions:

- **Removal of Vegetation (Land Use Change) and Sequestration:** Carbon sequestration is the process of capture and storage of carbon dioxide; trees, vegetation, and soil store carbon in their tissues and wood. The net removal of vegetation for construction from land use change results in a loss of the carbon sequestration in plants. However, planting additional vegetation (sequestration) would result in additional carbon sequestration and would lower the carbon footprint of the project.
- **Construction Activities:** During construction of the World Logistics Center project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Leaks from installation of refrigeration equipment for air conditioning may occur.
- **Gas, Electric, and Water Use:** Natural gas use results in the emissions of CH<sub>4</sub> (the major component of natural gas) and CO<sub>2</sub> from the combustion of natural gas. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. Conveying water to the project and treating wastewater also uses electricity.
- **Solid Waste Disposal:** Solid waste generated by the World Logistics Center project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH<sub>4</sub> from the anaerobic decomposition of organic materials. CH<sub>4</sub> is approximately 21 times more potent than CO<sub>2</sub>. Landfill CH<sub>4</sub> can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use:** Transportation associated with the World Logistics Center project would result in GHG emissions from the combustion of fossil fuels and the use of electricity in daily automobile and truck trips.
- **On-site Equipment:** During operation of the World Logistics Center project, there would be on-site equipment operating, including yard trucks, emergency generators, and forklifts.

**Construction Emissions.** The World Logistics Center project would emit GHGs mainly from direct sources such as combustion of fuels from worker vehicles and construction equipment, as shown in Table 4.7-2. The GHG emissions are from all phases of construction. The SCAQMD recommends that construction emissions be averaged over a 30-year period.

**Table 4.7-2: Construction Greenhouse Gas Emissions (without mitigation)**

<b>Year</b>	<b>Annual Emissions (mt CO<sub>2</sub>e)</b>
2020	18,770
2021	22,198
2022	23,363
2023	23,511
2024	22,113
2025	16,408
2026	12,424
2027	11,692
2028	12,000
2029	11,452
2030	12,311
2031	10,610
2032	9,993
2033	7,451
2034	7,430
<b>Total</b>	<b>221,727</b>
<b>Averaged over 30 years</b>	<b>7,391</b>

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents.

Note: The SCAQMD recommends that construction emissions be averaged over a 30-year period.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019*

Sources include onsite construction equipment, worker trips, haul trips, vendor trips, refrigerant installation for the air conditioning in the offices, construction waste, and water use. Values presented in the table may not equal the sum due to rounding.

**Total Emissions, Worst-Case Scenario.** Operational or long-term emissions occur over the life of the project. Included for informational purposes, operational emissions for a worst-case buildout condition are shown in Table 4.7-3. This is a worst-case analysis because it assumes that the entire project would be built-out in 2020. The emissions are presented by greenhouse gas (in tons per year), which was also converted to metric tons of carbon dioxide equivalents (mt CO<sub>2</sub>e). The vehicle emissions in the table represent travel within the South Coast Air Basin. The emissions do not take into account mitigation measures to reduce emissions, such as the use of model year 2010 and later diesel trucks on the project site. As shown in the table, the project’s uncapped emissions are over the SCAQMD’s significance threshold of 10,000 mt CO<sub>2</sub>e per year. Therefore, emissions are potentially significant.

The analysis presented in Table 4.7-3 also represents a worst-case analysis because the emission factors do not take into account implementation of California’s Mobile Source Strategy and the full reductions expected from newer trucks and cars as a result of the Pavley regulations, the Low Carbon Fuel Standard, and California’s Advanced Clean Car program. The emissions are estimated using emission factors from EMFAC2017, CARB’s emission factor model, for the year 2020.

**Table 4.7-3: Annual Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout)**

Source	Emissions (metric tons per year)					GHG Emissions (mt CO <sub>2</sub> e) <sup>1</sup>
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b>Capped Emissions</b>						
Construction	7,382	0.00	0.00	0.00	0.01	7,391
Net Mobile	245,516	6.84	31.06	0.00	8.10	261,099
Yard trucks	7,172	0.00	0.00	0.00	0.00	7,172
Generator	242	0.01	0.00	0.00	0.03	267
Forklifts	250	0.00	0.00	0.00	0.01	257
Electricity <sup>2</sup>	34,147	-	-	-	-	34,147
Water	2,548	-	-	-	-	2,548
Natural gas <sup>2</sup>	4,483	2.15	24.49	-	0.00	4,689
<b>Total Capped</b>	<b>300,931</b>	<b>44.13</b>	<b>144.66</b>	<b>0.00</b>	<b>8.16</b>	<b>317,570</b>
<b>Uncapped Emissions</b>						
Construction Refrigerants and Waste	104	0.00	0.00	0.05	0.00	166
Waste	7,747	457.83	0.00	-	-	19,193
Refrigerants	0	0.00	0.00	1.71	0.00	2,572
Land use change	1,154	0.00	0.00	0.00	0.00	1,154
Sequestration	-111	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>8,894</b>	<b>457.83</b>	<b>0.00</b>	<b>1.77</b>	<b>0.00</b>	<b>22,974</b>
Threshold	--	--	--	--	--	10,000
Significant impact?	--	--	--	--	--	Yes

<sup>1</sup> mt CO<sub>2</sub>e is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072. <0.01 = less than 0.01.

<sup>2</sup> – Electricity and natural gas emissions estimates are based on minimum compliance with 2019 Title 24 building standards and compliance with RPS.

Source: ESA, 2019

**Total Project Emissions.** Table 4.7-4 shows the unmitigated capped and uncapped project emissions at buildout, including estimates of the project’s mobile emissions estimates for future years based on EMFAC2017 emission factors for the actual year assessed, which take into account the Pavley regulations, the Low Carbon Fuel Standard, and California’s Advanced Clean Car program. Emissions are shown by individual GHG (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, and black carbon) and totaled used the common unit of metric tons CO<sub>2</sub>e based on the global warming potential of each gas. Emissions estimates for electricity and natural gas do not account for Project Design Features (described in Energy Section 4.17.5) that improve building energy efficiency and maximize the use of on-site renewable energy.

**Table 4.7-4: Project GHG Emissions at Buildout (Unmitigated)**

Source	Emissions (metric tons per year)					GHG Emissions (mt CO <sub>2e</sub> ) <sup>1</sup>
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b>Capped Emissions</b>						
Construction	7,382	0.00	0.00	0.00	0.02	7,391
Net Mobile	172,164	7.23	19.61	0.00	1.53	179,355
Yard trucks	7,172	0.00	0.00	0.00	0.00	7,172
Generator	242	0.01	0.00	0.00	0.03	267
Forklifts	250	0.00	0.00	0.00	0.01	257
Electricity <sup>2</sup>	34,147	-	-	-	-	34,147
Water	2,548	-	-	-	-	2,548
Natural gas <sup>2</sup>	4,483	2.15	24.49	-	0.00	4,689
<b>Total Capped</b>	<b>227,579</b>	<b>44.53</b>	<b>133.21</b>	<b>0.00</b>	<b>9.64</b>	<b>235,826</b>
<b>Uncapped Emissions</b>						
Construction Refrigerants and Waste	104	0.00	0.00	0.05	0.00	166
Waste	7,747	457.83	0.00	-	-	19,193
Refrigerants	0	0.00	0.00	1.71	0.00	2,572
Land use change	1,154	0.00	0.00	0.00	0.00	1,154
Sequestration	-111	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>8,894</b>	<b>457.83</b>	<b>0.00</b>	<b>1.77</b>	<b>0.00</b>	<b>22,974</b>
Threshold	--	--	--	--	--	10,000
Significant impact?	--	--	--	--	--	Yes

<sup>1</sup>mt CO<sub>2e</sub> is calculated from the emissions (metric tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760)

<sup>2</sup> – Electricity and natural gas emissions estimates are based on minimum compliance with 2019 Title 24 building standards and compliance with RPS.

Source: ESA, 2019

The total emissions estimate for the project, summarized in Table 4.7-5, include both construction and operations emissions, and do not account for Project Design Features (described in Energy Section 4.17.5) that improve building energy efficiency and maximize the use of on-site renewable energy; nor do they account for the project’s mitigation measures. Table 4.7-5 shows a summary of project emissions (unmitigated) for each year between 2020 and 2064. The analysis assumes the gradual phasing in of structures until buildout (2035) and the gradual phasing out of structures as they reach their presumed lifetime of 30 years. Therefore, the lifetime of the Project extends until 2064 when the final structures are presumed to have reached their 30-year lifetime. As shown in the table, the annual uncapped emissions are over the SCAQMD’s significance threshold of 10,000 mt CO<sub>2e</sub> per year for a majority of the years presented. Therefore, emissions are potentially significant, and mitigation is required.

Table 4.7-5: Project GHG Emissions (Year by Year without Mitigation)

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Net Mobile	0	22,089	42,984	62,716	81,169	97,097	103,414	113,746	123,988	133,464	142,515	151,159	159,397	167,226	174,639
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	30	61	91	121	151	163	175	187	199	211	222	234	246	258
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	6,097	11,672	18,583	24,799	36,149	40,666	41,689	41,168	40,436	40,169	39,884	39,257	38,288	36,329
Water	0	133	267	445	623	953	1,283	1,458	1,562	1,667	1,817	1,986	2,156	2,326	2,437
Natural gas	0	0	545	1,089	1,634	2,723	3,080	3,259	3,438	3,617	3,795	3,974	4,153	4,331	4,510
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>18,770</b>	<b>51,390</b>	<b>80,574</b>	<b>108,959</b>	<b>133,825</b>	<b>157,680</b>	<b>165,558</b>	<b>176,875</b>	<b>187,539</b>	<b>196,360</b>	<b>206,672</b>	<b>214,020</b>	<b>221,703</b>	<b>226,711</b>	<b>232,775</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	209	209	209	209	206	102	141	144	141	141	141	141	141	141	118
Waste	0	2,175	4,349	6,524	8,698	10,847	11,698	12,549	13,423	14,274	15,125	15,976	16,827	17,678	18,529
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>209</b>	<b>2,793</b>	<b>5,377</b>	<b>7,961</b>	<b>10,543</b>	<b>12,992</b>	<b>14,043</b>	<b>15,057</b>	<b>16,093</b>	<b>17,104</b>	<b>18,116</b>	<b>19,127</b>	<b>20,138</b>	<b>21,149</b>	<b>22,137</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	No	No	No	No	Yes										

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Mobile	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	34,147	29,379	26,115	22,850	19,586	16,322	13,057	9,793	6,529	3,264	0	0	0	0	0
Water	2,548	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	0	0	0	0	0
Natural gas	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>228,435</b>	<b>223,699</b>	<b>220,435</b>	<b>217,170</b>	<b>213,906</b>	<b>210,642</b>	<b>207,377</b>	<b>204,113</b>	<b>200,849</b>	<b>197,584</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	166	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193
Refrigerants	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Land use change	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Sequestration	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111
<b>Total Uncapped</b>	<b>22,974</b>	<b>22,808</b>													
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)															
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	Total (2020-2064)
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Net Mobile	154,246	132,651	107,890	87,750	57,330	45,453	40,481	37,820	35,334	32,020	28,614	25,570	22,850	21,257	19,775	5,114,971
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	230	198	161	131	85	68	60	56	53	48	43	38	34	32	29	7,620
Forklifts	221	190	155	126	82	65	58	54	51	46	41	37	33	30	28	7,340
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	636,226
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44,876
Natural gas	4,032	3,468	2,820	2,294	1,499	1,188	1,058	989	924	837	748	668	597	556	517	132,674
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>164,897</b>	<b>141,811</b>	<b>115,340</b>	<b>93,810</b>	<b>61,289</b>	<b>48,592</b>	<b>43,277</b>	<b>40,432</b>	<b>37,774</b>	<b>34,231</b>	<b>30,590</b>	<b>27,336</b>	<b>24,428</b>	<b>22,725</b>	<b>21,141</b>	<b>6,369,995</b>
<b>Uncapped Emissions</b>																
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,559
Waste	16,506	14,195	11,545	9,390	6,135	4,864	4,332	4,047	3,781	3,426	3,062	2,736	2,445	2,275	2,116	547,418
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
<b>Total Uncapped</b>	<b>19,615</b>	<b>16,869</b>	<b>13,720</b>	<b>11,159</b>	<b>7,291</b>	<b>5,780</b>	<b>5,148</b>	<b>4,809</b>	<b>4,493</b>	<b>4,072</b>	<b>3,639</b>	<b>3,252</b>	<b>2,906</b>	<b>2,703</b>	<b>2,515</b>	<b>653,096</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	<b>450,000</b>
Significant impact?	Yes	Yes	Yes	Yes	No	Yes										

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

- 1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.
- 2 - Estimated construction emissions are included prior to buildout.
- 3 - 2036 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.
- 4 - Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: ESA, 2019

**Project Design Features.** The WLCSP incorporates site and building designs (Project Design Features) that emphasize conservation of water and energy, which in turn help reduce greenhouse gas emissions (WLCSP September 2014, Section 1.3.2, Green Building-Sustainable Development). The revised Project Design Features, as outlined in the *Comparison of Renewable Energy Technologies* report (WSP, 2018) and explained in detail in Energy Section 4.17.5, go substantially beyond that previous commitment with energy conservation measures (ECMs) that exceed minimal compliance with current (2016) Title 24 requirements by about 17 percent at Phase 1 and 16 percent at full buildout, and a commitment to maximize the use of onsite rooftop solar PV generation.

**Mitigation Measures.** The following mitigation measures would reduce the GHG emissions impact of the WLC project. Mitigation measures 4.7.6.1B, 4.7.6.1C, and 4.7.5.1D were previously included in the 2015 FEIR as Utilities Mitigation Measures 4.16.4.6.1A, 4.16.4.6.1B, and 4.16.4.6.1C to address building energy, but energy impacts have now been removed from the Utilities section and considered in the standalone Energy section of the Recirculated RSFEIR (Section 4.17).

**4.7.6.1A** The World Logistics Center project shall implement the following requirements to reduce solid waste and greenhouse gas emissions from construction and operation of project development:

- a) Prior to January 1, 2020, divert a minimum of 50 percent of landfill waste generated by operation of the project. After January 1, 2020, development shall divert a minimum of 75 percent of landfill waste. In January of each calendar year after project approval the developer and/or Property Owners Association shall certify the percentage of landfill waste diverted on an annual basis.
- b) Prior to January 1, 2020, recycle and/or salvage at least 50 percent of non-hazardous construction and demolition debris. After January 1, 2020, recycle and/or salvage at least 75 percent of non-hazardous construction and demolition debris. In January of each calendar year after project approval the developer and/or Property Owners Association shall certify the percentage of landfill waste diverted on an annual basis.

Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled. Calculations can be done by weight or volume, but must be consistent throughout.

- c) The applicant shall submit a Recyclables Collection and Loading Area Plan for construction related materials prior to issuance of a building permit with the Building Division and for operational aspects of the project prior to the issuance of the occupancy permit to the Public Works Department. The plan shall conform to the Riverside County Waste Management Department's Design Guidelines for Recyclable Collection and Loading Areas.
- d) Prior to issuance of certificate of occupancy, the recyclables collection and loading area shall be constructed in compliance with the Recyclables Collection and Loading Area plan.
- e) Prior to issuance of certificate of occupancy, documentation shall be provided to the City confirming that recycling is available for each building.
- f) Within six months after occupancy of a building, the City shall confirm that all tenants have recycling procedures set in place to recycle all items that are recyclable, including but not limited to paper, cardboard, glass, plastics, and metals.
- g) The property owner shall advise all tenants of the availability of community recycling and composting services.
- h) Existing onsite street material shall be recycled for new project streets to the extent feasible.

**4.7.6.1B** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1A for building energy). Each application for a building permit shall include energy calculations to demonstrate compliance with California Energy Efficiency Standards (Title 24, Part 6). Plans shall show the following:

- Energy-efficient roofing systems, such as “cool” roofs, that reduce roof temperatures significantly during the summer and therefore reduce the energy requirement for air conditioning.
- Cool pavement materials such as lighter-colored pavement materials, porous materials, or permeable or porous pavement, for all roadways and walkways not within the public right-of-way, to minimize the absorption of solar heat and subsequent transfer of heat to its surrounding environment.
- Energy-efficient appliances that achieve the 2016 California Appliance Energy Efficiency Standards (e.g. EnergyStar® Appliances) and use of sunlight-filtering window coatings or double-paned windows

**4.7.6.1C** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1B building energy). Prior to the issuance of any building permits within the WLC site, each project developer shall submit energy calculations used to demonstrate compliance with the performance approach to the California Energy Efficiency Standards, for each new structure. Plans may include but are not necessarily limited to implementing the following as appropriate:

- High-efficiency air-conditioning with electronic management system (computer) control.
- Isolated High-efficiency air-conditioning zone control by floors/separable activity areas.
- Use of Energy Star ® exit lighting or exit signage.

**4.7.6.1D** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1C building energy; now modified). Prior to the issuance of a building permit, new development shall demonstrate that each building has implemented the following:

- Install solar panels with a capacity equal to the peak daily demand for the ancillary office uses in each warehouse building or up to the limit allowed by MVU’s restriction on distributed solar PV connecting to their grid, whichever is greater;
- Increase efficiency for buildings by implementing either 10 percent over the 2019 Title 24’s energy saving requirements or the Title 24 requirements in place at the time the building permit is approved, whichever is more strict; and
- Require the equivalent of “Leadership in Energy and Environmental Design Certified” for the buildings constructed at the World Logistics Center based on Leadership in Energy and Environmental Design Certified standards in effect at the time of project approval.

This measure shall be implemented to the satisfaction of the Building and Safety and Planning Divisions.

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

Additionally, the following mitigation measures from other sections of the Revised Sections of the FEIR help reduce GHG emissions. The complete air quality and utilities mitigation measures can be found in the executive summary.

**Air Quality Mitigation Measure 4.3.6.2A (construction fuel)** would require that construction equipment greater than 50 horsepower be USEPA Tier 4 emissions compliant and limits on-site idling of all diesel-powered construction equipment, delivery vehicles, and delivery trucks to three minutes in any one hour.

**AQ Mitigation Measure 4.3.6.3B (long haul trucks).** Require the operation of model year 2010 diesel trucks or later.

**AQ Mitigation Measure 4.3.6.4A:** The following measures shall be incorporated as conditions to any Plot Plan approval within the Specific Plan:

- All tenants shall be required to participate in Riverside County's Rideshare Program.
- Storage lockers shall be provided in each building for a minimum of three percent of the full-time equivalent employees based on a ratio of 0.50 employees per 1,000 square feet of building area. Lockers shall be located in proximity to required bicycle storage facilities.
- Class II bike lanes shall be incorporated into the design for all project streets.
- The project shall incorporate pedestrian pathways between on-site uses.
- Site design and building placement shall provide pedestrian connections between internal and external facilities.
- The project shall provide pedestrian connections to residential uses within 0.25 mile from the project site.
- A minimum of two electric vehicle-charging stations for automobiles or light-duty trucks shall be provided at each building. In addition, parking facilities with 200 parking spaces or more shall be designed and constructed so that at least six percent of the total parking spaces are capable of supporting future electric vehicle supply equipment (EVSE) charging locations. Sizing of conduit and service capacity at the time of construction shall be sufficient to install Level 2 Electric Vehicle Supply Equipment (EVSE) or greater.
- Each building shall provide indoor and/or outdoor - bicycle storage space consistent with the City Municipal Code and the California Green Building Standards Code. Each building shall provide a minimum of two shower and changing facilities for employees.
- Each building shall provide preferred and designated parking for any combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles equivalent to the number identified in California Green Building Standards Code Section 5.106.5.2 or the Moreno Valley Municipal Code whichever requires the higher number of carpool/vanpool stalls.
- The following information shall be provided to tenants: onsite electric vehicle charging locations and instructions, bicycle parking, shower facilities, transit availability and the schedules, telecommunicating benefits, alternative work schedule benefits, and energy efficiency.

**Utilities Mitigation Measure 4.16.1.6.1A** would reduce outdoor water usage which in turn reduces energy use associated with the conveyance of that water.

**Utilities Mitigation Measure 4.16.1.6.1B** would reduce interior water usage, including low flow fittings, fixtures and equipment.

**Utilities Mitigation Measure 4.16.1.6.1C** would allow reclaimed water to be used for irrigation.

Table 4.7-6 evaluates to what degree the mitigation measures (including the various PDFs of the project as described in Energy Section 4.17.5) will reduce potential GHG emissions.

Table 4.7-7 shows the project GHG emissions with implementation of Project Design Features and mitigation measures, at buildout only.

Table 4.7-8 shows the mitigated GHG emissions for each year from 2020 through construction and 30-years operation of all Project facilities. Total uncapped GHG emissions are below the threshold of significance for every year and are therefore less than significant after mitigation.

**Level of Impact After Mitigation.** Less than significant.

**Table 4.7-6: Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
Construction Fuel	<b>Mitigation Measure 4.3.6.2A</b> would require that construction equipment be Tier 4.	This reduction was estimated in CalEEMod. Tier 4 construction equipment would have fewer PM2.5 emissions, and therefore black carbon emissions.
Construction Waste	Regulation in the California Green Building Standards require that projects divert (reduce or recycle) at least 50 percent of waste.	This reduction was estimated using the U.S. EPA's Waste Reduction Model (WARM) version 13.
On-road Vehicles: Local	<i>Project Design Feature:</i> Local bus service to the area is provided by the Riverside Transit Agency. Local bus routes would typically be extended into the project area when adequate demand is generated from this employment center. Future bus routes could circulate on available looped routes with adequate right-of-way along the major arterial roadways of Redlands Boulevard, Theodore Street, and Alessandro Boulevard. Likewise, the industrial collector roadways provide access to locations nearest building front entrances. Due to building scale, bus stops may be spread out by grouped entrances or centralized gateway drive areas as compared to individual business entries.	The California Air Pollution Control Officer's Association (CAPCOA) report's reduction measure TRT-1 indicates a 5.2 percent reduction in commute vehicle miles traveled for low-density suburbs for inclusion of a commute trip reduction program. However, this reduction is not used in this analysis.  In this Revised Sections of the FEIR, no reductions are taken for these measures in order to provide a conservative analysis.
	<b>Mitigation Measure 4.3.6.4A:</b> Class II bike lanes.	
	<b>Mitigation Measure 4.3.6.4A:</b> Participate in Riverside County's rideshare program	
	<b>Mitigation Measure 4.3.6.4A:</b> Lockers for employees.	
	<b>Mitigation Measure 4.3.6.4A:</b> Bicycle storage and changing rooms	
	<i>Project Design Features:</i> The project would have pedestrian circulation, sidewalks, and a multiuse trail.	
	<b>Mitigation Measure 4.3.6.4A:</b> Safe pedestrian connections	
<b>Mitigation Measure 4.3.6.4A:</b> Parking for fuel-efficient vehicles		
On-road Vehicles: Long haul trucks	<b>Mitigation Measure 4.3.6.3B:</b> Require model year 2010 diesel trucks or later.	This was implemented by utilizing the emission factors for medium-heavy duty and heavy-heavy duty trucks from EMFAC2017 for year 2010 and after.
On-road Vehicles: all	<p><i>Pavley-I Regulation:</i> A clean-car standard to reduce greenhouse gas emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.</p> <p><i>Low Carbon Fuel Standard:</i> A fuel standard that requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.</p> <p><i>California Mobile Source Strategy:</i> This 2016 plan includes targets for zero emission vehicles (ZEVs) that exceed assumptions included in EMFAC2017.</p> <p>Project design includes supporting infrastructure to accommodate future EV populations consistent with targets in the Mobile Source Strategy.</p>	EMFAC2017 provides emission factors for carbon dioxide that include these regulations. Therefore, both the unmitigated and mitigated emissions account for these regulations.

**Table 4.7-6: Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
Electricity and Natural Gas: Title 24	<p><b>Mitigation Measures 4.7.6.1B</b> and <b>4.7.6.1C</b> would reduce electricity related emissions. In addition, the project would be LEED certified for buildings and Mitigation Measure 4.7.6.1D would require buildings to exceed Title 24 (2019 version) by 10 percent or comply with the current version in place.</p> <p>Project design includes energy conservation measures that would enable the project to exceed 2019 Title 24 energy standards by lowering electrical demand with implementation of sustainability measures such as high efficiency appliances and skylights.</p>	Reductions from exceeding the requirements of Title 24 (2019) were accounted for in calculations.
Electricity: Lighting	<p><b>Mitigation Measures 4.7.6.1C</b> (lighting efficiency) and <b>4.7.6.1D</b> (Title 24) would reduce electricity from lighting.</p> <p>Project design includes energy conservation measures that lower electrical demand with implementation of sustainability measures such as high efficiency lighting and motion sensors.</p>	Reductions due to efficient lighting were accounted for in calculations.
Electricity: Solar	<p><b>Mitigation Measure 4.7.6.1D</b> requires that the project install solar panels.</p> <p>Project design includes on-site solar panel installation.</p>	The estimated electricity generation from onsite solar is 24,083 MWh per year, which is 5.0 percent of the electricity demand at buildout. Therefore, 5.0 percent of the unmitigated electricity-related GHG emissions are reduced by solar generation.
Water	<b>Mitigation Measure 4.16.1.6.1A</b> would reduce outdoor water usage	CalEEMod mitigation for water-efficient irrigation systems (6.1% reduction, CalEEMod default)
	<b>Mitigation Measure 4.16.1.6.1B</b> would reduce interior water usage, including low flow fittings, fixtures and equipment.	CalEEMod mitigation for: - low-flow toilet (20% reduction in flow, CalEEMod default) - low flow bathroom faucet (32% reduction in flow, CalEEMod default) - low-flow kitchen faucet (18% reduction in flow, CalEEMod default) - low-flow shower (20% reduction in flow, CalEEMod default)
	<b>Mitigation Measure 4.16.1.6.1C</b> would allow reclaimed water to be used for irrigation.	No reductions are taken for the potential use of reclaimed water.
Waste	<b>Mitigation Measure 4.7.6.1A:</b> Recycling and composting to divert construction and operational waste by at least 50 percent before 2020 and 75 percent thereafter.	The project would commit to reducing construction and operational waste by 50 percent prior to 2020 and 75 percent after; therefore, a 75 percent reduction is applied.
	<i>Project Design Feature:</i> Specific Plan (Section 5.1.6) requires that all development within the project provide enclosures or compactors for trash and recyclable materials.	

<sup>1</sup> Project design features are from the WLC Project Description and WLC Sustainable Energy Plan (WSP, 2018); mitigation measures are shown in Section 1.0, Table 1.B. Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018

Table 4.7-7: GHG Reductions at Buildout (with Mitigation)

Source	GHG Emissions (mt CO <sub>2</sub> e) at Buildout		
	Unmitigated	Reductions from Mitigation	With Reductions (Mitigated)
<b>Capped Emissions</b>			
Construction	7,391	0	7,391
Net Mobile	179,355	-557	178,798
Yard trucks	7,172	0	7,172
Generator	267	19	286
Forklifts	257	0	257
Electricity	34,147	-4,715	29,432
Water	2,548	-268	2,280
Natural gas	4,689	-4,689	0
Solar	0	-3,386	-3,386
<b>Total Capped</b>	<b>238,686</b>	<b>-13,596</b>	<b>222,230</b>
<b>Uncapped Emissions</b>			
Construction Refrigerants and Waste	166	-17	149
Waste	19,193	-14,395	4,798
Refrigerants	2,572	0	2,572
Land use change	1,154	0	1,154
Sequestration	-111	0	-111
<b>Total Uncapped</b>	<b>22,974</b>	<b>-14,412</b>	<b>8,562</b>
<b>Threshold</b>	<b>10,000</b>	<b>-</b>	<b>10,000</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>-</b>	<b>No</b>

Notes:  
 mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.  
 1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers. Electricity-based emissions result in an increase due to the inclusion of EV charging stations and electric outlets for electrical property maintenance equipment.  
 2 - Construction would no longer occur at buildout; however, according to SCAQMD recommendations, construction emissions are included as amortized over 30 years.  
 Source: *ESA, 2019*

**Table 4.7-8: Project GHG Emissions (Year by Year with Mitigation)**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Net Mobile	0	20,982	41,248	60,829	79,602	96,308	102,643	112,971	123,218	132,710	141,787	150,466	158,748	166,632	174,108
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	32	65	97	130	162	174	187	200	213	225	238	251	263	276
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	5,487	10,505	16,725	22,319	32,535	36,088	36,779	36,207	35,461	35,096	34,716	34,056	33,116	31,366
Water	0	119	239	398	557	853	1,148	1,304	1,398	1,492	1,626	1,778	1,929	2,081	2,181
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	0	-179	-357	-595	-834	-1,276	-1,705	-1,931	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203
<b>Total Capped</b>	<b>18,770</b>	<b>49,483</b>	<b>76,746</b>	<b>103,490</b>	<b>127,254</b>	<b>149,188</b>	<b>155,300</b>	<b>165,860</b>	<b>176,151</b>	<b>184,649</b>	<b>194,501</b>	<b>201,374</b>	<b>208,653</b>	<b>213,328</b>	<b>219,330</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	192	192	192	192	190	85	124	127	124	124	124	124	124	124	101
Waste	0	544	1,087	1,631	2,175	2,712	2,924	3,137	3,356	3,569	3,781	3,994	4,207	4,419	4,632
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>192</b>	<b>1,145</b>	<b>2,098</b>	<b>3,051</b>	<b>4,003</b>	<b>4,840</b>	<b>5,252</b>	<b>5,628</b>	<b>6,009</b>	<b>6,382</b>	<b>6,755</b>	<b>7,128</b>	<b>7,501</b>	<b>7,874</b>	<b>8,223</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Mobile	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	286	286	267	267	267	267	267	267	267	267	267	267	267	267	267
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	29,432	26,712	23,744	20,776	17,808	14,840	11,872	8,904	5,936	2,968	0	0	0	0	0
Water	2,280	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	0	0	0	0	0
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386
<b>Total Capped</b>	<b>214,839</b>	<b>212,148</b>	<b>209,161</b>	<b>206,193</b>	<b>203,225</b>	<b>200,257</b>	<b>197,289</b>	<b>194,321</b>	<b>191,353</b>	<b>188,385</b>	<b>183,109</b>	<b>183,109</b>	<b>183,109</b>	<b>183,109</b>	<b>183,109</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	149	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798
Refrigerants	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Land use change	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Sequestration	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111
<b>Total Uncapped</b>	<b>8,563</b>	<b>8,414</b>													
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)															
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	Total (2020-2064)
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Net Mobile	153,767	132,239	107,555	87,478	57,152	45,312	40,356	37,703	35,225	31,920	28,525	25,491	22,779	21,191	19,714	5,090,636
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	230	198	161	131	85	68	60	56	53	48	43	38	34	32	29	7,821
Forklifts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,122
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	563,449
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,159
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	-2,912	-2,505	-2,037	-1,657	-1,082	-858	-764	-714	-667	-605	-540	-483	-431	-401	-373	-92,091
<b>Subtotal, capped</b>	<b>157,252</b>	<b>135,237</b>	<b>109,993</b>	<b>89,461</b>	<b>58,448</b>	<b>46,339</b>	<b>41,270</b>	<b>38,557</b>	<b>36,023</b>	<b>32,644</b>	<b>29,172</b>	<b>26,068</b>	<b>23,295</b>	<b>21,671</b>	<b>20,161</b>	<b>6,042,384</b>
<b>Uncapped Emissions</b>																
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,289
Waste	4,126	3,549	2,886	2,348	1,534	1,216	1,083	1,012	945	857	765	684	611	569	529	136,855
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
<b>Subtotal, uncapped</b>	<b>7,236</b>	<b>6,223</b>	<b>5,061</b>	<b>4,116</b>	<b>2,689</b>	<b>2,132</b>	<b>1,899</b>	<b>1,774</b>	<b>1,658</b>	<b>1,502</b>	<b>1,342</b>	<b>1,199</b>	<b>1,072</b>	<b>997</b>	<b>928</b>	<b>242,263</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	<b>450,000</b>
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 – 2036 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 – Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: *ESA, 2019*

**Operational Emissions, Scoping Plan Scenario (Included for informational purposes only).** The emissions presented under the Scoping Plan scenario (Table 4.7-10) assume successful implementation of the 2017 Scoping Plan Update, which included the Mobile Source Strategy in addition to the Pavley regulations, the Low Carbon Fuel Standard, and California's Advanced Clean Car program. The mobile emissions estimates for future years are based on emission factors that account for higher penetrations of electric vehicles (EVs) than assumed by EMFAC2017.

The Scoping Plan Scenario assumes that California's 2016 Mobile Source Strategy (MSS) would be implemented as a key strategy in the 2017 Scoping Plan Update for meeting the state's 2030 GHG target (presented in the Energy section as Vehicle Scenario B: Medium EV Penetration). The MSS has a target of 4.2 million zero emission vehicles (ZEVs) in operation statewide by 2030. As explained in the Energy Section, after 2025 the sales and penetration of ZEVs under the MSS start to exceed the numbers assumed by EMFAC2017. Table 4.7-9 shows that under the MSS approximately 5.2 percent of the passenger vehicle (LDA, LDT1, and LDT2) and light truck (MDV) fleet is expected to be powered by electricity or other zero emission engines by 2025 in the South Coast AQMD region, compared to 2.5 percent of passenger vehicles and 1.6 percent of light trucks using EMFAC2017 assumptions. By 2035, 21 percent of passenger vehicles and 22.5 percent of light trucks are expected to be ZEVs in the South Coast AQMD region, compared to 4.7 percent of passenger vehicles and 3.9 percent of light trucks using EMFAC2017 assumptions.

**Table 4.7-9: California and SCAQMD Electric Vehicle (EV) Penetration Estimates**

		Passenger Vehicles			Light Trucks		
		Total	EVs	% EVs	Total	EVs	% EVs
<b>South Coast Air Basin using EMFAC2017 Model</b>	2020	9,125,366	103,722	1.1%	1,539,990	3,852	0.3%
	2025	10,034,980	252,889	2.5%	1,627,185	26,375	1.6%
	2030	10,907,401	417,413	3.8%	1,733,368	51,603	3.0%
	2035	11,642,018	546,208	4.7%	1,849,556	72,433	3.9%
<b>South Coast Air Basin with Governor's order and MSS</b>	2020	9,125,366	103,722	1.1%	1,539,990	3,852	0.3%
	2025	10,034,980	517,550	5.2%	1,627,185	83,921	5.2%
	2030	10,907,401	1,444,602	13.2%	1,733,368	229,571	13.2%
	2035	11,642,018	2,447,659	21.0%	1,849,556	416,980	22.5%

LDA, LDT1, and LDT2 = Passenger cars (EMFAC category)

MDV = Light Duty Trucks (EMFAC category)

Sources: CARB, 2017b - based on EMFAC2011 Categories, and EMFAC2017 Volume III - Technical Documentation

For informational purposes only, emissions associated with the Scoping Plan Scenario (the Medium EV Penetration scenario) are shown in Table 4.7-10.

**Table 4.7-10: Project GHG Emissions (Year by Year with Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Mobile	0	20,982	41,248	60,829	79,602	94,618	102,528	112,913	123,228	132,810	141,992	150,778	159,165	167,154	174,742
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	32	65	97	130	162	174	187	200	213	225	238	251	263	276
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	5,634	10,785	17,172	22,915	33,404	40,224	42,353	42,411	42,184	42,583	42,956	42,870	42,326	40,453
Water	0	119	239	398	557	853	1,148	1,304	1,398	1,492	1,626	1,778	1,929	2,081	2,181
Natural gas	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Solar	0	-179	-357	-595	-834	-1,276	-1,705	-1,931	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203
<b>Total Capped</b>	<b>18,770</b>	<b>49,629</b>	<b>77,027</b>	<b>103,937</b>	<b>127,851</b>	<b>148,367</b>	<b>159,322</b>	<b>171,376</b>	<b>182,365</b>	<b>191,474</b>	<b>202,194</b>	<b>209,926</b>	<b>217,884</b>	<b>223,060</b>	<b>229,051</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	192	192	192	192	190	85	124	127	124	124	124	124	124	124	101
Waste	0	544	1,087	1,631	2,175	2,712	2,924	3,137	3,356	3,569	3,781	3,994	4,207	4,419	4,632
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>192</b>	<b>1,145</b>	<b>2,098</b>	<b>3,051</b>	<b>4,003</b>	<b>4,840</b>	<b>5,252</b>	<b>5,628</b>	<b>6,009</b>	<b>6,382</b>	<b>6,755</b>	<b>7,128</b>	<b>7,501</b>	<b>7,874</b>	<b>8,223</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mobile	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	38,279	34,818	30,949	27,080	23,212	19,343	15,475	11,606	7,737	3,869	0	0	0	0	0
Water	2,280	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	0	0	0	0	0
Natural gas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Solar	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386
<b>Total Capped</b>	<b>217,245</b>	<b>213,812</b>	<b>209,943</b>	<b>206,075</b>	<b>202,206</b>	<b>198,337</b>	<b>194,469</b>	<b>190,600</b>	<b>186,731</b>	<b>182,863</b>	<b>176,686</b>	<b>176,686</b>	<b>176,686</b>	<b>176,686</b>	<b>176,686</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798
Refrigerants	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Land use change	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Sequestration	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111
<b>Total</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)															
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	Total (2020-2064)
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Mobile	148,226	127,475	103,680	84,326	55,093	43,680	38,902	36,344	33,956	30,770	27,497	24,572	21,958	20,428	19,003	4,963,844
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	246	211	172	140	91	72	65	60	56	51	46	41	36	34	32	8,152
Forklifts	221	190	155	126	82	65	58	54	51	46	41	37	33	30	28	7,340
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	680,637
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,159
Natural gas	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Solar	-2,912	-2,505	-2,037	-1,657	-1,082	-858	-764	-714	-667	-605	-540	-483	-431	-401	-373	-92,091
<b>Total Capped</b>	<b>151,950</b>	<b>130,677</b>	<b>106,284</b>	<b>86,444</b>	<b>56,477</b>	<b>44,777</b>	<b>39,879</b>	<b>37,257</b>	<b>34,808</b>	<b>31,543</b>	<b>28,188</b>	<b>25,189</b>	<b>22,510</b>	<b>20,941</b>	<b>19,481</b>	<b>6,034,349</b>
<b>Uncapped Emissions</b>																
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,140
Waste	4,126	3,549	2,886	2,348	1,534	1,216	1,083	1,012	945	857	765	684	611	569	529	136,855
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
<b>Total Uncapped</b>	<b>7,236</b>	<b>6,223</b>	<b>5,061</b>	<b>4,116</b>	<b>2,689</b>	<b>2,132</b>	<b>1,899</b>	<b>1,774</b>	<b>1,658</b>	<b>1,502</b>	<b>1,342</b>	<b>1,199</b>	<b>1,072</b>	<b>997</b>	<b>928</b>	<b>242,114</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	<b>450,000</b>
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 – 2035 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 – Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: *ESA, 2019*

4.7.6.2 Greenhouse Gas Plan, Policy, Regulation Consistency

Impact	Would the proposed project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?
--------	--

This impact assesses whether the project would conflict with any applicable plans, policies, or regulations, as discussed below.

**Federal and State Reduction Strategies.** Table 4.7-11 evaluates the consistency of the World Logistics Center project with the various Federal and State energy conservation strategies and other regulations related to GHG emissions.

**Table 4.7-11: Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<b>Mandatory Codes</b>	
<b>California Green Building Code.</b> The Cal Green Code (Title 24, Part 11) prescribes a wide array of measures that would directly and indirectly result in reduction of GHG emissions from the Business as Usual Scenario (California Building Code). The mandatory measures that are applicable to nonresidential projects include site selection, energy efficiency, water efficiency, materials conservation and resource efficiency, and environmental quality measures.	<b>Consistent.</b> The project will be required to adhere to the non-residential mandatory measures as required by the Cal Green Code.
<b>Energy Efficiency Measures</b>	
<b>Energy Efficiency.</b> Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).	<b>Consistent with Mitigation Incorporated.</b> The project will comply with current California Building Code (CBC) requirements for building construction. <b>Mitigation Measures 4.7.6.1B</b> and <b>4.7.6.1C</b> would increase energy efficiency. <b>Mitigation Measure 4.7.6.1D</b> would require that the project exceed Title 24 (2019 version) by 10 percent or comply with the current version. The WLC Project Design Features (explained in detail in Energy Section 4.17.5) go further by committing the project to energy conservation measures that will enable the project to exceed the more rigorous 2019 Title 24 requirements.
<b>Renewables Portfolio Standard.</b> Achieve a 50 percent renewable energy mix statewide by 2050. Qualifying renewable energy sources under the RPS include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	<b>Not Applicable.</b> The project is not part of the State's power generation grid, but would install solar photovoltaic panels on project roofs pursuant to <b>Mitigation Measure 4.7.6.1D</b> . The solar PV would reduce the project's electricity related emissions by approximately 5.0 percent. In addition, Moreno Valley Electric Utility is subject to the Renewable Portfolio Standard.

**Table 4.7-11: Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<b>Water Conservation and Efficiency Measures</b>	
<p><b>Water Use Efficiency.</b> Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. The CalGreen Code, including the California Plumbing Code (Part 5), promotes water conservation. Title 20 and includes appliance and fixture efficiency standards that promote water conservation.</p>	<p><b>Consistent with Mitigation Incorporated.</b> The project will be required to adhere to the non-residential mandatory measures as required by the Cal Green Code and the Specific Plan outlines a number of water conservation measures, and <b>Mitigation Measures 4.16.1.6.1A</b> through <b>4.16.1.6.1C</b> will help reduce potential water use even further.</p>
<b>Solid Waste Reduction Measures</b>	
<p><b>Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste.</b> AB 341 mandates commercial recycling and sets a goal that 75 percent of the state's solid waste generated be reduced, recycled, or composted by 2020. AB 1826 adds requirements regarding mandatory commercial organics recycling. SB 1383 requires methane emissions reduction from landfills and sets statewide disposal targets to reduce landfilling of organic waste by 50 percent from the 2014 level by 2020, and 75 percent from the 2014 level by 2025.</p>	<p><b>Consistent with Mitigation Incorporated.</b> Data available from the California Integrated Waste Management Board (CIWMB) indicate that the City of Moreno Valley has not achieved the 50 percent diversion rate. The project will comply with <b>Mitigation Measure 4.7.6.1A</b> to help increase solid waste diversion, composting, and recycling. The measure would also require 50 percent diversion of construction waste prior to 2020 and 75 percent diversion starting in 2020.</p>
<b>Transportation and Motor Vehicle Measures</b>	
<p><b>Pavley Regulations and Vehicle Fuel Efficiency Standards.</b> AB 1493 (Pavley) and the Advanced Clean Car (ACC) program require the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light-duty trucks. Regulations were adopted by the CARB in September 2004 and expanded with the ACC program in 2012.</p>	<p><b>Consistent.</b> The project does not involve the manufacture of vehicles or production of vehicle fuels. However, vehicles that are purchased and used within the project site would comply with any vehicle and fuel standards that the CARB adopts or has adopted. In addition, the project would require that all diesel trucks be 2010 or newer (<b>Mitigation Measure 4.3.6.3B</b>) and would be built to support the charging of future electric-powered vehicles anticipated by the Mobile Source Strategy. The Project design also includes supporting infrastructure to accommodate future EV populations consistent with targets in the Mobile Source Strategy.</p>
<p><b>Light-Duty Vehicle Efficiency Measures.</b> Implement additional measures that could reduce light-duty vehicle GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency.</p>	
<p><b>Heavy- and Medium-Duty Fuel and Engine Efficiency Measures.</b> Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles.</p>	
<p><b>Mobile Source Strategy.</b> This 2016 plan includes a target of 4.2 million zero emission vehicles (ZEVs) by 2030, and GHG reductions from medium-duty and heavy-duty vehicles, and transit. It also includes reductions in GHGs from medium-duty and heavy-duty vehicles via the Phase 2 Medium and Heavy-Duty GHG Standards.</p>	

**Table 4.7-11: Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<p><b>Low Carbon Fuel Standard.</b> The CARB identified this measure as a Discrete Early Action Measure in the 2008 Scoping Plan. As included in the Mobile Source Strategy, this measure would reduce the carbon intensity of California’s transportation fuels by at least 18 percent by 2030.</p>	
<p><b>Sustainable Freight Action Plan.</b> The 2016 plan directs the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California’s freight transport system.</p>	
<p><b>Regional Transportation-Related GHG Targets.</b> Develop regional GHG emissions reduction targets for passenger vehicles, as required by SB 375. Local governments will play a significant role in the regional planning process to reach passenger vehicle GHG emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces GHGs associated with vehicle travel.</p>	<p><b>Not Applicable.</b> Specific regional emission targets for transportation emissions do not directly apply to the WLC project; regional GHG reduction target development is outside the scope of this project. The project will comply with any plans developed by the City of Moreno Valley.</p>
<p><b>Measures to Reduce High Global Warming Potential (GWP) Gases.</b></p>	
<p><b>Short-Lived Climate Pollutant Strategy.</b> SB 1383 (2016) requires the CARB to approve and implement Short-Lived Climate Pollutant strategy to reduce high GWP GHGs to achieve a statewide reduction in methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030.</p>	<p><b>Not Applicable.</b> New products used or serviced on the WLC project site (after implementation of the reduction of GHG gases) would comply with future CARB rules and regulations, as would vehicles (with their refrigerants used in air conditioning systems) visiting the site.</p>

AB = Assembly Bill CARB = California Air Resources Board  
 GHG = greenhouse gas

Source: based on analysis in the *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018*

With implementation of applicable strategies/measures, project design features, and mitigation measures, the project’s contribution to cumulative GHG emissions would be reduced. In order to ensure that the World Logistics Center project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32 and SB 32, the Mitigation Measures and Project design Features listed in the above table shall be implemented.

The project will comply with existing State and Federal regulations regarding the energy efficiency of buildings, appliances, and lighting. The warehouse buildings will be built in compliance with the California Building Code to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices. In addition, **Mitigation Measure 4.7.6.1D** requires that the project will exceed the Title 24 energy conservation standards (2019 version) by 10 percent or comply with the current version, while the WLC Project Design Features go even further by committing the project to energy conservation measures that will enable the project to exceed the more rigorous 2019 Title 24 requirements.

**CARB Scoping Plan.** AB 32 focuses on reducing GHG emissions to 1990 levels by the year 2020, while SB 32 has a target of 40 percent below 1990 levels by 2030. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which

contains a variety of strategies to reduce the State’s emissions. The First Update to the Scoping Plan was approved in 2014 and the Second Update was approved in 2017 following the passage of SB 32. The 2017 Scoping Plan Update incorporates all of the state’s GHG reduction strategies included in Table 4.7-11. Table 4.7-12 considers the strategies in 2017 Scoping Plan Update that are not included in Table 4.7-11, indicating that all are either consistent with or not applicable to the project; therefore, the project does not conflict with the Scoping Plan.

**Table 4.7-12: Analysis of Additional Measures in the 2017 Scoping Plan Update**

Scoping Plan Reduction Measure	Consistency Analysis
<p>16. <b>Carbon Sequestration in Natural and Working Lands.</b> Natural and working lands – including forests and agricultural lands – are a key sector in the State’s climate change strategy. Storing carbon in trees, other vegetation, soils, and aquatic sediment is an effective way to remove carbon dioxide from the atmosphere. The 2017 Scoping Plan Update describes policies and programs that prioritize protection and enhancement of California’s landscapes, and commits the State to finalizing a carbon sequestration and GHG emissions reduction goal for natural and working lands by September 2018</p>	<p><b>Not Applicable.</b> No forested lands exist on site. As reported in the Agriculture and Forestry Resources section 4.2.1, approximately 2,200 acres of the 2,610-acre Specific Plan area is currently dry farmed, mainly with winter wheat. However, the state’s Natural and Working Lands Climate Change Implementation Plan has not been adopted, and there is no protection currently in place to preserve the site for agriculture. Further, as described in the Agriculture and Forestry Resources section, the conversion of the existing agricultural lands to urban uses is supported by the City’s General Plan policies, and the entire project site and adjacent lands have been designated for urban uses for nearly 20 years by the City. The Agriculture and Forestry Resources section concludes that project implementation will result in less than significant impacts to conversion of Farmland of Local Importance.</p>

Source: CARB, 2017e

**City General Plan Policies.** The project must also be evaluated against the City’s General Plan policies that relate to greenhouse gas emissions, as shown in Table 4.7-13. This analysis shows that the project is consistent with the applicable General Plan objectives and policies, or the particular objective or policy is not applicable to the proposed WLC project.

**Table 4.7-13: Consistency with City General Plan Air Quality Policies**

Objective or Policy	Project Consistency
<p><b>Objective 6.6.</b> Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.</p>	<p><b>Consistent.</b> The project is providing employment opportunities to Moreno Valley and the surrounding area.</p>
<p><b>Policy 6.6.1.</b> Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.</p>	<p><b>Not Applicable.</b> The project does not propose the development of neighborhood commercial facilities or residential dwellings.</p>
<p><b>Policy 6.6.2.</b> Provide multifamily residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.</p>	<p><b>Not Applicable.</b> The project is industrial and does not propose the development of residential uses.</p>
<p><b>Policy 6.6.3.</b> Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.</p>	<p><b>Not Applicable.</b> The project is industrial and does not propose the development of residential uses.</p>

**Table 4.7-13: Consistency with City General Plan Air Quality Policies**

Objective or Policy	Project Consistency
<b>Objective 6.7.</b> Reduce mobile and stationary source air pollutant emissions.	<b>Consistent.</b> The project would be implementing feasible Mitigation Measures to reduce mobile and stationary emissions ( <b>Mitigation Measures 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.4A</b> ).
<b>Policy 6.7.1.</b> Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.	<b>Not Applicable.</b> This measure is beyond the scope of the project; the City will continue to work with the SCAQMD in regional planning efforts.
<b>Policy 6.7.2.</b> Encourage the financing and construction of park-and-ride facilities.	<b>Not Applicable.</b> The project consists of industrial uses; a park and ride on the project would not be feasible.
<b>Policy 6.7.3.</b> Encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange and Los Angeles Counties.	<b>Not Applicable.</b> No express mass transit facilities are designated on the project site or planned on the project site; therefore, this measure is beyond the scope of the project.
<b>Policy 6.7.6.</b> Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.	<b>Consistent.</b> The project will comply with Title 24 requirements.

Policies 6.7.4 and 6.7.5 are discussed in the air quality EIR section, Section 4.3).  
 Source of objectives and policies: Moreno Valley General Plan (2006).

**City Climate Action Strategy.** Finally, Table 4.7-14 evaluates the consistency of the World Logistics Center project with the policies of the City’s Climate Action Strategy approved in October 2012. As shown below, the project is consistent with the requirements of the Strategy for non-residential development with implementation of project design features and mitigation measures.

**Table 4.7-14: Consistency with City Climate Action Strategy**

Strategy Items	Project Consistency
<b>R2-T1:</b> Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.	<b>Not Applicable.</b> A Transit Priority Project is one that has at least 50 percent residential use based on area, at least 20 units per acre and is within a ½ mile of a major transit stop or High Quality Transit Corridor. A High Quality Transit Corridor is defined as one with 15-minute frequencies during peak commute hours. The project does not include a residential component and is not along a High Quality Transit Corridor nor are there any High Quality Transit Corridors or major transit stops in the vicinity of the project area. As a result, the strategy is not applicable.
<b>R2-T3:</b> Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.	<b>Consistent</b> with implementation of <b>Mitigation Measure 4.3.6.4A</b> .
<b>R2-E1:</b> New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.	<b>Not Applicable.</b> This measure applies to residential projects.

**Table 4.7-14: Consistency with City Climate Action Strategy**

Strategy Items	Project Consistency
<b>R2-E2:</b> New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.	<b>Not Applicable.</b> This measure applies to residential projects.
<b>R2-E5:</b> New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards.	<b>Consistent with Mitigation Measure 4.7.6.1D.</b>
<b>R3-E1:</b> Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.	<b>Not Applicable.</b> This refers to updating building and zoning codes and does not apply to this warehousing development plan.
<b>R3-L2:</b> Heat Island Plan. Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.	<b>Consistent.</b> The Specific Plan indicates that vehicle parking areas are to be landscaped to provide a shade canopy (50 percent coverage at maturity).
<b>R2-W1:</b> Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.	<b>Consistent.</b> California Green Building Standards Code, Chapter 5, Division 5.3, Section 5.303.2 requires that indoor water use be reduced by 20 percent. Section 5.304.3 requires irrigation controllers and sensors. The Specific Plan also contains a variety of water conservation features. <b>Mitigation Measures 4.16.1.6.1A, B, and C</b> also provide water reduction measures.
<b>R3-W1:</b> Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.	<b>Consistent.</b> Tenants and owners within the WLC site will provide water conservation information from EMWD and other sources to workers on a regular basis.
<b>R2-S1:</b> City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.	<b>Consistent.</b> The project would incorporate standard City waste reduction features and <b>Mitigation Measure 4.7.6.1A</b> (has a target to reduce waste by 75 percent by 2020).
<b>C11:</b> Require that developer recycle existing street material for use as base for new streets.	<b>Consistent.</b> Project will implement <b>Mitigation Measure 4.7.6.1A</b> where feasible.

**Executive Order S-3-05.** As discussed in Section 4.7.4, the SCAQMD developed its thresholds based on consistency with California Executive Order S-3-05. As shown in Impact 4.7.6.1, the project’s GHG emissions would not exceed the SCAQMD’s industrial threshold. However, with mitigation implemented, the Project would be reduced to levels less than 10,000 MTCO<sub>2e</sub> and, therefore, the project would not conflict with Executive Order S-3-05. This impact is less than significant with mitigation.

**Specific Plan Design Features.** The WLCSP contains a sustainability section that emphasizes water and energy conservation throughout the project design, which in turn will help reduce GHG emissions (Section 1.3.2, Green Building-Sustainable Development). The revised WLC Project Design Features (described in detail in Energy Section 4.17.5) go beyond the WLCSP with energy conservation measures that exceed minimal compliance with current (2019) Title 24 requirements by about 17 percent at Phase 1 and 16 percent and full buildout.

**Mitigation Measures.** Implementation of previously referenced Mitigation Measures 4.3.6.3B, 4.3.6.4A, 4.3.6.3C, 4.3.6.3D, 4.7.6.1A, 4.16.1.6.1A, 4.16.1.6.1B, 4.16.1.6.1C, 4.16.4.6.1A, 4.16.4.6.1B, and 4.16.4.6.1C will help reduce project-related GHG emissions and therefore make it more consistent with GHG reduction plans, policies, and/or regulations.

As previously identified, implementation of the WLC project could result in the development of an approximately 40.6 million square foot high cube-logistics distribution logistics. The project includes a variety of physical attributes and operational programs that would help reduce operational-source pollutant emissions from worker commuting, including GHG emissions. Future development that would occur under the project would be consistent with greenhouse gas emission reduction strategies and policies, including the City's Climate Change Strategy. The project would implement the Mitigation Measures listed above to reduce its contribution to GHG emissions and to ensure it does not conflict with or impede implementation of reduction goals identified in AB 32, SB 32, Governor's Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, the project would not conflict with any applicable plan, program, policy, or regulation related to the reduction of GHG emissions. Impacts are considered less than significant.

Similar to the discussion of cumulative air quality impacts, the project may employ workers locally from the City. This has the benefit of improving the local jobs/housing balance leading to air quality benefits in terms of shorter trip lengths, which lead to lower emissions than if the workforce was derived from distant locations.

The State of California has adopted a number of policies, including AB 32, SB 32, Governor's Executive Order S-3-05, the Pavley vehicle standards, the Advanced Clean Car program, and the Mobile Source Strategy, which collectively provide the structure and commitment to address California's contribution to global climate change. Since the project is consistent with these policies, including being below the SCAQMD threshold for greenhouse gases that was structured in accordance with these State policies, the project is consistent with greenhouse gas plans, policies, and regulations and impacts are less than significant after mitigation.

**Level of Impact After Mitigation.** Less than significant.

**Mitigation Measures.** Implementation of previously referenced Mitigation Measures 4.3.6.3B, 4.3.6.4A, 4.3.6.3C, 4.3.6.3D, 4.7.6.1A, 4.16.1.6.1A, 4.16.1.6.1B, 4.16.1.6.1C, 4.16.4.6.1A, 4.16.4.6.1B, and 4.16.4.6.1C will help reduce project-related GHG emissions and therefore make it more consistent with GHG reduction plans, policies, and/or regulations.

As previously identified, implementation of the WLC project could result in the development of an approximately 40.6 million square foot high cube-logistics distribution logistics. The project includes a variety of physical attributes and operational programs that would help reduce operational-source pollutant emissions from worker commuting, including GHG emissions. Future development that would occur under the project would be consistent with greenhouse gas emission reduction strategies and policies, including the City's Climate Change Strategy. The project would implement the Mitigation Measures listed above to reduce its contribution to GHG emissions and to ensure it does not conflict with or impede implementation of reduction goals identified in AB 32, SB 32, Governor's Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, the project would not conflict with any applicable plan, program, policy, or regulation related to the reduction of GHG emissions. Impacts are considered less than significant.

Similar to the discussion of cumulative air quality impacts, the project may employ workers locally from the City. This has the benefit of improving the local jobs/housing balance leading to air quality benefits in terms of shorter trip lengths, which lead to lower emissions than if the workforce was derived from distant locations.

The State of California has adopted a number of policies, including AB 32, SB 32, Governor's Executive Order S-3-05, the Pavley vehicle standards, the Advanced Clean Car program, and the Mobile Source Strategy, which collectively provide the structure and commitment to address California's contribution to global climate change. Since the project is consistent with these policies, including being below the SCAQMD threshold for greenhouse gases that was structured in accordance with these State policies, the project is consistent with greenhouse gas plans, policies, and regulations and impacts are less than significant after mitigation.

**Level of Impact After Mitigation.** Less than significant.

**NOTE TO READERS:** Section 4.17, below, of this Draft Recirculated Sections of the FEIR replaces Section 4.17 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 4.17 replaces the energy discussion in Section 4.16.4, *Energy Consumption*, of the FEIR prepared in 2015.

## **4.17 ENERGY**

Pursuant to Appendix F of the CEQA Guidelines, this section discusses the energy requirements of the WLC project and addresses the court’s ruling that “*the FEIR must provide a comparison of feasible, cost-effective renewable energy technologies in the Energy Impacts analysis.*” This section discusses existing regulations pertaining to energy and provides an analysis of energy use associated with the project, with an emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. This analysis examines the short-term construction and long-term operational impacts and evaluates the effectiveness of Energy Conservation Measures (ECMs) incorporated as part of the project design. It also evaluates prospective renewable energy supply technologies, their feasibility within the project and an evaluation of which supply technology option provides the best renewable energy supply strategy.

The project will incorporate Project Design Features (PDFs) and ECMs that minimize energy consumption and are expected to deliver energy performance that exceeds the current minimum Title 24 requirements by approximately 17 percent at Phase 1 and 16 percent at full buildout. The project will be designed to eliminate the need for natural gas in building systems, positioning the WLC to become an all-electric development with the future potential to operate 100% on renewable electricity.

Pursuant to the World Logistics Center Specific Plan (WLCSP), WLC buildings will include rooftop solar photovoltaic (PV) systems sized, at minimum, to offset the power demands of office space contained in the building. In addition, the project will provide on-site rooftop solar generating capacity up to the maximum level currently permitted by Moreno Valley Electric Utility (MVU), which is currently defined as one-half the minimum electric demand a building experiences during daytime hours. As described herein, this would be more than sufficient to satisfy 100% of the office energy needs. In anticipation of increased electricity loads in the future that could result from a growing electric vehicle fleet, the project will provide solar ready roofs that could accommodate expanded rooftop solar installations in the future.

This section analyzes the project’s potential energy impacts based on the following technical studies:

- *Air Quality, Greenhouse Gas, and Health Risk Assessment Report (Environmental Science Associates, dated November 2019) contained in Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR.*
- *World Logistics Center (WLC) Transportation Energy Technical Study (Environmental Science Associates and CALSTART, dated November 2019) contained in Appendix E.1 of this Draft Recirculated Revised Sections of the FEIR.*
- *World Logistics Center (WLC) Comparison of Renewable Energy Technologies Report (WSP USA, Inc., dated May 24, 2018) contained in Appendix E.2 of the Revised Sections of the FEIR.*

### **4.17.1 Existing Setting**

#### **4.17.1.1 Existing Site Energy Use**

The existing project Site is largely vacant with a few residences and scattered dry farming that generates minimal demand for electricity, natural gas, and transportation fuels. With implementation of the project, these uses would largely cease and be replaced. For the purposes of this analysis, a “zero demand” baseline was assumed; thus, the net change from baseline calculated for these analyses are conservative, representing a hypothetical “worst case.”

#### **4.17.1.2 Existing Electricity Supply and Transmission**

Southern California Edison (SCE) currently has two existing 115 kilovolt (kV) overhead power transmission lines within the WLC site limits. One is located along Gilman Springs Road from the south to Eucalyptus Avenue, then east on Eucalyptus Avenue to World Logistics Center Parkway and then north on World Logistics Center Parkway across SR-60. The second 115 kV transmission line is located along Brodiaea Avenue from the west to Davis Road then southeast into the San Jacinto Wildlife Area. In the project area, SCE also maintains 12 kV overhead distribution lines along Redlands Boulevard, World Logistics Center Parkway, and Alessandro Boulevard just west of the project site.

The WLC project would be supplied electricity by Moreno Valley Electric Utility (MVEU). MVEU currently has an existing electrical substation west of the project area at the southwest corner of Moreno Beach Drive and Cottonwood Avenue. This substation currently has a capacity to distribute 28 megawatts (MW) of electricity based on two existing 28 MW units (i.e., if one unit goes off, the other unit still maintains capacity to handle the demand). Ultimate capacity of this substation is 84 MW based on four 28 MW units. The current peak load for this substation is 22 to 26 MW; therefore, there is an existing 2 to 6 MW surplus capacity available. MVEU has underground 12 kV distribution lines along Cottonwood Avenue from the west to Redlands Boulevard, then north along Redlands Boulevard to Fir Street (now Eucalyptus Avenue), and then east along Eucalyptus Avenue to World Logistics Center Parkway. The existing underground conduit underlying Eucalyptus Avenue currently serves the existing Skechers warehouse, office, and factory store. It should be noted that the MVEU indicated these assumptions are valid at this time, but could change if other development occurs before the project.

#### **4.17.1.3 Existing Natural Gas Supply and Transmission**

The WLC project would be supplied natural gas by the Southern California Gas Company (SCGC). SCGC currently maintain a 4-inch medium-pressure service line underlying Redlands Boulevard that runs from SR-60 on the north to Cactus Avenue on the south and then runs west along Cactus Avenue with a stub-out to the north at Merwin Street. SCGC has low-pressure facilities that serve the residential areas located west of Redlands Boulevard and southwest of Merwin Street and Bay Avenue.

Throughout the WLC site, there are existing high-pressure natural gas transmission mains ranging in diameters of 16 inches up to 36 inches. SCGC currently maintains two 30-inch diameter transmission pipelines traversing the project site that run in an east-west direction and are located north and south of Alessandro Boulevard. There are also three transmission pipelines (a 16-inch, 30-inch, and 36-inch diameters) that run in a north-south direction along Virginia Street, south of Alessandro Boulevard. The 36-inch diameter pipeline also runs east from Virginia Street parallel with the 30-inch pipeline that runs south of Alessandro Boulevard.

Within the WLC site, SCGC maintains a gas line blow-down facility and flow metering station at Alessandro Boulevard and Virginia Street. Further south on Virginia Street, the San Diego Gas and Electric Company (SDG&E) maintains a natural gas compression station, known as the Moreno Compressor Station, which supplies gas to San Diego via 16-inch, 30-inch, and 36-inch transmission pipelines that continue to the south. SCGC has a gas transmission regulator station located at the southeast corner of Gilman Springs Road and Laurene Lane east of the WLC project site.

Questar currently maintains a 16-inch gas transmission pipeline that underlies Alessandro Boulevard from Gilman Springs Road to World Logistics Center Parkway, where it heads south to the Maltby Avenue alignment and then heads west toward Redlands Boulevard.

#### **4.17.1.4 Existing Regional Electricity Demand**

The MVU is the primary utility provider for the residences and businesses of Moreno Valley and is the utility provider to the WLC project. Southern California Edison does provide electrical service to a portion of the City and has existing facilities running through the project. The annual electricity sale to

all customers in the MVU service area for the 2017-2018 fiscal year was approximately 188 million kilowatt hours (kWh).<sup>1</sup>

#### **4.17.1.5 Existing Regional Natural Gas Demand**

Southern California Gas Company (SoCalGas) is responsible for providing natural gas to 21.6 million consumers through 5.9 million meters in more than 500 communities throughout Central and Southern California and is regulated by the California Public Utilities Commission and other state agencies.<sup>2</sup> The annual natural gas sale to customers in 2017 was approximately 992 trillion British thermal units (Btu).<sup>3</sup> The consumption of natural gas by residences and businesses exclusively within Moreno Valley is not known.

#### **4.17.1.4 Existing Regional Transportation Energy Demand**

According to the California Energy Commission (CEC), transportation accounts for nearly 37 percent of California's total energy consumption.<sup>4</sup> Based on available fuel consumption data from the CEC, in 2016, Riverside County consumed a total of 1,052,000,000 gallons of gasoline for transportation.<sup>5</sup> California consumed a total of 275,000,000 gallons of diesel fuel for transportation.<sup>6</sup> Transportation fuels, primarily gasoline and diesel, are provided by local or regional suppliers and vendors.

According to the California Air Resources Board (CARB) on-road vehicle emissions factor (EMFAC2017) model, the average fuel economy for the fleet-wide mix of vehicles operating in the South Coast Air Basin region is approximately 24.6 miles per gallon for gasoline-fueled vehicles and approximately 9.7 miles per gallon for diesel-fueled vehicles. Gasoline-fueled vehicles account for approximately 95 percent of the total vehicles and diesel-fueled vehicles account for approximately 4 percent of the total vehicles.<sup>7</sup> Electric vehicles account for approximately 1 percent of the total vehicle registration in California.

### **4.17.2 Regulatory Setting**

#### **4.17.2.1 Federal**

**Energy Policy Act of 1992.** The Energy Policy Act (EPAAct) of 1992 was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAAct requires certain Federal, State, and local governments and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAAct. Federal tax deductions will be allowed for businesses and

---

<sup>1</sup> City of Moreno Valley, Moreno Valley Utility, 2018 Integrated Resource Plan, 2018 <http://www.moval.org/mvu/pubs/MVU-IRP-Report-072018.pdf> Accessed September 2019.

<sup>2</sup> Southern California Gas Company, <https://www.socalgas.com/about-us/company-profile> Accessed April 2018.

<sup>3</sup> California Gas and Electric Utilities, 2018 California Gas Report, (2018). Available at: [https://www.socalgas.com/regulatory/documents/cgr/2018\\_California\\_Gas\\_Report.pdf](https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf) Accessed September 2019. Converted from 958 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, April 28, 2017. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed September 2019).

<sup>4</sup> California Energy Commission, 2015 Integrated Energy Policy Report, CEC-100-2015-001-CMF, 2016, page 153, [http://www.energy.ca.gov/2015\\_energypolicy](http://www.energy.ca.gov/2015_energypolicy). Accessed April 2018.

<sup>5</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://www2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://www2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html) Accessed September 2019.

<sup>6</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://www2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://www2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html) Accessed September 2019.

Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>7</sup> Based on the California Air Resources Board on-road vehicle emissions model, EMFAC2017 (Modeling input: South Coast Area Air Basin; LDA, LDT1, LDT2; Annual; 2020). The modeling input values are considered generally representative of project buildout conditions for the region and representative of the majority of vehicles associated with project-related vehicle miles traveled (VMT).

individuals to cover the incremental cost of AFVs. States are also required by the Act to consider a variety of incentive programs to help promote AFVs.

**Energy Policy Act of 2005.** The Energy Policy Act of 2005 includes provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy.

**Clean Vehicles.** Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the Environmental Protection Agency (EPA) and the Department of Transportation's Highway Traffic and Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce greenhouse gas emissions (GHG) emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The vehicles had to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards were designed to cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO<sub>2</sub> per mile. According to the EPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle.<sup>8</sup>

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies proposed engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and up to a 15 percent reduction for diesel vehicles by 2018 model year (12% and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles (includes other vehicles like buses, refuse trucks, concrete mixers; everything except for combination tractors and heavy-duty pickups and vans), the agencies proposed engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by the 2018 model year. Building on the success of the standards, the EPA and U.S. Department of Transportation jointly finalized additional standards for medium- and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution.

#### **4.17.2.2 State**

**California Code of Regulations Title 24, Part 6.** The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include

---

<sup>8</sup> United States Environmental Protection Agency, EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, (August 2012). Available at: <http://www.epa.gov/oms/climate/documents/420f12051.pdf>. Accessed April 2018.

mandatory requirements for efficiency and design of energy systems, including space conditioning (cooling and heating), water heating, and indoor and outdoor lighting systems and equipment, and appliances. California's Building Energy Efficiency Standards are updated on an approximately three-year cycle as technology and methods have evolved. The 2016 Standards, effective January 1, 2017, focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, and include requirements that will enable both demand reductions during critical peak periods and future solar electric and thermal system installations. The next code (2019) update takes effect on January 1, 2020 and focuses on integrating solar photovoltaic (PV) and other renewables with energy storage, taking Title 24 another step closer toward the state's zero net energy (ZNE) goals as spelled out in the California Energy Efficiency Strategic Plan (CEC, 2011), calling for all new residential construction to be ZNE by 2020 and all new commercial construction to be ZNE by 2030.

**California Code of Regulations Title 24, Part 11.** The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

2016 Title 24, Part 11 includes construction requirements for non-residential projects that are designed to facilitate installation of future electric vehicle supply equipment (EVSE) to support electric vehicle (EV) charging. Under section 5.106.5.3, construction plans and specifications for large (projects with more than 200 total parking spaces) must include raceways for future EVSE at a minimum of 6 percent of the total parking spaces.

**Renewable Electricity Standards.** There have been several renewable electricity senate bills in California. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard (RPS) target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the CARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. Senate Bill X1-2 (2011) codifies the Renewable Electricity Standard into law.

#### **Senate Bill 100**

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by December 31, 2030. Incrementally, these energy providers must also have a renewable energy supply of 44 percent by December 31, 2024, and 52 percent by December 31, 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

**Senate Bill 350:** The Clean Energy and Pollution Reduction Act of 2015 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December

31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator (ISO) into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the Legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

**Pavley Regulation, Advanced Clean Cars (ACC), and the California Mobile Source Strategy.** Assembly Bill 1493 (2002) requires CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In setting these standards, CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The federal Clean Air Act ordinarily preempts state regulation of motor vehicle emission standards; however, California is allowed to set its own standards with a federal waiver from the EPA, granted in 2009. Known as the Pavley Clean Car Standards, AB 1493 regulated GHG emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.

Because the Pavley standards (named for the bill's author, state Senator Fran Pavley) would impose stricter standards than those under the CAA, California applied to the US EPA for a waiver under the CAA. In 2008, the US EPA denied the application. In 2009, however, the US EPA granted the waiver. The waiver has been extended consistently since 2009; however, in 2018 the US EPA and NHTSA indicated their intent to revoke California's waiver, and prohibit future state emissions standards enacted under the CAA. As of April 2019, the waiver was still in place and the status of the federal government's revocation of the waiver was uncertain.

As discussed previously, the federal government adopted standards for model year 2012 through 2016 light-duty vehicles. In addition, the US EPA and US Department of Transportation (DOT) have adopted GHG emission standards for model year 2017 through 2025 vehicles. These standards are slightly different from the state's standards (described below in the Advanced Clean Cars Program), but the state of California has agreed not to contest them, in part due to the fact that while the national standard would achieve slightly less reductions in California, the national standard would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals.

In May 2016, CARB released the updated Mobile Source Strategy that demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years, through a transition to ZEVs, cleaner transit systems and reduction of vehicle miles traveled. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels (CARB, 2016).

**Transportation Electrification.** Complementing the Mobile Source Strategy and the state's push toward zero carbon electricity, SB 350 orders the CPUC to direct the six investor-owned electric utilities in the state to file Applications for programs that "accelerate widespread transportation electrification." These programs are required to reduce dependence on petroleum, increase the adoption of zero-emission vehicles, help meet air quality standards, and reduce GHG emissions.

On January 11, 2018, the California Public Utilities Commission (CPUC) [approved](#) the first transportation electrification applications under SB 350 from the three large investor-owned utilities. The [decision](#) approves 15 projects with combined budgets of \$42 million. In SCE territory, \$16 million

was approved for projects that help expand residential and transit bus EV charging infrastructure, including in or adjacent to disadvantaged communities, as well as crane and heavy duty vehicle electrification at the Port of Long Beach. In Pacific Gas and Electric (PG&E) and San Diego Gas and Electric territories, projects are similar but also include electrification of delivery vehicles and commercial shuttle fleets, and demonstration projects for electrification of school buses and medium- or heavy-duty vehicles fleets (CPUC, 2018).

**Executive Order B-16-2012 (Zero-Emission Vehicles).** This executive order requires that all State entities under the Governor's control support and facilitate the rapid commercialization of zero-emission vehicles. The order contains a target similar to Executive Order S-3-05, but for the transportation sector instead of all sectors: that California target for 2050 a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels. Executive order B-16-2012 also indicates that the CARB, the California Energy Commission, the Public Utilities Commission and other relevant agencies are ordered to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following:

- By 2015: The State's major metropolitan areas able to accommodate zero-emission vehicles, each with infrastructure plans and streamlined permitting; the State's manufacturing sector expend zero-emission vehicle and component manufacturing; an increase in the private sector's investment in zero-emission vehicle infrastructure; and the State's academic and research institutions contributing to zero-emission vehicle research, innovation and education.
- By 2020: The State's zero-emission vehicle infrastructure ability to support up to one million vehicles; the costs of zero-emission vehicles are competitive with conventional combustion vehicles; zero-emission vehicles are accessible to mainstream consumers; widespread use of zero-emission vehicles for public transportation and freight transport; and a decrease in transportation sector GHG emissions as a result of the switch to zero-emission vehicles; electric vehicle charging integrated into the electricity grid.
- By 2025: over 1.5 million zero-emission vehicles on California roads; easy access to zero-emission vehicle infrastructure in California; the zero-emission vehicle industry strong and sustainable part of California's economy; and California's vehicles displace at least 1.5 billion gallons of petroleum fuels per year.

**Sustainable Freight Action Plan.** Executive Order B-32-15 directed the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California's freight transport system. The targets are not mandates, but rather aspirational measures of progress towards sustainability for the State to meet and try to exceed. The targets include:

- System Efficiency Target: Improve freight system efficiency by 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030.
- Transition to Zero Emission Technology Target: Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
- Increased Competitiveness and Economic Growth Targets: Establish a target or targets for increased State competitiveness and future economic growth within the freight and goods movement industry based on a suite of common-sense economic competitiveness and growth metrics and models developed by a working group comprised of economists, experts, and industry. These targets and tools will support flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes and jobs, while working with industry to mitigate potential negative economic impacts. The targets and tools will also help evaluate the strategies proposed under the Action Plan to ensure consideration of the impacts of actions on economic growth and competitiveness throughout the development and implementation process.

**California Transportation Plan 2040.** The California Transportation Plan (CTP) 2040, issued by the California Department of Transportation (Caltrans) in June 2016, provides a long-range policy framework to meet future mobility needs and reduce GHG emissions.<sup>9</sup> The CTP defines goals, performance-based policies, and strategies to achieve maximum feasible emission reductions in order to attain a statewide reduction in GHG emissions.

The CTP 2040 recognizes that the Governor is committed to reduce by one-half current petroleum use in cars and trucks; increase from one-third to one-half the electricity derived from renewable sources; double the efficiency savings of existing buildings and make heating fuels cleaner; reduce the release of methane, black carbon, and other short-lived climate pollutants; and manage farm and rangelands, forests, and wetlands to store more carbon.

Transportation GHG reduction strategies within the CTP 2040 include demand management (including telecommuting/working at home, increased carpoolers, and increase car sharing), mode shift (including transit service improvements, high-speed rail, bus rapid transit, expanded bike and pedestrian facilities, carpool land occupancy requirements, and increased HOV lanes), travel cost (implement expanded pricing policies), and operational efficiency (incident/emergency management, Caltrans' Master Plan, ITS/TSM, and eco-driving).

**Low Carbon Fuel Standard, Executive Order S-01-07.** The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandated that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. The LCFS requires producers of petroleum based fuels to reduce the carbon intensity of their products, beginning with a quarter of a percent in 2011, ending in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS Credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas or hydrogen. The LCFS was challenged in the United States District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against the CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the CARB to continue to implement and enforce the regulation and vacated the injunction on September 18, 2013, and remanded the case to the district court for further consideration.

In September 2015, CARB approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In April 2017, the LCFS was brought before the Court of Appeal challenging the analysis of potential nitrogen dioxide impacts from biodiesel fuels. The Court directed CARB to conduct an analysis of nitrogen dioxide impacts from biodiesel fuels and froze the carbon intensity targets for diesel and biodiesel fuel provisions at 2017 levels until CARB has completed this analysis. On March 6, 2018 CARB issued its *Draft Supplemental Disclosure Discussion of Oxides of Nitrogen Potentially Caused by the Low Carbon Fuel Standard Regulation*.<sup>10</sup> CARB posted modifications to the amendments on August 13, 2018, with a public comment period through August 30, 2018. Final approval of regulatory changes from CARB's analysis of nitrogen dioxide impacts from biodiesel fuels was made on January 4, 2019.<sup>11</sup> The 2017

---

<sup>9</sup> California Department of Transportation, *California Transportation Plan 2040*, June 2016, <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/finalctp2040-report-webready.pdf>; Accessed October 2019.

<sup>10</sup> California Air Resources Board, *Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation 2018*, <https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm>. Accessed October 2018.

<sup>11</sup> California Air Resources Board, *Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation 2019*.

Climate Change Scoping Plan also calls for increasing the mandatory reduction in carbon intensity of transportation fuels from 10 percent to 18 percent by 2030.

**2017 Scoping Plan Update.** On December 14, 2017, CARB approved the final version of *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels.<sup>12</sup> The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. As of 2015, California's emissions totaled approximately 440 MMTCO<sub>2e</sub>. The emissions breakdown is as follows: 37 percent from transportation, 21 percent from industrial sources, 11 percent from in-state electricity generation, 9 percent from commercial and residential, 8 percent from imported electricity generation, 8 percent from agriculture, 4 percent from high global warming potential gases, and 2 percent from recycling and waste. Through a combination of data synthesis and modeling, CARB determined that the target Statewide 2030 emissions limit is 260 MMTCO<sub>2e</sub>, and that further commitments will need to be made to achieve an additional reduction of 50 MMTCO<sub>2e</sub> beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by Executive Order B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030. These include:

- Extending the LCFS beyond 2020 and increasing the carbon intensity reduction requirement to 18 percent by 2030;
- Senate Bill 350, which increases the RPS to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030;
- The 2016 Mobile Source Strategy targets for more ZEVs and much cleaner trucks and transit (described in more detail below);
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies (described in more detail below);
- Senate Bill 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- Assembly Bill 398, which extends the state Cap-and-Trade Program through 2030.

California's climate stabilization strategy relies on contributions from all sectors of the economy, which includes continued investment in renewable energy such as solar roofs, wind, and other types of distributed generation. In addition to being an integral factor in meeting GHG reduction goals, shifting to clean, local, and efficient use of energy also reinvests energy expenditures on local economies and reduces risks associated with exposure to volatile global and national oil and gas commodity prices (CARB, 2017).

**California Cap and Trade Program.** Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is a core strategy in the Scoping Plan for the state to meet its reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020.<sup>13</sup> Under the Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity

---

<sup>12</sup> CARB, *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); Accessed April 2018.

<sup>13</sup> 17 CCR §§ 95800 to 96023.

generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 metric tons CO<sub>2</sub>e per year) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program's duration.<sup>14</sup> On July 17, 2017 the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through December 31, 2030.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions to occur in any discrete location or by any particular source. Rather, GHG emissions reductions are assured on a State-wide basis.

**CARB Low NO<sub>x</sub> Regulation.** CARB has identified that reductions of up to 90 percent are needed for heavy-duty trucks to meet NO<sub>x</sub> reduction targets. In 2013, California established an optional low-NO<sub>x</sub> standard to pave the way for a future mandatory standard. A more stringent low-NO<sub>x</sub> regulation is expected in the 2021/2023 timeframe. When implemented, this regulation will continue to drive the deployment of zero or near-zero emissions truck solutions. This development has been taken into consideration in estimating the number of zero emission trucks projected in this study.

**CARB Advanced Clean Local Truck Rule.** The goal with the Advanced Clean Local Truck Rule is to accelerate the early market adoption of zero emission trucks that are usually centrally fueled, have duty cycles with low average speed and stop-and-go operation. The rule focuses on urban, mostly vocational trucks, but includes heavy truck (class 7–8) urban goods movement as well. The proposed regulatory schedule begins with the 2023 vehicle model year with early action credits given for pre-2023 vehicle models. The regulation is currently available for public comment and will be considered at a meeting of the Board in December 2019.

**The Clean Air Action Plan Update for Ports of Long Beach and Los Angeles.** The ports of Long Beach and Los Angeles have set goals to drastically reduce air pollution over the next decades and move towards zero emissions solutions. It is anticipated that new fee structures will be implemented in 2021 that favors low-NO<sub>x</sub> engine and zero emission solutions.<sup>15</sup>

**SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).** In April, 2016, the Southern California Association of Governments (SCAG) adopted the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which provides a vision for transportation throughout the region for the next 25 years.<sup>16</sup> It considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The 2016 RTP/SCS describes how the region can attain the GHG emission-reduction targets set by CARB by achieving an 8 percent reduction by 2020, 18 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level on a per capita basis.

The 2016 RTP/SCS includes \$70.7 billion in goods movement strategies, and a Goods Movement Appendix that addresses the region's challenges in moving freight while reducing harmful emissions generated by trucks and other goods movement sources.

**SCAG Comprehensive Regional Goods Movement Plan and Implementation Plan.** This report from SCAG, issued in 2012, presents a long-range comprehensive plan for the goods movement system in Southern California. The Plan is designed to ensure that the region continues to play a vital role in the global supply chain while meeting regional economic goals, addressing critical mobility challenges,

---

<sup>14</sup> See generally 17 CCR §§ 95811, 95812.

<sup>15</sup> Port of Long Beach and Port of Los Angeles, *Clean Air Action Plan 2017*. <http://www.cleanairactionplan.org/documents/final-2017-clean-air-action-plan-update.pdf>; November 2017.

<sup>16</sup> SCAG, *Final 2016 RTP/SCS*. April 2016. <http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>; Accessed October 2019.

preserving the environment, and contributing to community livability and quality of life goals. The Plan is the final product of the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy, a four-year effort to collect data, conduct analyses, and engage with regional, statewide and national stakeholders covering various aspects of the region's goods movement system.<sup>17</sup>

**CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations.** In 2004, the CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel efficient engines.

#### **4.17.2.5 City of Moreno Valley**

**City of Moreno Valley General Plan Policies.** The City adopted its General Plan in 2006. The General Plan's Conservation Element contains policies directly related to energy efficiency and renewable energy listed below:

**Objective 7.5** Encourage efficient use of energy resources

**Policy 7.5.1** Encourage building, site design, and landscaping techniques that provide passive heating and cooling to reduce energy demand.

**Policy 7.5.2** Encourage energy efficient modes of transportation and fixed facilities, including transit, bicycle, equestrian, and pedestrian transportation. Emphasize fuel efficiency in the acquisition and use of City-owned vehicles.

**Policy 7.5.5** Encourage the use of solar power and other renewable energy systems.

**City of Moreno Valley Climate Action Strategy.** The City of Moreno Valley approved the Energy Efficiency and Climate Action Strategy (Strategy) in October 2012. The Strategy identifies ways that the City can reduce energy and water consumption and GHG emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and GHG emissions. The Strategy contains the following policies to reduce GHG emissions in 2010 by 15 percent by 2020:

**R2-T1** *Land Use Based Trips and VMT Reduction Policies.* Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.

---

<sup>17</sup> SCAG, *Comprehensive Regional Goods Movement Plan and Implementation Strategy*, December 2012. [http://www.freightworks.org/DocumentLibrary/CRGMPIS\\_Summary\\_Report\\_Final.pdf](http://www.freightworks.org/DocumentLibrary/CRGMPIS_Summary_Report_Final.pdf); Accessed October 2019.

- R2-T3**      *Employment-Based Trip Reductions.* Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1**      *New Construction Residential Energy Efficiency Requirements.* Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.
- R2-E2**      *New Construction Residential Renewable Energy.* Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off site.
- R2-E5**      *New Construction Commercial Energy Efficiency Requirements.* Require energy efficient design for all new commercial buildings to be 10 percent beyond the current Title 24 standards.
- R3-E1**      *Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining.* Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy-efficient projects.
- R3-L2**      *Heat Island Plan.* Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.
- R2-W1**      *Water Use Reduction Initiative.* Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1**      *Water Efficiency Training and Education.* Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1**      *City Diversion Program.* For solid waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

**Moreno Valley Utility 2018 Integrated Resource Plan (IRP).** MVU provides electrical services to approximately 6,800 customers. MVU’s main guidance document to plan for future growth and development is the 2018 IRP which forecasts a 20-year planning period from 2017 to the horizon year of 2037. The purpose of the IRP is to identify key considerations to meet future energy demand, increase local renewable energy projects, and plan for large-scale logistics and distribution centers that are increasingly prevalent in the region. As stated above, electricity sales for 2018 totaled 188 million kWh and the IRP forecasts growth in sales to be 231,555 million kWh by the horizon year of 2024.<sup>18</sup>

MVU previously offered a solar net energy metering program to their customers, but in MVU’s latest Electric Rates Schedule for Net Energy Metering, adopted April 17, 2018, this schedule is closed to new applicants effective April 2018. Furthermore, per *Resolution No. 2017-20* the “maximum solar generating capacity that will be approved to be connected to each meter is up to 50% of the meter minimum daytime load.” This limits the amount of on-site solar generation that can be installed at WLC buildings.

### **4.17.3 Methodology**

The analysis addresses the project’s potential impacts related to energy usage, including electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is

---

<sup>18</sup> City of Moreno Valley, Moreno Valley Utility, 2018 Integrated Resource Plan, 2018 <http://www.moval.org/mvu/pubs/MVU-IRP-Report-072018.pdf> Accessed September 2019.

assessed. The potential for on-site generation of renewable energy is also assessed. Specific analysis methodologies are discussed below. Calculations are provided in Appendix E.

#### **4.17.3.1 Construction**

Construction activities can vary substantially from day to day, depending on the specific type of construction activity and the number of workers and vendors traveling to the Site. This analysis considers these factors and provides the estimated maximum construction energy consumption for the purposes of evaluating the associated impacts on energy resources.

Energy use during construction is forecasted by assuming a conservative estimate of construction activities (i.e., maximum daily equipment usage levels). The energy usage required for project construction has been estimated based on the number and type of construction equipment that would be used during project construction, the extent that various equipment is utilized in terms of equipment operating hours or miles driven, and the estimated duration of construction activities. Energy for construction worker commuting trips has been estimated based on the predicted number of workers for the various phases of construction and the estimated VMT.

The heavy duty construction equipment would likely be diesel-fueled (with the exception of construction worker commute vehicles, which would primarily be gasoline-fueled). For the purposes of this assessment, it is conservatively assumed heavy-duty construction equipment and haul trucks would be diesel-fueled and construction equipment would be in operation for the entire construction day. This represents the maximum potential energy use during construction since some equipment could feasibly be electric or gasoline powered and be less energy intensive and since it is unlikely that equipment would be in operation for the entire construction day. The estimated fuel economy for heavy-duty construction equipment is based on fuel consumption factors from the CARB off-road vehicle (OFFROAD) emissions model, which is a state-approved model for estimating emissions from off-road heavy-duty equipment. The estimated fuel economy for haul trucks and worker commute vehicles is based on fuel consumption factors from the CARB EMFAC2017 emissions model, which is a state-approved model for estimating emissions for on-road vehicles and trucks. Both OFFROAD and the previous version of EMFAC (EMFAC2014) are incorporated into the California Emissions Estimator Model (CalEEMod), which is a state-approved emissions model used for the project's air quality and GHG emissions assessment. Mobile emission factors were updated using EMFAC2017 and calculated separate from CalEEMod. Therefore, this energy assessment is consistent with the modeling approach used for other environmental analyses in the EIR and consistent with general CEQA standards.

#### **4.17.3.2 Operation**

The WLC project would require energy in the form of electricity for the operation of buildings and infrastructure (heating, cooling, lighting, water demand and wastewater treatment, consumer electronics, and other energy needs) and gasoline, diesel, natural gas, and electricity (to charge plug-in EVs) for vehicles traveling to and from the project site. The project would also require energy from natural gas use for on-site forklifts and yard trucks associated with warehousing activities.

The project's estimated building and infrastructure energy consumption was calculated in the WLC *Comparison of Renewable Energy Technologies* report (See Appendix E.2 of this EIR) The energy usage required for project building and infrastructure operations is estimated based on the net change in energy demand from the new buildings and facilities compared to the existing uses (as described above, the existing energy usage is conservatively assumed to be zero). Project building and infrastructure operations will consume energy directly through electricity used to power equipment and appliances on-site, and indirectly, through the demand for water. On-site energy usage takes into account building energy standards pursuant to the 2019 Title 24 Building Standards Code and CALGreen Code, the sustainability measures in the WLCSP for which the effect can be quantified, and Mitigation Measures prescribed in the Draft Recirculated Sections of the FEIR. Refrigerated warehouse space is not an allowed use within the WLC site (see Mitigation Measure 4.3.6.3E in the Draft Recirculated Sections of the FEIR). Energy usage from water demand (e.g., electricity used to supply,

convey, treat, and distribute) is based on predicted annual water demand rates (which in turn are based on the size and type of future land uses) and state-wide averages regarding the amount of electricity needed to pump, treat, and transport each gallon of potable water and sewage.

Energy for transportation from increased activities to, from, and on the WLC site is estimated based on the predicted number of trips and the estimated VMT per trip. Trip types include employees commuting to and from home, vendors and deliveries associated with operation of the future uses, trucks bringing goods to and from the proposed warehousing facilities, and off-road mobile equipment needed for cargo/material handling (fork lifts, etc.). The estimated fuel economy for on-road vehicles is based on fuel consumption factors from the CARB EMFAC2017 emissions model. Therefore, this energy assessment is consistent with the modeling approach used for other environmental analyses in the Draft Recirculated Sections of the FEIR and consistent with general CEQA standards. However, additional analysis was required to quantify the increased electricity use and decreased fuel use associated with higher fleet penetration of electric vehicles (EVs) expected with implementation of California's 2016 Mobile Source Strategy, which is not incorporated into EMFAC2017 (for more information see next section on Technology Development).

CNG/LNG station fuel use was estimated based on assumptions outlined in the traffic study. The traffic study assumed all visits to the station were from trucks. The estimated number of CNG/LNG trucks visiting the station each day was multiplied by the typical tank size of a CNG/LNG truck and then calculated over the span of a year to result in annual fueling demand.

### 4.17.3.3 Renewable Energy

To supply the project with electricity, the *Comparison of Renewable Energy Technologies* report (see Appendix E.2 of this EIR) considered on-site and off-site options for integrating the use of renewable energy and optimizing onsite energy management. The report is aimed at addressing arguments and concerns raised in *Paulek, et al vs. City of Moreno Valley*, in which the petitioners argued that the analysis did not adequately consider feasible renewable energy technologies and therefore failed to provide an adequate energy conservation analysis.<sup>19</sup> A comprehensive list of prospective energy resources was evaluated, and a screening process was applied to winnow the options down to those that hold the greatest potential for being successfully implemented at WLC. Screening criteria causing certain energy supply options to be discarded involved safety considerations, regulatory barriers, air emissions concerns, cost-effectiveness, and technical impracticalities. The report also evaluated a wide array of renewable energy options that are currently available, feasible, and cost-effective for implementation at the Project Site, and determined the maximum feasible and allowable implementation of on-site renewables given the constraints set forth by MVU. Several on-site supply options were deemed infeasible for WLC, including the use of biomass energy, biogas/landfill gas, district energy system, microgrid, in-line hydroelectric turbines in water transmission pipelines, natural gas pressure recovery, and local wind generation. For more details regarding the Project's renewable energy considerations and recommendations refer to the *Comparison of Renewable Energy Technologies* report.

Onsite energy supply options considered feasible include ground-source heat pumps (GSHPs); combined cooling, heat, and power (CCHP); and solar photovoltaic (PV) with and without battery storage:

- GSHP is not recommended in the WLC location due to the cooling requirements within the building being much greater than the building heating needs as a result of year-round weather conditions at the WLC site. Such an imbalance would cause the geothermal field (where excess heat removed from the building by the cooling process is transferred via piping into the ground) to grow increasingly warmer over time. This, in turn, would degrade GSHP performance in providing building space cooling.

---

<sup>19</sup> The Superior Court of California in the County of Riverside ruled that the analysis compressed the impacts and mitigation measures into a single issue (greenhouse gas emissions) and disregarded the requirements of CEQA. The Court ruled that the energy analysis must include a comparison of available, cost-effective renewable energy technologies.

- CCHP produces air emissions, resulting from the combustion of fossil fuels, that exacerbate the poor air quality of Moreno Valley and the entire South Coast Air Quality Basin. Furthermore, CCHP increases the project's GHG emissions since it produces more GHG emissions than California's increasingly green grid.
- On-site solar PV generation is scalable and is becoming more cost competitive as project size increases.

As described in Section 4.17.5 (Project Design Features), the *Comparison of Renewable Energy Technologies* report (WSP, 2018) found that onsite rooftop PV systems without energy storage were determined to be the project's best sustainable clean energy supply option. Pursuant to the WLCSP, the rooftop solar PV generating capacity for the project will be designed at minimum to offset the power demands of office space contained in the building. In addition, the project proponent is committed to requiring on-site rooftop solar generating capacity up to the maximum level currently permitted by MVU, which is defined as one-half the minimum electric demand a building experiences during daytime hours.

To determine the specific allowable PV capacity at the WLC site, the *Comparison of Renewable Energy Technologies* report analyzed the hourly electric loads using energy simulation software. Phase 1 building simulation produced a minimum daytime electric load of about 600 kW. The minimum daytime electric load at buildout was simulated to be about 1,600 kW. The offices in each typical WLC building would consume about 474,120 kWh/yr in Phase 1 and experience a peak electric demand of about 280 kW. At buildout, the offices in each building would consume about 417,230 kWh/yr and experience a peak demand of about 270 kW. At the maximum solar PV generating capacity allowed by MVU, Phase 1 buildings could provide up to 300 kW (one-half the 600 kW minimum daytime electric load) and Phase 2 buildings could provide up to 800 kW (one-half the 1,600 kW minimum daytime electric load). This would generate approximately 512,275 kWh/yr and 1,366,400 kWh/yr per building for Phase 1 and Phase 2, respectively, which is more than sufficient to power 100% of the office energy needs.

#### **4.17.3.4 Technology Advancement**

CEQA Guidelines Section 15144 states "Drafting an EIR or preparing a Negative Declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." This essentially limits the requirement for forecasting to that which could be reasonably expected under the circumstances and is part of the effort to provide a general "rule of reason" for EIR contents. The following discussion, in conjunction with the regulatory drivers listed above, seeks to establish what is reasonably foreseeable with respect to technology advancements that may influence transportation energy use contemporaneous with development of the WLC project.

As spelled out in CPUC's California Energy Efficiency Strategic Plan, the state has ambitious goals for the development of zero net energy (ZNE) buildings (zero net energy consumption), including a goal for all new commercial construction to be ZNE by 2030.<sup>20</sup> Most zero-energy buildings rely on the electrical grid during times when local demand exceeds supply, and return the same amount of power or more at other times. Some ZNE buildings utilize on-site energy storage and are thus independent of the grid. ZNE buildings usually harvest some amount of energy on-site using technologies like solar and wind, while reducing the overall use of energy with highly efficient heating, ventilation, and air conditioning (HVAC) and lighting technologies.

The ZNE goal for commercial buildings is becoming more practical as the costs of alternative energy technologies decrease, grids become "smarter" and the costs of traditional fossil fuels increase. As pointed out by the California Public Utilities Commission (CPUC) in their draft *Commercial ZNE Action Plan* (CPUC, 2017), the current commercial ZNE market is extremely small, with approximately 190

---

<sup>20</sup> CPUC, *California Energy Efficiency Strategic Plan*. September 2008.  
<https://www.cpuc.ca.gov/General.aspx?id=4125>; Accessed October 2019.

currently verified or designed ZNE commercial buildings in California, but is positioned to grow.<sup>21</sup> As described in Section 4.17.5, *Project Design Features*, future updates to the Title 24 building standards are expected to require ZNE commercial buildings by the year 2030. By proactively embracing an all-electric building design and committing to solar-ready roof construction, WLC would be net-zero-ready and in a stronger position for compliance with future Title 24 updates.

Zero emission vehicle (ZEV) technology is developing rapidly for both light-duty and heavy-duty vehicles. ZEVs can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or through electricity provided by sources outside the vehicle such as overhead catenary wires that are currently used for light rail and some transit buses. ZEVs achieve zero tailpipe emissions by utilizing electric drive to power the vehicle instead of fuel combustion, and achieve higher system efficiency compared to fossil fuel powered vehicles. Additionally, Low Carbon Fuels, such as biodiesel and natural gas, have achieved relatively high rates of market penetration in some specific commercial applications, such as fleet delivery trucks, public buses, and waste hauling.

Because the project is proposed to be developed over a long period of time, the assessment of future energy demand by fuel type may consider likely achievements related to the development and improvement of technologies to reduce or displace traditional fossil fuel energy consumption. The following scenarios were developed in the WLC Transportation Energy Technical Report (See Appendix E.1 of this EIR) based on varying degrees of electric vehicles projected to be in use at the time of the project's Phase 1 development in 2025 and full buildout in 2035 and their effects on overall project energy use. These scenarios form the basis for considering the project's potential impacts to energy consumption and generation in Section 4.17.7 Impacts Analysis:

**Vehicle Scenario A: Low EV Penetration**

Scenario A reflects the requirements of current state building code (Title 24, part 11), stipulating that 6 percent of parking spaces be constructed to accommodate the future installation of electric vehicle supply equipment (EVSE) for future electric vehicle charging. Scenario A assumes that EV charging stations will be installed at 6 percent of the parking spaces by the completion of Phase 1. This Scenario assumes no increase in the stringency of the requirement, as any change in the regulatory minimums would be purely speculative at this time. Scenario A also assumes that the code-compliant charging stations would be used only for charging passenger vehicles and light duty truck EVs, and there would be no charging of medium-duty or heavy-duty truck EVs. Table 4.17-1 indicates the number of EV charging stations needed for 2025 and 2035 based on these assumptions.

**Table 4.17-1: EV Charging Station Requirements at WLC**

Stage of Development	WLC Warehouse Buildings			WLC Parking Requirements		
	Total Building Square Footage	Average Building Square Footage (approximate)	Number of Buildings	Average per Building	WLC Total	EV Charging Equipped (6%)
Phase 1 – 2025	22,946,000	1,500,000	15.3	584	8,781	527
Full buildout – 2035	40,600,000	1,500,000	27.1	575	15,536	932

For determining the breakdown of vehicle types and fuels powering the fleet, Scenario A relies on EMFAC2017.<sup>22</sup> EMFAC 2017 forecasts approximately 619,000 passenger EVs (2.5 percent of total) and 59,000 light truck EVs (1.4 percent of total) statewide by 2025, and approximately 1.4 million passenger EVs (4.7 percent of total) and 172,000 light truck EVs (3.7 percent of total) statewide by 2035.<sup>23</sup> For the South Coast Air Basin, EMFAC2017 forecasts the same percentages of passenger EVs

<sup>21</sup> CPUC, *Zero Net Energy Action Plan*. 2017. <https://www.cpuc.ca.gov/ZNE/>; Accessed October 2019.

<sup>22</sup> The Emission FACTors (EMFAC) model is the standard method used in CEQA analysis to calculate emission rates from motor vehicles operating on highways, freeways and local roads in California.

<sup>23</sup> As interpreted by the project traffic modeling, passenger vehicles include all LDA, LDT1, and LDT2 category vehicles in EMFAC.

and 1.6 percent of light truck EV populations by 2025, and slightly higher percentages by 2035. Based on the percentages for the South Coast Air Basin, the number of passenger EVs estimated to access the Project area on any day under Scenario A were determined to be 300 for Phase 1 (2025) and 991 for full buildout in 2035.

Scenario A energy demand calculations assume that passenger EVs would have an average battery size of 100 kWh in the year 2025, equating to an average charge capacity of 80 kWh (80 percent). Passenger cars in 2035 would have an average battery size of 200 kWh, equating to an average charge capacity of 160 kWh (80 percent).

Scenario A assumes that half of the passenger EV population on site each day would charge their batteries to full capacity. If Level 2 AC chargers with a minimum charging rate of 19.2 kW (highest rate currently available) were provided, it would take approximately 4 hours to fully charge a vehicle with a 100 kWh battery. If the site was served by DC power blocks that spread the power delivery across multiple vehicles simultaneously in response to site energy management requirements, the charging time could be much faster. DC power blocks provide power at up to 500 kW, but it is reasonable to assume an average charging rate would be 100 kW, resulting in a charging time of approximately 48 minutes for a vehicle with a 100 kWh battery. At that rate, 932 charging stations at full buildout could charge thousands of vehicles per day, assuming vehicles move in and out of the EV charging parking spaces throughout the day.

Peak electricity loads for servicing the EVs were provided by WSP in their World Logistics Center *Comparison of Renewable Energy Technologies* report (WSP, 2018).<sup>24</sup>

#### Vehicle Scenario B: Medium EV Penetration (Scoping Plan Scenario)

This scenario reflects the same assumption regarding electric vehicle charging infrastructure as used in Scenario A (EV charging stations will be installed at 6 percent of parking spaces by the completion of Phase 1) but with higher electric vehicle populations consistent with the goals of California's 2017 Scoping Plan Update and 2016 Mobile Source Strategy, which are both designed to enable statewide attainment of the SB 32 GHG Target of 40 percent below 1990 levels by 2030. As with Scenario A, Scenario B includes passenger and light truck EVs, but no charging of medium-duty or heavy-duty truck EVs. The higher numbers of passenger and light truck EVs result in a higher vehicle charging load for the project.

The EV population estimates are aligned with Governor Brown's Executive Order calling for 1.5 million ZEVs by 2025, and the Mobile Source Strategy calling for 4.2 million ZEVs by 2030, which works out to approximately 5.2 percent of combined vehicles (passenger + light trucks) in 2025 and 13.2 percent in 2030. The EV population estimates (21 percent of passenger vehicles and 22.5 percent of light trucks) for 2035 are based on the conservative assumption that the EV population increase from 2025 to 2030 due to the Mobile Source Strategy is repeated over the five-year period from 2030 to 2035. There would be approximately 7.2 million ZEVs in operation statewide by 2035. Assuming the EV percentages would be the same for the proposed Project located in the South Coast Air Basin, the Project would be visited by 627 EVs per day by 2025 and 4,509 EVs by 2035.

Charging loads for the light truck category were determined using the daily mileage estimates and average kWh/mile consumption for each vehicle category, using data from the U.S. Department of Energy's Alternative Fuels Data Center.<sup>25</sup>

---

<sup>24</sup> As explained in the WSP report, peak EV charging rate was estimated by allocating the annual electricity consumption of EVs according to the building operating schedules. The resulting peak electric load imposed by EV charging is about 25% of the aggregate nameplate capacity of all charging stations. This result agrees quite well with industry expectations that charging blocks managed with automated 'smart' controls will reduce the coincident peak demand to 20-25% of the aggregate capacity of the individual charging stations.

<sup>25</sup> <https://www.afdc.energy.gov/>

Like Scenario A, Scenario B assumes that EVs in 2025 would have an average battery size of 100 kWh, and by 2035 they would have an average battery size of 200 kWh. Due to the higher EV populations the demand for fast charging will be higher, and it is reasonably assumed that DC power blocks, which manage power delivery across multiple vehicles simultaneously in response to site energy requirements, would be the appropriate chargers at the site to handle the increased loads. Like Scenario A, it is assumed that the average charging rate for DC power block chargers would be 100 kW. At that rate a 200 kWh battery (160 kWh capacity) would take approximately 96 minutes to charge. 932 charging stations at full buildout could charge thousands of vehicles per day, assuming vehicles move in and out of the EV charging parking spaces throughout the day.

Peak electricity loads for servicing the EVs were provided by WSP in their World Logistics Center *Comparison of Renewable Energy Technologies* report (WSP, 2018).

### Vehicle Scenario C: High EV Penetration

Scenario C is the same as Scenario B with respect to passenger and light truck EVs, but includes estimates for medium duty and heavy duty EV trucks based on CALSTART's zero-emission transformation model that takes into account how nascent zero emission solutions, namely technologies from the transit bus segment, evolve and transition into other medium- and heavy-duty categories. As with the light duty truck estimates, the projections take into account funding programs, sales trends, technology development, and upcoming regulations. In addition, the estimates consider regulatory and commercialization studies completed by CALSTART, including potential regulations related to zero emission drayage trucks and access by zero emission trucks to city centers.

CALSTART's zero emission transformation model indicates that 10 percent of medium-duty and 20 percent of heavy-duty trucks servicing the South Coast Air Basin could feasibly be EVs by 2025; by 2035, the forecasts indicate that 20 percent of medium-duty and 30 percent of heavy-duty trucks could be EVs. Charging loads for the light truck category were determined using the daily mileage estimates and average kWh/mile consumption for each vehicle category, using data from the U.S. Department of Energy's Alternative Fuels Data Center.<sup>26</sup>

## 4.17.4 Thresholds of Significance

### 4.17.4.1 CEQA Guidelines Appendix F

CEQA Guidelines Appendix G does not provide specific thresholds for the evaluation of impacts related to energy resources. CEQA Guidelines Appendix F was prepared in response to the requirement in Public Resources Code Section 21100(b)(3), which states that and EIR shall include a detailed statement setting forth "[m]itigation measures proposed to minimize significant effects of the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy."

- A project would result in significant impacts with regard to energy use and consumption if it would cause wasteful, inefficient, and unnecessary consumption of energy. In accordance with Appendix F, the following criteria will be considered in determining whether this threshold of significance is met:
  - 1) The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed (Appendix F Section II C-1).
  - 2) The effects of the project on local and regional energy supplies and on requirements for additional capacity (Appendix F Section II C-2).

---

<sup>26</sup> <https://www.afdc.energy.gov/>

- 3) The effects of the project on peak and base period demands for electricity and other forms of energy (Appendix F Section II C-3).
  - 4) The effects of the project on energy resources (Appendix F Section II C-5).
  - 5) The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives (Appendix F Section II C-6).
- A project would result in significant impacts with regard to energy use and consumption if it would require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.
  - A project would result in significant impacts with regard to energy use and consumption if it would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. In accordance with Appendix F, the following criteria will be considered in determining whether this threshold of significance is met:
    - 1) The degree to which the project complies with existing energy standards (Appendix F Section II C-4).

#### **4.17.5 Project Design Features**

The WLCSP incorporates Project Design Features (PDFs) including sustainable development standards that minimize energy consumption, conserve water, and use recycled or sustainable building materials, where feasible. The WLCSP provides developers with a specific framework for identifying and implementing a variety of practicable and measurable green building measures into the design, construction, operations, and maintenance of each development. Pursuant to the WLCSP, all new development within the project site will be required to meet the California Building Energy Standards in effect at the time construction commences or be 10% more stringent than 2008 standards, whichever results in lowest energy use. In addition, WLC buildings will be designed to be "solar ready" (i.e., structural upgrades to allow the installation of solar photovoltaic systems on the roof of each building), and the WLCSP includes a commitment that the energy requirements of all office space will be supplied with rooftop solar energy systems.

##### Building Energy

As outlined in the WLCSP Section 1.3.2, *Green Building – Sustainable Development*, the project will incorporate sustainable design features to save energy and reduce its environmental footprint, including but not limited to:

- Reduced water use for landscape irrigation,
- Street designs that harvest and channel runoff into landscape areas instead of storm drains,
- Accommodate the use of alternative means of transportation,
- Use recycled building materials to the extent feasible,
- Use local sources of building materials to the extent feasible,
- Support waste management reduction identified in AB 341.
- Minimize the use of impervious paved surfaces throughout the project,
- Incorporate on-site storm water capture and infiltration within landscape areas,
- Support alternative fuel use through the provision of an on-site alternative fueling site, and
- Provide for the use of roof-mounted solar systems or other alternative power systems.

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

The WLCSP specifies that all buildings of at least 500,000 square feet (representing more than 99 percent of total project square footage at buildout) shall be designed to meet or exceed the LEED Certified Building Standards and that buildings will be designed to accommodate renewable energy systems. The design of the WLC will pursue these goals by incorporating design features such as, but not limited to, the following:

### Building Design and Construction Features:

- Construct “Solar ready” rooftops for buildings;
- Implement design and construction techniques will be employed to reduce the heat island effect, including the use of materials that have a low solar reflectance index such as white roofs and light-colored pavements;
- High performance glazing, overhangs, and landscaping to capture and control natural daylight;
- Use of atriums, skylights and internal courtyards to provide additional daylighting;
- Use of renewable materials and building materials with recycled content where feasible;
- Develop waste management plan and a comprehensive recycling and management program to divert at least 50 percent of waste from landfill, including storage and collection of recyclables, building and material reuse, and careful construction waste management;
- Incorporate the use of passive heating and cooling into the design or modification of the high-cube warehouse development (e.g., white building colors and roof insulation to minimize heat gain, and landscaping to help shade buildings);
- Install outdoor electric outlets to accommodate the use of electrical property maintenance equipment (Section 12.4 of the WLCSP);
- Install advanced irrigation systems, drought-tolerant plants, the use of mulch, recycled and other permissible alternative sources of water, and turfless plantings with decorative hardscape materials such as rock and other materials that do not require potable water sources.

### Transportation Features:

- Accommodate alternate forms of transportation including, public transportation (bus), charging stations for electric cars, carpooling, and bicycles.
- Construct sidewalks and a multiuse trail for pedestrian circulation;
- Promote the riding of bicycles, through the provision of bike racks/storage, showers and changing rooms; and
- Design streets to accommodate bus service – Riverside Transit Agency (RTA) does not currently operate any routes in the immediate vicinity of the WLC. RTA will determine if and when bus service will be provided.

### Solid Waste Diversion Features:

- Require that all development within the project provide enclosures or compactors for trash and recyclable materials per Specific Plan (Section 5.1.6).

In addition to the prescriptive Building Design and Construction Features, Transportation Features, and Solid Waste Diversion Features listed above, the Applicant commissioned the WLC *Comparison of Renewable Energy Technologies* report (WSP, 2018) to compare feasible, cost-effective renewable energy technologies that could be incorporated into the project design. The report evaluates additional project design options for the WLC that could improve energy performance and increase the use of renewable energy. The screening criteria used to evaluate feasibility include GHG emissions, resiliency, financial constraints, technical constraints, and regulatory constraints. Both on-site and off-site sources of renewable energy were considered.

As an overall strategy, the report recommends eliminating the need for natural gas in building systems and maximizing onsite renewable electricity generation to position the WLC to become an all-electric development that has the future potential to operate 100% on renewable electricity.<sup>27</sup>

The State's Energy Action Plan, first developed in 2003, established a "loading order" to address the state's energy needs. This loading order states that investments in energy efficiency and demand-side resources be considered first, followed by renewable resources and then clean conventional electricity supply.<sup>28</sup>

Recognizing that energy efficiency is the least-cost sustainable energy resource available, the *Comparison of Renewable Energy Technologies* report recommends implementing all feasible and cost-effective energy conservation measures (ECMs) before determining the feasibility and cost-effectiveness of renewable energy supply options. In addition to reducing energy demand associated with the project, improving the energy efficiency of the buildings will reduce the additional electrical distribution capacity that must be built to supply the project, and help minimize expansion of the electricity distribution infrastructure (e.g., substation and transformer) and the associated local distribution capital costs. To that end, the report identifies feasible and cost-effective ECMs that go beyond the PDFs in the WLCSP and can further reduce building energy consumption beyond the minimum requirements of the current (2019) Title 24 energy code, and help achieve or exceed LEED Certified Building Standards. The ECMs address internal loads, such as lighting and equipment, as well as the energy required to provide heating, cooling, and domestic hot water. Key ECMs in the recommended package that go beyond the PDFs in the WLCSP are variable refrigerant flow (VRF) heat pumps providing heating and cooling to the office spaces, direct evaporative cooling as the first cooling stage and VRF as the supplemental cooling stage for air-conditioned warehouse spaces, LED lighting throughout the offices and warehouses, and LED exterior and parking lot lighting. If fully implemented by the project, the ECMs in combination with the WLCSP PDFs are expected to deliver energy performance that exceeds the current minimum Title 24 requirements by approximately 17 percent at Phase 1 and 16 percent at full buildout:

Building Envelope:

- Optimal Vertical Fenestration Construction
- Optimal Skylight Construction
- Optimal Window to Wall Ratio
- Optimal Skylight to Roof Ratio

Exterior Loads:

- LED exterior lighting
- Daylight sensor based exterior lighting

Internal Equipment Loads:

- Automatic Receptacle Control
- Highest Efficiency Office Equipment
- Highest Efficiency Other Internal Loads

---

<sup>27</sup> The State of California is expected to require net-zero energy (ZNE) buildings in future updates to Title 24 building standards. By proactively embracing an all-electric building design and committing to solar-ready roof construction, WLC would be net-zero-ready and in a stronger position for compliance with future Title 24 updates.

<sup>28</sup> California Public Utilities Commission, Energy Action Plan, 2003. Available at: <https://www.cpuc.ca.gov/eaps/>. Accessed November 2019.

**Lighting:**

- Multi-Level Switching
- High Performance Lighting (LED)
- Use separate controls for lighting areas near windows
- Occupant sensors

**Daylighting:**

- High-on-wall continuous daylighting windows/clerestory windows
- Optimal Daylighting Control
- Dimming daylight controls

**HVAC:**

- Thermostat setback/setup
- Shut off outdoor air and exhaust air dampers during unoccupied periods
- Supply air temperature reset
- High Performance Fans
- Variable Speed Fans
- High efficiency pumps
- Variable Speed Pump motors
- Reduce service water consumption
- Efficient service water pumping
- Integrated and optimized air side economizer
- Direct Evaporative Cooling
- Variable refrigerant flow heat pump & cooling
- Dedicated Outside Air System Ventilation with Heat Recovery
- Demand controlled ventilation/CO2 controls

**On-Site Renewable Energy**

The WLC Specific Plan commits the WLC project to meeting the annual energy requirements of all office spaces with PV, thereby effectively achieving net-zero energy (NZE) office operations. The *Comparison of Renewable Energy Technologies* report estimates that the offices in each typical WLC building would consume about 474,120 kWh/yr in Phase 1 and experience a peak electric demand of about 280 kW. At buildout, the offices in each building would consume about 417,230 kWh/yr and experience a peak demand of about 270 kW. The report also found that the maximum allowed amount of PV capacity/building in Phase 1 (300 kW) will generate about 512,275 kWh/yr at the WLC location. The maximum allowed amount of PV capacity/building at buildout (800 kW) will generate about 1,366,400 kWh/yr. These maximum allowed PV capacities are sufficient in both Phase 1 and buildout to satisfy 100% of the office energy needs, thereby meeting the NZE objective for WLC office space.

A system that combines PV with battery storage of excess solar generation was considered, but the MVU solar sizing limitations and the estimated WLC project demands do not result in excess solar generation that could be used to charge a battery. In addition, MVU's Time-of-Use rate structure is not

compatible with the project's peak electrical usage (load curve) making the use of batteries to deliver any meaningful reduction an unviable option.

Considering the air emissions constraints, MVU rate structures, project electric load curves, and MVU PV sizing rules, rooftop PV systems without energy storage were determined to be the project's best sustainable clean energy supply option. The use of PV in each phase of the WLC project would cover both the peak electric load generated by the offices and the annual energy usage of the offices. Utilizing the maximum permitted amount of rooftop PV would enable the project office spaces to achieve effectively ZNE operations. Project Design Features include roofs with the structural integrity that can accommodate the possibility of future solar installation over the entire roof of each building. At a minimum, the project will install enough solar power in both phases to meet energy needs of the project's office spaces.

The *Comparison of Renewable Energy Technologies* report found that the use of on-site battery storage and vehicle-to-grid (V2G) technology<sup>29</sup> are not viable under current regulatory and economic conditions. MVU currently has no policies or rules that would allow WLC to use battery storage to increase usage of solar electricity. V2G technology is not yet commercialized, and MVU rules and rate structures would need to change to accommodate V2G technology and to incentivize EV owners to make their vehicle's batteries available while the vehicle is parked.

#### Off-Site Renewable Energy Procurement

While WLC tenants are expected to purchase electricity from MVU, there are multiple off-site renewable electricity procurement options available to them, if they are willing to incur the associated price premium. Understanding the risk profiles, market credibility, and regulatory implications of different renewable energy procurement options is paramount to making an informed decision. WSP evaluated the following options:

- Unbundled renewable energy certificates (RECs);
- Power purchase agreements (PPAs);
- Community choice aggregation (CCA);
- Green tariffs.

There is no one-size-fits-all recommendation for WLC tenant procurement of off-site renewable energy. Each tenant's circumstances are likely to be unique, so the best off-site procurement option for one tenant may very well not be the best option for another tenant.

To meet the Project Objectives and the City's Economic Development Objectives (see Section 1.3.1 of the WLC Specific Plan), WLC must establish and maintain a competitive position in the marketplace. The price premium associated with off-site renewable energy procurement would increase WLC tenant utility costs and thus run counter to the Project Objectives and the City's Economic Development Objectives. It would therefore be counterproductive to require WLC tenants to procure renewable energy from off-site sources. For these reasons, the concept of requiring a tenant to procure off-site renewable energy was not considered a viable sustainable supply option to impose on the project.

#### Transportation Energy

For transportation energy, the *Transportation Energy Technical Study* (ESA, 2018) was conducted to compare feasible, cost-effective options for integrating the use of renewable energy and improving the overall energy performance of transportation operations associated with the WLC project. The

---

<sup>29</sup> A V2G system uses the on-board battery packs of parked electric vehicles as distributed energy resources to store electricity for use during peak electricity demand periods. In the future, it is expected that smart controls on EV charging stations will enable each EV owner to decide whether or not to allow V2G charging and discharging of the EV's battery pack.

Transportation *Energy Technical Study* considered a wide range of fuel and vehicle options across all vehicle classes, and assessed feasibility based on applicability to the project, relative cost, commercial readiness, funding availability, policy and regulatory support, potential industry partners, and other factors.

The *Transportation Energy Technical Study* found that zero emission vehicle (ZEV) technology is steadily developing for both light-duty and heavy-duty vehicles, driven by both regulatory developments and market forces. ZEVs encompass a range of technologies including battery electric vehicles (BEVs), hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and range extended electric vehicles (REEVs) that utilize a fuel cell as an additional energy source. As outlined in the *Transportation Energy Technical Study* and summarized in the Vehicle Scenarios above, commercialization of passenger vehicles is occurring rapidly. A significant population of passenger EVs is expected at the site by Phase 1 (2025) and that number will increase substantially by full buildout of the project (2035), representing a potential significant demand for on-site charging. The study also found that development of electric medium- or heavy-duty vehicles is still in the pilot or demonstration phase and it is not possible to predict when they will become commercially available.

Although it is speculative to state what the regional fleet mix will be as each phase of the project is completed, and the adoption of ZEVs by WLC employees and customers will be beyond the direct control of the WLC, all EV types should be anticipated in planning for the onsite charging infrastructure. To that end, the project will construct the WLC parking areas with cable raceways for installing future EV charging stations, which will enable WLC to more readily and cost effectively provide this service to future tenants if and when demand dictates.

#### **4.17.6 Mitigation Measures**

In addition to the PDFs regarding energy conservation and renewable energy, the Draft Recirculated Sections of the FEIR include the following mitigation measures for other environmental impacts that reduce potential impacts of the WLC project relative to energy use. The complete mitigation measures below can be found in the Executive Summary.

**Air Quality Mitigation Measure 4.3.6.2A (construction fuel)** would require that construction equipment greater than 50 horsepower be USEPA Tier 4 emissions compliant and limits on-site idling of all diesel-powered construction equipment, delivery vehicles, and delivery trucks to three minutes in any one hour.

**AQ Mitigation Measure 4.3.6.3B (long haul trucks).** Require model year 2010 medium-heavy duty and heavy-heavy duty trucks or later.

**AQ Mitigation Measure 4.3.6.4A:** Includes several measures related to bicycle and pedestrian facilities and infrastructure, electric vehicle infrastructure, and ridesharing as conditions to any Plot Plan approval within the WLC site.

**Utilities Mitigation Measure 4.16.1.6.1A** would reduce outdoor water usage which in turn reduces energy use associated with the conveyance of that water.

**Utilities Mitigation Measure 4.16.1.6.1B** would reduce interior water usage, including low flow fittings, fixtures and equipment.

**Utilities Mitigation Measure 4.16.1.6.1C** would allow reclaimed water to be used for irrigation.

**Greenhouse Gas Mitigation Measure 4.7.6.1A (waste diversion).** Recycling and composting availability and reduce operational waste by at least 50 percent before 2020 and 75 percent after.

**Greenhouse Gas Mitigation Measure 4.7.6.1B** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1A for building energy). Each application for a building permit shall include energy calculations to demonstrate compliance with California Energy Efficiency Standards (Title 24, Part 6).

**Greenhouse Gas Mitigation Measure 4.7.6.1C** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1B building energy). Prior to the issuance of any building permits within the WLC site, each project developer shall submit energy calculations used to demonstrate compliance with the performance approach to the California Energy Efficiency Standards, for each new structure.

**Greenhouse Gas Mitigation Measure 4.7.6.1D** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1C building energy; now modified). Prior to the issuance of a building permit, new development shall demonstrate that each building has implemented the following:

- Install solar panels with a capacity equal to the peak daily demand for the ancillary office uses in each warehouse building or up to the limit allowed by MVU's restriction on distributed solar PV connecting to their grid, whichever is greater;
- Increase efficiency for buildings by implementing either 10 percent over the 2008 Title 24's energy saving requirements or the Title 24 requirements in place at the time the building permit is approved, whichever is more stringent; and
- Require the equivalent of "Leadership in Energy and Environmental Design Certified" for the buildings constructed at the World Logistics Center based on Leadership in Energy and Environmental Design Certified standards in effect at the time of project approval.

## **4.17.7 Less than Significant Impacts**

### **4.17.7.1 Energy Consumption and Generation**

Threshold	Would the proposed project result in energy use and consumption that would cause wasteful, inefficient, and unnecessary consumption of energy?
-----------	--

#### Construction

##### Electricity

Electrical power would be consumed to construct the project. Electricity would be supplied by MVU, with electrical service extended to specific construction sites from existing infrastructure throughout the WLC site area, as warranted. Specifically, construction offices and security lighting are expected to be powered by MVU-provided electricity. However, diesel powered generators are expected to be used to power tools in remote portions of the construction sites (diesel use discussed below). The City's noise ordinance generally restricts construction during nighttime hours (See Section 4.12.3, the City of Moreno Valley Noise Ordinance as well as Section 4.12, *Noise*, in the Revised Sections of the FEIR), which would minimize the need for nighttime lighting.

However, on-site construction activities are expected to occur outside of the allowed construction hours specified in the City of Moreno Valley Noise Ordinance. The operation of each piece of off-road equipment within the on-site construction areas (i.e., Plots 1 through 22) would not be constant throughout the day, as equipment would be turned off when not in use. Most of the time over a typical work day, the equipment would be operating at different locations within the various plots of the project site and would be largely intermittent. Should 24-hour concrete pouring occur, the project would use light carts powered by diesel to illuminate pouring areas. The light carts used for continuous pouring are included in the construction transportation energy analysis below.

The project would require electricity for water conveyance during ground-moving activities. The project site spans 2,600+ acres and would require a relatively large amount of water to cover the affected construction areas. Electrical consumption due to the conveyance of water used for dust control is presented in Table 4.17-2.

**Table 4.17-2: WLC Project Construction Electricity Use**

<b>Source</b>	<b>Electricity (MWh per year)</b>
Water Conveyance from Dust Control and Grading (annual average over 15- to 16-year construction period) <sup>b</sup>	1,496
<b>2020 MVU Electricity Sales (MVU 2018)<sup>a</sup></b>	<b>201,787</b>
<b>% of MVU Electricity Usage</b>	<b>0.74%</b>

Notes:

<sup>a</sup> Moreno Valley Utility, *2018 Integrated Resource Plan* (2018). Available at: <http://www.moval.org/mvu/pubs/MVU-IRP-Report-072018.pdf>. Accessed September 2019.

<sup>b</sup> Derived from estimated construction water use in CalEEMod runs from 2015 FEIR.  
Sources: ESA 2018; MVU 2016

Water use related to dust control is regulated under SCAQMD’s Rules 402 and 403 and is required to limit fugitive particulate matter generated by construction activities. The project would be in compliance with Rules 402 and 403 and would require a relatively large amount of water to cover the entire acreage of the project site. The expected electricity consumption associated with water use equates to only 0.74 percent of MVU’s forecasted sales for 2020 (expected starting year of construction).

The electrical demand would vary throughout the construction period based on the construction activities being conducted. Additionally, when not in use, electrical equipment would be powered off to avoid unnecessary energy consumption.

Although there is a temporary increase in electricity consumption at the site during construction, the electrical consumption would be within the supply and infrastructure capabilities of MVU (201,787 MWh projected energy for 2020).<sup>30</sup> The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed, and would cease upon completion of construction. Electricity use from construction would be short-term, and limited to working hours, used for necessary construction-related activities and night construction activities would not require electricity, construction activities would not result in the wasteful, inefficient, and unnecessary consumption of electricity, and impacts would be less than significant.

**Natural Gas**

Natural gas is not expected to be consumed in any substantial quantities during construction of the WLC project. Therefore, related to the consumption of natural gas during construction, the project would have no impact.

**Transportation Energy**

The estimated fuel usage for off-road equipment is based on the number and type of equipment that would be used during construction activities, hour usage estimates, the total duration of construction activities, and hourly equipment fuel consumption factors from the OFFROAD2017 model. On-road equipment would include trucks to haul material to and from the project site, vendor trucks to deliver supplies necessary for project construction, and fuel used for construction worker commute trips. A summary of the annual fuel consumption during construction of the project is provided in Table 4.17-3. As shown in Table 4.17-3, on- and off-road vehicles would consume an estimated annual average of 1,553,812 gallons of diesel fuel and 54,103 gallons of gasoline for each year of project construction.

<sup>30</sup> Southern California Edison, 2018. 2018 Annual Report, p. 2. 2018.

**Table 4.17-3: WLC Project Construction Fuel Usage**

<b>Source</b>	<b>Diesel Fuel (gallons per year)</b>	<b>Gasoline Fuel (gallons per year)</b>
Heavy-Duty Construction Equipment	1,370,308	—
Haul Trucks	106,877	—
Vendor Trucks	76,627	—
Worker Trips	—	54,103
<b>Annual Average (approximately up to a 15-16 year construction duration)</b>	<b>1,553,812</b>	<b>54,103</b>
<b>2018 Riverside County Fuel Sales (CEC 2019)</b>	<b>275,000,000<sup>a</sup></b>	<b>1,052,000,000<sup>b</sup></b>
<b>% of County Usage</b>	<b>0.57%</b>	<b>0.0051%</b>

Notes:

<sup>a</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>b</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

Source: ESA 2018; CEC 2016.

Compliance with the anti-idling regulation and the use of cleaner, more energy efficiency construction equipment would reduce the project’s annual average diesel fuel usage. As discussed previously, construction of the project would utilize fuel efficient equipment consistent with state and federal regulations, and would comply with State measures to reduce the inefficient, wasteful, and unnecessary consumption of energy. While these regulations are intended to reduce construction emissions, compliance with them would also result in energy savings.

In addition, the project would implement a construction waste management plan to divert 50 percent of mixed construction and demolition debris to City certified construction and demolition waste processors, consistent with the AB 341. Implementation of the construction waste management plan will likely reduce truck trips to landfills and/or material recovery facilities and increase the amount recycling and reuse of materials.

Based on the available data, construction would utilize energy for necessary on-site activities and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment would result in less fuel combustion and energy consumption and thus result in the efficient use of the project’s construction-related energy.

Construction of the WLC project would benefit from California’s Pavley/ACC standards that are designed to result in more efficient use of transportation fuels, because they would affect the vehicles used by workers and any light duty trucks used by vendors or haulers. These vehicle efficiency standards are the most stringent in the nation and among the most stringent in the world. In addition, the project would reduce fuel use by requiring that construction equipment greater than 50 horsepower be USEPA Tier 4 emissions compliant and by limiting on-site idling of all diesel-powered construction equipment, delivery vehicles, and delivery trucks to three minutes in any one hour, as specified in Mitigation Measure 4.3.6.2A.

Based on the analysis above, construction would utilize energy only for necessary on-site activities, construction worker travel to and from the project site, and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment would result in less fuel combustion and energy consumption and thus minimize the WLC project construction-related energy use. Therefore, construction of the Proposed Project would not result in the wasteful, inefficient, and unnecessary consumption of energy, and the impact would be **less than significant**.

### Operation

#### Electricity

The WLC project would increase demand for electricity due to consumption by buildings, water supply and conveyance, and EV charging. The project's operational electricity demand was estimated for Phase 1 and Full Buildout by considering a Baseline scenario (minimum Title 24 compliance) and three project scenarios based on the Electric Vehicle Scenarios presented earlier. The project scenarios (Low, Medium, and High EV Penetration) all incorporate the energy conservation PDFs. The following assumptions were incorporated into the scenarios:

- The Title 24 Baseline scenario is based on the project's annual energy use being in minimum compliance with Title 24, including the Title 24 Part 6 requirement for the building energy efficiency and the Part 11 requirement that 6 percent of employee and visitor parking spaces be constructed to accommodate electric vehicle supply equipment (EVSE) for future electric vehicle charging. The Baseline scenario assumes that EV charging stations will be installed at 6 percent of the parking spaces by the time the project becomes operational.
- The project incorporates the Energy Conservation Measures (ECMs) from the WLC *Comparison of Renewable Energy Technologies* report<sup>31</sup> that would enable the project to exceed Title 24 energy standards by approximately 17 percent at Phase 1 and 16 percent at full buildout. As with the Title 24 Baseline Scenario, the project also assumes that EV charging stations will be installed at 6 percent of the parking spaces by the time the project becomes operational.
- The project implements the commitment to install rooftop solar PV generation designed so as to produce an amount of electricity equal to the power needs for the projected ancillary office portion of the warehouse buildings or up to the limit allowed by MVU's restriction on distributed solar PV connecting to the grid, whichever is greater.

The project's estimated operational electricity demand is provided in Table 4.17-4 for the Title 24 Baseline Scenario and the three Electric Vehicle Scenarios.

As discussed above and shown on Table 4.17-4, the project implements commitments and strategies to lower electricity consumption needed for buildings (e.g. lighting, cooling, power equipment, and water conveyance). In 2025, electrical demand will be lowered with implementation of sustainability measures such as high efficiency lighting and appliances, skylights, and motion sensors, etc. As discussed above, the project would comply with and exceed the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance and buildings over 500,000 sf (representing more than 99 percent of total project square footage at buildout) will be LEED certified. Reliance on grid-supplied power is further offset by the generation of 12 MW of power through on-site rooftop solar PV. Thus, the Project + Low EV Penetration (Scenario A) uses approximately 14 percent less electricity than the baseline demand scenario. In 2035, the Project + Low EV Penetration Scenario would use approximately 16 percent less electricity than the 2035 Baseline Scenario.

Although the Project + Medium EV Penetration Scenario would require more power than the Project + Low EV Penetration Scenario, the net electrical demand on MVU would still be 11 percent less than the Baseline Scenario for 2025 due to the ECMs and on-site solar PV generation. For 2035, electricity use would be 12 percent more than the Baseline Scenario due to the much higher EV penetration rates for light duty passenger cars and medium duty vehicles consistent with the 2016 Mobile Source Strategy.

---

<sup>31</sup> Referred to as Energy Conservation Measures (ECMs) in the *Comparison of Renewable Energy Technologies* report.

**Table 4.17-4: WLC Project Operational Electricity Usage**

<b>Source</b>	<b>Phase 1 – 2025 (MWh/yr)</b>	<b>Full Buildout – 2035 (MWh/yr)</b>
MVU Electricity Forecast Sales (2024) <sup>a,b,c</sup>	231,555	338,063
<b>Title 24 Baseline Scenario</b>		
Building annual electricity <sup>c</sup>	194,287	330,649
EV charging annual electricity <sup>d</sup>	4,379	28,144
<b>Total</b>	<b>198,666</b>	<b>358,793</b>
<b>% of MVU Forecast</b>	<b>86%</b>	<b>106%</b>
<b>Project + Low EV Penetration (Scenario A)</b>		
Building annual electricity <sup>c</sup>	174,423	298,084
EV charging annual electricity <sup>d</sup>	4,379	28,144
Electricity Savings from Solar PV <sup>e</sup>	-7,686	-24,083
<b>Total</b>	<b>171,116</b>	<b>302,145</b>
<b>Change from Baseline</b>	<b>-27,550</b>	<b>-56,648</b>
<b>% Change from Baseline</b>	<b>-14%</b>	<b>-16%</b>
<b>% of MVU Forecast</b>	<b>74%</b>	<b>89%</b>
<b>Project + Medium EV Penetration (Scenario B)</b>		
Building annual electricity <sup>c</sup>	174,423	298,084
EV charging annual electricity <sup>d</sup>	9,157	127,132
Electricity Savings from Solar PV <sup>e</sup>	-7,686	-24,083
<b>Total</b>	<b>175,894</b>	<b>401,133</b>
<b>Change from Baseline</b>	<b>-22,772</b>	<b>42,340</b>
<b>% Change from Baseline</b>	<b>-11%</b>	<b>12%</b>
<b>% of MVU Forecast</b>	<b>76%</b>	<b>119%</b>
<b>Project + High EV Penetration (Scenario C)</b>		
Building annual electricity <sup>c</sup>	174,423	298,084
EV charging annual electricity <sup>d</sup>	95,089	356,321
Electricity Savings from Solar PV <sup>e</sup>	-7,686	-24,083
<b>Total</b>	<b>261,826</b>	<b>630,322</b>
<b>Change from Baseline</b>	<b>63,160</b>	<b>271,529</b>
<b>% Change from Baseline</b>	<b>32%</b>	<b>76%</b>
<b>% of MVU Forecast</b>	<b>113%</b>	<b>186%</b>

Notes:

Scenario A through C's building energy is different from the baseline due to Project Design Features that exceed Title 24 energy standards. The baseline scenario complies with but does not exceed standards.

<sup>a</sup> Moreno Valley Utility, 2018 Integrated Resource Plan, July 2018.

<sup>b</sup> Electricity sales forecasts only available up to 2037 in MVU's IRP.

<sup>c</sup> Source: Evans, 2018; electricity consumption numbers estimated by WSP, as communicated by email (subject: WSP draft inputs – Building electricity) from Evan Evans to Jeff Caton on June 29, 2018.

<sup>d</sup> Source: ESA and CALSTART, 2018

<sup>e</sup> Source: WSP, 2018..

In the Project + High EV Penetration Scenario, total electrical demand driven by populations of EV trucks would exceed total electrical demand in the Baseline Scenarios for 2025 and 2035; however, a substantial reduction in the use of liquid transportation fuels (diesel and gasoline) would also be expected (see discussion below). Replacing VMT powered by the combustion of diesel and gasoline fuels with EV-generated VMT, especially as electricity becomes less GHG-intensive under the State's RPS, has the added advantage, or co-benefit, of reducing the emission of harmful air pollutants such as particulate matter (PM) and oxide of nitrogen (NOx) associated with transportation.

The feasibility of using medium and heavy duty EVs for delivery of goods to or from the WLC is, to a great extent, dependent on the nature of the warehousing operations. For example, many warehouses implement the “drop and drag” procedure, where a truck will bring goods to the facility, and the trailer (or sea-going cargo container) will be disconnected and left on-site for the lengthy process of unloading. An empty trailer may be connected and the truck quickly departs to return to its point of origin. Conversely, an out-bound truck is usually scheduled to retrieve a delivery load only once the container/trailer is full. Thus, trucks are not on-site or idle for long enough times to obtain a meaningful battery charge. Medium-duty and heavy-duty zero emission trucks are in the very early stages of commercially market deployment and currently cost substantially more than conventionally fueled trucks, and current funding assistance programs do not fully offset that cost difference (ESA and CALSTART, 2018). Given that the future tenants of the WLC are not known and cannot be identified at this time, it would be speculative to assume the High EV Penetration Scenario would be practicable or feasible by 2025 or by 2035.

In regard to forecasting, such as done with EV penetration rates to generate the scenarios evaluated, the *Laurel Heights* Court commented that an agency is required to forecast only to the extent that an activity could be reasonably expected under the circumstances. The Court recognizes that an agency cannot be expected to predict the future course of governmental regulation or exactly what information scientific advances may ultimately reveal. *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376. Therefore, in light of the changes to market and regulatory drivers that would have to occur to make medium and heavy duty EVs widely implemented and feasible by 2025 or 2035 to the now unknown future tenants of the WLC, the potential for the electrical demand projected under the Project + High EV Penetration Scenario to materialize is highly speculative. CEQA Guidelines Section 15145 advise “*If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.*” Therefore, any effects to energy resources from achieving the Project + High EV Penetration Scenario would be highly speculative, and associated analyses are presented herein for informational purposes only.

MVU forecasts that its peak demand in 2025, would be approximately 231,555 MWh per year.<sup>32</sup> This is approximately 25 percent higher than the 185,000 MWh that MVU sold to all customers in its area for the 2015-2016 fiscal year. As shown in Table 4.17-4, the WLC project’s estimated electrical consumption would account for between 74 and 113 percent of MVU’s projected electricity projected sales depending on the EV penetration scenario for Phase 1 (2025). However, MVU’s 2018 IRP anticipates growth in the region and specifically considers the electrical demand generated by energy-intensive account focused in the logistics industry. The IRP states that large energy-intensive projects like the WLC project are included in the projected growth. Therefore, it is reasonable to assume that MVU’s existing and planned electricity supplies could support the project’s electricity demand calculated for the Project + Low EV Penetration (Scenario A) and the Project + Medium EV Penetration (Scenario B) by 2025. Any determination of MVU’s need for additional capacity beyond what is planned would be speculative and depend on the cumulative demand within MVU’s service area.

As stated above, effects attributable to the Project + High EV Penetration Scenarios would be highly speculative, and could be as much as 113 percent of MVU’s projected forecast sales in 2024. MVU has a considerable amount of time to procure energy resources in anticipation of the project’s development, and has committed to taking the WLC project’s needs into consideration in future IRP development.

Based on MVU’s forecasts, the peak demand for their power grid in 2025 will be 83.4 MW.<sup>33</sup> The project’s annual peak demand from buildings is expected to be 34.9 MW in 2025 and 58.2 MW in 2035, as shown in Table 4.17-5. For the Low and Medium EV Penetration Scenarios, the total peak demand including EV loads could be 35.6 MW and 36.5 MW for 2025, respectively. By the year 2035, the annual peak demand for the Low and Medium EV Penetration Scenarios could total 64.1 MW and 84.6 MW, respectively. However, as stated above, forecasting project peak demand and MVU’s peak demand for

---

<sup>32</sup> Moreno Valley Utility, 2015 Integrated Resource Plan, March 2015.

<sup>33</sup> Moreno Valley Utility, 2018 Integrated Resource Plan, July 2018.

2035 is highly speculative and would depend on cumulative demand. The peak demand for 2035 is included for informational purposes.

**Table 4.17-5: WLC Project Annual Peak Demand**

Source	Peak Demand (MW)	
	2025	2035
Building Demand	34.9	58.2
Scenario A Low EV Penetration	0.7	5.9
<b>Total</b>	<b>35.6</b>	<b>64.1</b>
Building Demand	34.9	58.2
Scenario B Medium EV Penetration	1.6	26.4
<b>Total</b>	<b>36.5</b>	<b>84.6</b>
Building Demand	34.9	58.2
Scenario C High EV Penetration	19.5	74.4
<b>Total</b>	<b>54.4</b>	<b>132.6</b>

Source: WSP 2018 and ESA 2018

MVU's electrical generation is derived from a mix of non-renewable and renewable sources such as coal, natural gas, solar, geothermal, wind, and hydropower. MVU's 2018 Power Integrated Resources Plan identifies adequate resources to support future generation capacity, and a new 115 kV substation is proposed to be constructed within the WLC site. With regard to renewable energy sources, the project would use electricity provided by MVU, which MVU is required to meet the 2050 RPS. MVU's current source of renewable resources include wind, solar, and hydroelectric and account for 17 percent of MVU's overall energy mix for 2017 (the most current year data is available for).<sup>34</sup> The project itself is incorporating renewable energy sources with a minimum of 14.1 MW of rooftop solar at buildout to achieve a net-zero energy use for the estimated office demands. At full buildout WLC will feature the equivalent of twenty-seven 60,000 square-foot net-zero office buildings. To put this in context, the entire State of California has about 190 net-zero commercial buildings that are currently verified or designed as of 2017 (CPUC, 2017). This solar commitment would be within the solar PV limitations set by MVU.

In addition to the solar commitment the WLC project would implement energy performance improvement measures to exceed the current minimum Title 24 requirements after Phase 1 and full buildout. Although the project would result in moderate increases in annual electrical demand compared to MVU's current supply, for the low and medium EV penetration scenarios, MVU is committed to meeting the project's electricity demand through a future IRP update and planning process. Therefore, with the incorporation of these features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of electricity, would not cause a need for additional capacity regionally or locally, and would not affect electricity resources to the extent that electricity demand can reasonably be projected and assessed.

#### Building Natural Gas

The WLC project could increase the demand for natural gas resources through the project's commitment to a CNG/LNG fueling station,<sup>35</sup> but the project's operational natural gas demand from buildings is expected to be zero, as shown in Table 4.17-6. The project would mostly comprise high-cube warehouses that do not require heating from natural gas. The spaces that do require heating are ancillary office spaces. Because all heating and cooling is provided via direct evaporative cooling and heat pumps, natural gas is not required. This allows the project to reduce on-site fossil fuel combustion that would normally be associated with service water and space heating. The Title 24 Baseline scenario

<sup>34</sup> California Energy Commission, Utility Annual Power Content Labels for 2017. <http://www.energy.ca.gov/pcl/labels/>. Accessed September 2019.

<sup>35</sup> For natural gas use from CNG/LNG fueling station, see discussion under Transportation Energy, below.

assumes compliance but not exceedance of energy standards and includes annual natural gas use equating to 51,274 MMBtu in 2025 and 84,771 MMBtu in 2035. As such, the project would result in a 100 percent decrease in consumption of natural gas from the Title 24 Baseline scenario for both Phase 1 and Full Buildout.

**Table 4.17-6: WLC Project Operational Natural Gas Usage in Buildings**

Source	Phase 1 – 2025 (MMBtu/yr)	Full Buildout – 2035 (MMBtu/yr)
<b>SoCal Gas (2018)<sup>a</sup></b>	<b>991,659,375</b>	<b>873,793,575</b>
<b>Title 24 Baseline Scenario:</b>		
Building annual natural gas	51,274	84,771
% of SoCal Gas	0.005%	0.010%
<b>All-Electric Project:</b>		
Building annual natural gas	0	0
% of SoCal Gas	0%	0%

Notes:

<sup>a</sup> California Gas and Electric Utilities, 2018 California Gas Report (2018). Available at: [https://www.socalgas.com/regulatory/documents/cgr/2018\\_California\\_Gas\\_Report.pdf](https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf). Accessed September 2019. Converted from 958 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed,. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed September 2019). Source: WSP 2018

**Transportation Energy**

Like operational electricity discussed above, the transportation energy usage was estimated for three EV penetration scenarios and for two different phases of development (Phase 1 and Full Buildout). In the context of transportation fuels, the Project + Low EV Penetration scenario represents the “baseline” scenario, as it assumes EV penetrations consistent with the EMFAC2017 transportation model used in standard CEQA analysis. As explained in Section 4.17.3.3 *Technology Advancement*, the Medium EV Penetration and High EV Penetration Scenarios assume statewide attainment of the higher EV targets in the 2016 California Mobile Source Strategy or the 2017 Scoping Plan Update.

The WLC project’s estimated operational transportation fuel demand is provided in Table 4.17-7. As discussed previously, the project would support statewide efforts to improve transportation energy efficiency and reduce fossil fuel consumption by private automobiles. The project would also include the installation of electric vehicle supply equipment (EVSE) pursuant to Title 24, part 6 of the CALGreen Code. According to the EMFAC2017 model, electric vehicles should account for approximately 2.5 percent of passenger vehicles<sup>36</sup> in 2025 and 4.7 percent by 2035 in the SoCAB region. The estimated potential fuel savings from the increased population of EVs is provided in Table 4.17-7.

As discussed under Section 4.17.3, *Methodology*, and presented in Table 4.17-7 above, the WLC project would provide the infrastructure for supporting a higher population of electric vehicles, in direct support of the state’s targets of 1.5 million ZEVs by 2025 and 4.2 million ZEVs by 2035. The increase in EV populations will increase demand for electricity but reduce demand for fossil-based vehicle fuels.

Estimates for the number of EVs and the expected annual electricity demand associated with each of the three vehicle scenarios are presented below in Tables 4.17-8 through 4.17-10, based on the information summarized in Section 4.17.3, *Methodology*.

<sup>36</sup> As defined by the traffic modeling for the project, passenger vehicles include the EMFAC2017 vehicle categories of Light Duty Automobile (LDA) and Light Duty Truck (LDT1 and LDT2).

Table 4.17-7: WLC Project Operational Fuel Usage

Source	2025				2035			
	Gallons of Diesel Fuel per Year (gallons) <sup>a</sup>	Gallons of Gasoline Fuel per Year (gallons) <sup>b</sup>	Electricity Use per Year	Natural Gas Use per Year	Gallons of Diesel Fuel per Year (gallons) <sup>a</sup>	Gallons of Gasoline Fuel per Year (gallons) <sup>b</sup>	Electricity Use per Year	Natural Gas Use per Year
			(MWh)	(MMBtu)			(MWh)	(MMBtu)
County of Riverside (Transportation Sector) 2018/MVU 2024 <sup>c</sup> /SoCalGas <sup>d</sup>	275,000,000	1,052,000,000	231,555	991,659,375	275,000,000	1,052,000,000	338,063	873,793,575
<b>Project + Low EV Penetration (Scenario A)</b>								
Low EV Penetration	32,464	21,456	4,379	612	45,345	30,327	28,144	1,094
% of County	0.012%	0.0020%	1.9%	0.0001%	0.016%	0.003%	8.3%	0.0001%
<b>Project + Medium EV Penetration (Scenario B)</b>								
Medium EV Penetration	32,464	21,002	9,157	612	45,345	26,313	127,132	1,094
% of County	0.0118%	0.0020%	3.95%	0.0001%	0.0165%	0.0025%	37.6%	0.0001%
% change from Low EV	0.00%	-2.12%	109.11%	0.00%	0.00%	-13.24%	351.72%	0.0%
<b>Project + High EV Penetration (Scenario C)</b>								
High EV Penetration	25,562	20,747	95,089	612	30,796	25,584	356,321	1,094
% of County	0.0093%	0.0020%	41.1%	0.0001%	0.0112%	0.0024%	105.4%	0.0001%
% change from Low EV	-21.26%	-3.31%	2,071.5%	0.00%	-32.09%	-15.64%	1,166.1%	0.0%

Notes:

<sup>a</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>b</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>c</sup> Moreno Valley Utility, 2015 Integrated Resource Plan, March 2015.

<sup>d</sup> California Gas and Electric Utilities, 2018 California Gas Report (2018). Available at: [https://www.socalgas.com/regulatory/documents/cgr/2018\\_California\\_Gas\\_Report.pdf](https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf). Accessed September 2019. Converted from 958 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed September 2019).

Source: ESA, 2019.

**Table 4.17-8: Scenario A: Low EV Penetration Charging Loads**

Vehicle Type	2025				2035			
	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)
Passenger Vehicles	288	0.7	11.5	4,206	937	5.7	74.9	27,351
Light Trucks (2 axles)	12	0.1	0.5	173	54	0.1	2.2	793
Medium Trucks (3 axles)	0	0	0	0	0	0	0	0
Large Trucks (4+ axles)	0	0	0	0	0	0	0	0
<b>Total</b>	<b>288</b>	<b>0.8</b>	<b>12.0</b>	<b>4,379</b>	<b>991</b>	<b>5.8</b>	<b>77.1</b>	<b>28,144</b>

**Table 4.17-9: Scenario B: Medium EV Penetration Charging Loads**

Vehicle Type	2025				2035			
	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)
Passenger Vehicles	590	1.4	23.6	8,608	4,197	25.6	335.8	122,564
Light Trucks (2 axles)	38	0.2	1.5	549	312	0.8	12.5	4,568
Medium Trucks (3 axles)	0	0	0	0	0	0	0	0
Large Trucks (4+ axles)	0	0	0	0	0	0	0	0
<b>Total</b>	<b>627</b>	<b>1.6</b>	<b>25.1</b>	<b>9,157</b>	<b>4,509</b>	<b>26.4</b>	<b>348.3</b>	<b>127,132</b>

**Table 4.17-10: Scenario C: High EV Penetration Charging Loads**

Vehicle Type	2025				2035			
	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)
Passenger Vehicles	590	1.4	23.6	8,608	4,197	25.6	569.5	122,564
Light Trucks (2 axles)	38	0.1	1.5	549	312	1.0	8.3	4,568
Medium Trucks (3 axles)	111	0.5	6.0	2,189	393	1.6	21.2	7,728
Large Trucks (4+ axles)	614	17.5	229.4	83,743	1,625	46.3	606.7	221,462
<b>Total</b>	<b>1,353</b>	<b>19.5</b>	<b>260.5</b>	<b>95,089</b>	<b>6,527</b>	<b>74.4</b>	<b>1,205.8</b>	<b>356,321</b>

The Project + Low EV Penetration scenario has the lowest population of EVs and only includes passenger vehicle EVs. The annual electricity use would be 1.9 percent of MVU’s forecasted demand in 2025.

The Project + Medium EV Penetration scenario includes EV passenger vehicles and light trucks. The annual electricity use would be only slightly more than the Low EV Penetration scenario and would represent 4.0 percent of MVU’s demand. As stated above, this scenario would increase electricity use, however, it would be displacing and reducing gasoline use by 2.1 percent.

The Project + High EV Penetration scenario analyzes the inclusion of an increased percentage of medium and heavy duty trucks that are EVs. Under this scenario, electricity demand would be 41 percent of MVU’s total electricity demand and the EVs would displace a substantial number of fossil fuel burning vehicles.

As shown in Table 4.17-7, the Project + Medium EV Penetration scenario would reduce gasoline use by approximately 2.1 percent and increase electricity use by 109 percent in 2025 compared to the Low EV Penetration scenario. Diesel consumption would be about the same for the two scenarios. By 2035, gasoline use with the Medium EV Penetration scenario would be reduced by about 13 percent from the Low EV Penetration scenario and displaced with EVs that would increase electricity by 352 percent from the Low EV Penetration scenario.

The Project + High EV scenario would realize a greater amount of fuel savings (gasoline and diesel) due to the higher percentage of trucks assumed to be EVs. For 2025, diesel use would decrease by approximately 21 percent compared to the Low EV Penetration scenario and gasoline would decrease by approximately 3 percent. By 2035, diesel use would decrease by 32 percent and gasoline would decrease by 16 percent. Electricity demand would increase more than 20 times the Low EV Penetration scenario by 2025, and approximately 11 times by 2035. However, as stated earlier, forecasting demand for 2035 is highly speculative and numbers presented are strictly for informational purposes.

As described earlier, these increases in transportation-related electricity will be offset through implementation of energy conservation measures and installation of on-site rooftop solar PV, resulting in an approximate 16 percent improvement in energy efficiency as compared to the baseline scenario at full buildout. Although the project would result in moderate increases in annual electrical demand from EV charging compared to MVU's current supply (for the low and medium EV penetration scenarios), MVU is committed to meeting the project's electricity demand through a future IRP update and planning process. As mentioned above, MVU's IRP addresses the fact that the project would exceed the utility's current and forecasted demand. However, the IRP states that energy-intensive logistics projects are considered in the projected growth. Any determination on additional capacity would be speculative considering MVU is aware of the project and its effect on grid electricity. MVU has a considerable amount of time to procure energy resources in anticipation of the project's development.

As shown in Table 4.17-7, the Project + Low EV Penetration scenario would represent a small fraction of the county's overall diesel and gasoline fuel use for 2025, making up 0.012 and 0.0020 percent respectively. By 2035, those numbers increase to 0.016 percent for diesel and 0.003 percent for gasoline. Although the fuel does slightly increase, the Project's fuel use is still negligible when compared to overall county use.

The Project + Medium EV Penetration scenario would account for 0.012 percent of total County diesel use and 0.0020 percent of total County gasoline use in 2025. By 2035, those percentages increase to 0.017 percent for diesel and remain approximately 0.0025 percent for gasoline. This scenario slightly lowers fuel use when compared to the Project + Low EV Penetration because it assumes a greater percentage of car and light truck EVs (See Section 4.17.3.3, *Technology Advancement* for assumptions).

The Project + High EV Penetration scenario would represent 0.0093 percent of total County diesel use and 0.0020 percent of total County gasoline use in 2025. By 2035, those percentages increase to 0.011 percent for diesel and remain approximately 0.0020 percent for gasoline. The High EV Penetration scenario assumes light, medium, and heavy trucks would have a higher population of EVs that would reduce diesel fuel use by 6,902 gallons per year from the Low EV Penetration scenario for 2025 and by 14,550 gallons per year for 2035.

Given the evidence presented herein, the WLC project would result in the efficient use of operational transportation fuel consistent with State and City goals. The project would represent between 0.002 to 0.003 percent of the County gasoline use and between 0.009 to 0.017 percent of County diesel use. Diesel and gasoline fuel consumption from the project would be negligible in any of the presented scenarios, however as stated in the electricity analysis above, any effects to energy resources from achieving the Project + High EV Penetration Scenario would be highly speculative, and associated analyses are presented herein for informational purposes only.

Operation of the WLC project would benefit from California’s Pavley/ACC standards that are designed to result in more efficient use of transportation fuels. These vehicle efficiency standards are the most stringent in the nation and among the most stringent in the world. As shown in Table 4.17-7 above, the project’s operational activities under the Low EV Penetration Scenario (the most conservative scenario in terms of petroleum-based fuel consumption) would result in the consumption of approximately 0.017 percent of the County’s diesel consumption and approximately 0.003 percent of the County’s gasoline consumption, representing a very small fraction of the County’s total fuel demand. Therefore, these activities would have a negligible effect on the transportation fuel supply. In conjunction with California’s stringent vehicle efficiency standards, operation of the WLC project would not result in the wasteful, inefficient, or unnecessary consumption of transportation fuel.

**Transportation Natural Gas**

EMFAC2017 assumes that by 2025, natural gas-powered large trucks (HHDT and MHDT) would represent 2.2 percent of all large trucks in the SoCAB region. By 2035, the natural gas-powered large truck population slightly increases to 2.5 percent. The natural gas vehicle population at the Project would remain constant for each EV penetration scenario.

The WLC project (all scenarios) would also include regularly operating propane-powered yard trucks and CNG-powered forklifts that are typical of large warehouse facilities. Additionally, the project would include a CNG/LNG fueling station on-site that would be publically available for refueling. Table 4.17-11 shows the annual average natural gas use from operational vehicles and CNG/LNG vehicle refueling within the project.

**Table 4.17-11: Natural Gas Use from Transportation**

<b>Source</b>	<b>Annual Fuel Use (MMBtu/yr)</b>
<b>State Natural Gas Consumption<sup>a</sup></b>	<b>2,184,708,015</b>
Large Trucks (4+ Axle) <sup>b</sup>	1,094
Yard Trucks <sup>c</sup>	14,543
Forklifts <sup>c</sup>	738
CNG/LNG Fueling Station <sup>c</sup>	805,148
<b>Total Natural Gas Consumption (on- and off-road)</b>	<b>821,523</b>
<b>% of State</b>	<b>0.037%</b>

Notes:

<sup>a</sup> All uses; from US Energy Information Administration, California Natural Gas Consumption by Year (2018). Available at: [https://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm) Converted from 2,184,708,015 million cubic feet using a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, April 28, 2017. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed July 2018).

<sup>b</sup> Large trucks refers to HHDT and MHDT EMFAC2017 vehicle class categories.

<sup>c</sup> See Appendix E for detailed calculations of natural gas vehicles and CNG/LNG fueling station.

As presented in Table 4.17-11, the natural gas use from operational vehicles and the CNG/LNG fueling station would represent approximately 0.037 percent of the statewide natural gas consumption. The analysis assumes a conservative estimate of 204 trucks completely refueling per day based on trip rates presented in the WLC project’s traffic study.<sup>37</sup> The traffic study bases trip rates on ITE’s code for a gas station with convenience store that has a relatively high trip rate. CNG fueling stations would likely have less daily visits than a traditional gas station, making the analysis even more conservative. The operational vehicles are also based on conservative assumptions of maximum operating hours of 7 hours for propane-powered yard trucks and 4 hours for CNG forklifts. Realistically, all of the yard trucks would not be operating simultaneously or continuously for 7 hours and forklifts would be used

<sup>37</sup> Traffic study states an average daily traffic of 408 trips. This accounts for roundtrips of trucks, so the number of trucks visiting to refuel would be half of the average daily traffic volume.

intermittently for the unloading and loading of warehousing goods. Furthermore, the analysis above represents additional natural gas use from vehicles and does not account for CNG/LNG trucks displacing diesel- or gasoline-powered vehicles. In actuality, the CNG/LNG trucks may displace fossil-fueled trucks on the project site. Even with the conservative assumptions for trip rates, volumes, non-displacement, and operating hours, and without considering the potential benefit of offsetting other vehicle fuels, the natural gas use from operational vehicles and the CNG/LNG fueling station represent a negligible percent of the State's total natural gas use.

According to SoCal Gas data, natural gas sales have been relatively stable over the past three years with a slight increase from 287 billion cubic feet in 2014 to 294 billion cubic feet in 2016. Southern California's natural gas supply is predominantly sourced from out of state with a small portion originating in California. Sources of natural gas are obtained from locations throughout the western United States as well as Canada.<sup>38</sup> According to the US Energy Information Administration (EIA), the United States has approximately 85 years of natural gas reserves based on consumption in 2015.<sup>39</sup> Statewide compliance with energy efficiency standards is expected to result in more efficient use of natural gas and therefore reduced consumption in future years. It is anticipated that SoCal Gas' existing and planned natural gas supplies would be sufficient to support the project's natural gas use and that the CNG/LNG fueling station would have a negligible effect on the natural gas supply.

Operation of the WLC project would benefit from California's Pavley/ACC standards that are designed to result in more efficient use of transportation fuels. These vehicle efficiency standards are the most stringent in the nation and among the most stringent in the world. Operation of the project would require very small amounts of natural gas to be consumed by vehicles at the site, and in conjunction with California's stringent vehicle efficiency standards, would not result in the wasteful, inefficient, and unnecessary consumption of natural gas.

**4.17.7.2 Construction or Expansion of Electrical and Natural Gas Facilities**

Threshold	Would the proposed project require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?
-----------	---

Electricity

Through implementation of energy conservation measures the WLC project will exceed Title 24 energy standards by approximately 17 percent at Phase 1 and 16 percent at full buildout. The project would also incorporate renewable energy sources with a minimum of 14.1 MW of rooftop solar at buildout to achieve a net-zero energy use for the estimated office demands. Despite these improvements a number of SCE facilities would require relocation and expansion of MVU facilities would be needed in order to provide network backup (i.e., if the solar generation equipment were to fail) and accommodate the potential increase in electrical demand due to increased EV populations. Power poles, guy poles, and guy anchors for the existing overhead 115 kV line along World Logistic Center Parkway and Gilman Springs Road will need to be relocated at the time these roadways are widened. The portion of the existing 115 kV line along Eucalyptus Avenue may also need to be relocated into the new Eucalyptus Avenue alignment between World Logistic Center Parkway and Gilman Springs Road at the time the roadway is constructed. The existing 115 kV line along Brodiaea Avenue may be able to be protected in place except for a few hundred feet where the transmission line intersects with the new Merwin Street, which will need to be relocated to accommodate street and storm drain channel improvements.

The existing 12 kV overhead power distribution lines along Redlands Boulevard will need to be undergrounded when the roadway is developed to its ultimate width. The existing 12 kV overhead power feeder lines located along World Logistic Center Parkway and Alessandro Boulevard will need to be relocated and undergrounded as these roadway improvements take place during the development

<sup>38</sup> California Gas and Electric Utilities, 2016 California Gas Report. 2016.

<sup>39</sup> EIA. *Frequently asked Questions*. <https://www.eia.gov/tools/faqs/faq.php?id=58&t=8>. Accessed April 2018.

of the WLC project. The existing 12 kV overhead power feeder line running south along Virginia Street to the Moreno Compressor Station (planned as Open Space) will be protected in place. The existing overhead service lines from the World Logistic Center Parkway 12 kV line along Dracaea Avenue to the east and along Cottonwood Avenue to the west can be abandoned when existing on-site residences served by these facilities are abandoned. Per SCE requirements, SCE 12 kV undergrounded lines cannot be in a common trench with MVU facilities and require a separate underground facility with a minimum 6 feet from other utility lines.

Based on the *Technical Memorandum – Dry Utilities World Logistics Center, Moreno Valley, CA*, (Utility Specialists, October 24, 2013) prepared for the WLC project, construction of the first three logistics buildings that would occur during the initial phase of construction can be served by the existing MVU substation at Cottonwood Avenue and Moreno Beach Drive, as long as capacity is still available at that station. Subsequent buildings in Phase 1 of construction will require the expansion of this substation. The expansion that would occur to meet this demand would be the addition of two new 28 MW transformer units which can be accommodated within the existing substation property. New 12 kV underground feeder circuits, including trenching, conduit, electrical vaults, and conductors will need to be installed from the substation to the WLC project site. These improvements will occur along Cottonwood Avenue, along Moreno Beach Drive, and along Alessandro Boulevard, Brodiaea Avenue, and Cactus Avenue. These improvements are expected to take place concurrently with roadway construction.

To meet the WLC project's ultimate annual electricity demand, a new 115 kV substation will be constructed within the project limits at a central location near one of SCE's 115 kV transmission lines that will feed power to the substation. The *Dry Utilities* memo for the project indicates two potential locations; the first adjacent to the SCE transmission lines along Gilman Springs Road, and the other adjacent to the SCE transmission lines along Brodiaea Avenue. Impacts of constructing the new station at either of these on-site locations may be the same.

SCE will require approximately 2 acres for a switching station near the new 115 kV substation proposed by MVU to serve the WLC project. All MVU primary distribution conductors within the project will be installed within underground conduits and vaults within the public roadway rights-of-way or within easements as a joint trench with telephone, cable television, and natural gas. Since the installation or relocation of electrical facilities would take place concurrently with roadway construction and/or within dedicated easements, or protected in place, the construction of these facilities would not result in significant environmental effects. Connecting the site to existing utility lines is considered part of the project, the impact of which has been analyzed in the Revised Sections of the FEIR. Previously referenced Figure 3.16 depicts the proposed electrical facilities assuming 100 percent backup electrical service to the WLC site.

### Natural Gas

Figure 3.17 in the Project Description depicts the existing natural gas pipelines at the site. An existing 3-inch medium pressure line traveling along World Logistics Center Parkway and Street F could supply the proposed CNG/LNG fuel station. Although there would be no anticipated use of natural gas by the buildings in the WLC project and thus no need for natural gas distribution infrastructure, SCGC has indicated that the existing 4-inch medium-pressure line underlying Redlands Boulevard and Cactus Avenue can be extended into and looped around the WLC project roadway alignments to serve the proposed development. New two-inch gas lines could also be installed to accommodate the WLC project's demand. Natural gas facilities could be installed in the public street rights-of-way and easements as a joint trench with telephone, cable TV and electrical services. The gas main in Eucalyptus Avenue would be on the south side of the street and in its own trench as it was not included in the common trench installed to serve the Sketchers building.

Relocation of natural gas transmission lines within the WLC site into public street rights-of-way and easements will be necessary to support site development and grading. These include 11,100 feet of the 30-inch gas pipeline in Cottonwood Avenue from Redlands Boulevard to World Logistics Center

Parkway and then southeast to Virginia Street and Alessandro Boulevard intersection; 1,900 feet of 30-inch gas line from Gilman Springs Road at Lisa Lane southwest to Alessandro Boulevard; 1,000 feet of 16-inch gas line owned by Questar from Gilman Springs Road southwest to Alessandro Boulevard and 4,000 feet of 16-inch gas line owned by Questar on the Maltby Avenue alignment from Merwin Street to World Logistics Center Parkway. The remaining transmission gas lines are anticipated to be protected in place within the proposed streets or easements between buildings. The regulator station located at the southeast corner of Gilman Springs Road and Laurene Lane east of the WLC project will need to be relocated as part of the widening of this road. The gas facility on Alessandro Boulevard and Virginia Street will remain in place as the project develops in this area. The SDG&E natural gas compression station on Virginia Street south of the project site, known as the Moreno Compressor Station, along with a smaller facility on Virginia Street at Boadicea Avenue will be protected in place. Since the installation or relocation of natural gas facilities would take place concurrently with roadway construction and or within dedicated easements, or protected in place, the construction of these facilities would not result in significant environmental effects.

**4.17.7.3 Energy Standards, Policy, Regulation Consistency**

Threshold	The Degree to which the Project Complies with Existing Energy Standards
-----------	---

This impact assesses whether the WLC project would conflict with any applicable standards, policies, or regulations, as discussed below.

The project would comply with applicable CARB regulations restricting the idling of heavy-duty diesel motor vehicles and governing the accelerated retrofiting, repowering, or replacement of heavy duty diesel on- and off-road equipment. As discussed in Section 4.7, *Greenhouse Gas Emissions*, CARB has adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other toxic air contaminants. The measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. While intended to reduce construction emissions, compliance with the above anti-idling and emissions regulations would also result in energy savings from the use of more fuel-efficient engines. According to the CARB staff report that was prepared at the time the anti-idling Airborne Toxic Control Measure was being proposed for adoption in late 2004/early 2005, the regulation was estimated to reduce non-essential idling and associated emissions of diesel particulate matter and nitrogen oxide (NO<sub>x</sub>) emissions by 64 and 78 percent respectively in analysis year 2009.<sup>40</sup> These reductions in emissions are directly attributable to overall reduced idling times and the resultant reduced fuel consumption. Mitigation Measure 4.3.6.2A includes a stricter provision that would limit idling to no more than three minutes in any one hour. Therefore, fuel savings have the potential to be even more than those estimated from the Airborne Toxic Control Measure.

CARB has also adopted emission standards for off-road diesel construction equipment of greater than 25 hp. The emissions standards are referred to as “tiers,” with Tier 4 being the most stringent (i.e., least polluting). The requirements are phased in, with full implementation for large and medium fleets by 2023 and for small fleets by 2028. The project would accelerate the use of cleaner construction equipment by using mobile off-road construction equipment greater than 50 horsepower (wheeled or tracked) that meets, at a minimum, the Tier 4 off-road emissions standards as specified in Mitigation Measure 4.3.6.2A. Field testing by construction equipment manufacturers has shown that higher tier equipment results in lower fuel consumption. For example, Tier 4 interim engines have shown a 5

<sup>40</sup> CARB, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/idling/idling.htm>, Accessed April 2018.

percent reduced fuel consumption compared to a Tier 3 engine.<sup>41</sup> Similar reductions in fuel consumption have been shown for Tier 3 engines compared to a Tier 2 engine.<sup>42</sup>

The project would comply with and exceed (through its PDFs and mitigation measures) the applicable provisions of Title 24 and the CALGreen Code in affect at the time of building permit issuance and buildings over 500,000 square feet will be designed to be LEED certified. According to the CEC, buildings compliant with the Title 24 (2019) standards should use 5 percent less energy for lighting, heating, cooling, ventilation, and water heating than the prior Title 24 (2016) standards for non-residential uses.<sup>43</sup> As specified in the Project's Design Features, the project would include numerous energy and waste reduction features that would allow the project to comply with or exceed the Title 24 standards and achieve energy savings equal to or greater than what is required by state regulations.

With respect to operational transportation-related energy, the WLC project would support statewide efforts to improve transportation energy efficiency and reduce transportation fuel consumption with respect to private automobiles. In particular, the project would provide the infrastructure for supporting a higher population of electric vehicles, in direct support of the state's targets of 1.5 million ZEVs by 2025 and 4.2 million ZEVs by 2035. Thus, the project would comply with existing energy standards.

### 4.17.8 Significant Impacts

The project has no significant impacts related to energy use, consumption, resources, or standards.

---

<sup>41</sup> Businesswire, "Fuel Duel" Confirms 5 Percent Higher Fuel Efficiency for Cummins Tier 4, June 25, 2009, <http://www.businesswire.com/news/home/20090625005468/en/%E2%80%9CFuel-Duel%E2%80%9D-Confirms-5-Percent-Higher-Fuel>, Accessed April 2018.

<sup>42</sup> John Deere, Engine Performance, Fuel Efficiency, and Clean Air, Emissions Technology for Non-Road Applications, 2006, [http://bellpower.com/uploads/product\\_brochures/15\\_Exp\\_EmissionsBrochure%20dswt14%5B1%5D.pdf](http://bellpower.com/uploads/product_brochures/15_Exp_EmissionsBrochure%20dswt14%5B1%5D.pdf), Accessed April 2018.

<sup>43</sup> CEC, Adoption Hearing, 2016 Building Energy Efficiency Standards, June 10, 2015, [http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10\\_hearing/2015-06-10\\_Adoption\\_Hearing\\_Presentation.pdf](http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf), Accessed April 2018.

**NOTE TO READERS:** Section 6.3, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 6.3 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 6.3 replaces the cumulative analysis provided in Section 4.3 of the FEIR prepared in 2015.

## **6.3 Air Quality**

Cumulative effects to air quality are described in this section. A summary of the project’s potential impacts to air quality issues is provided in Section 6.3.1. The cumulative impact geographic areas for air quality issues are provided in Section 6.3.2. The potential cumulative impacts and the project’s contribution to cumulative impacts to each of the air quality issues are discussed in Section 6.3.3. In addition, a brief summary of the significance of the project’s contribution to cumulative impacts for each issue is also provided in Section 6.3.3 as well as applicable mitigation measures and significance determination after mitigation. Cumulative emissions calculations are included as Appendix A.3 of this Draft Recirculated RSFEIR.

The cumulative projects identified in Table 6.3-1 and their respective CEQA documents have been reviewed and evaluated in conjunction with the project to determine if they would contribute to a cumulatively considerable impact to air quality. These potentially cumulative impacts are documented in the following section.

### **6.3.1 Project Impact Findings**

The project’s effects to air quality are summarized in this section, and the impacts have been evaluated against the following thresholds that were developed based on the CEQA Guidelines Appendix G thresholds, as modified to address potential project impacts. After each threshold, a significance determination for the project impacts (see Section 4.3 of the Draft Recirculated RSFEIR) is provided as well as a reference to the specific section and impact number if the impact determination is significant.

Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan? **Significant and Unavoidable with Mitigation, Section 4.3.6.1.**
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation? **Less than Significant, Section 4.3.5.2.**
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); **Significant and Unavoidable with Mitigation, Section 4.3.6.**
- Expose sensitive receptors to substantial pollutant concentrations? **Significant and Unavoidable with Mitigation, Section 4.3.6.2; Significant and Unavoidable with Mitigation, Section 4.3.6.3; and Significant and Unavoidable with Mitigation, Section 4.3.6.4; Significant and Unavoidable with Mitigation, Section 4.3.6.5;**
- Create objectionable odors affecting a substantial number of people? **Less than Significant, Section 4.3.5.1.**

### **6.3.2 Geographic and Temporal Scope**

#### **6.3.2.1 Summary of Lists of Projects Approach**

Ordinarily, the cumulative air quality thresholds of significance established by the South Coast Air Quality Management District (SCAQMD) are the same as those used to determine the significance of

a project's air quality impacts, i.e., if a project's air quality impacts for a criteria pollutant are below the appropriate threshold, it is conclusively presumed that the project's cumulative impacts are not cumulatively considerable.<sup>1</sup> However, because of the court's ruling, which required the list of projects method to determine if a project's cumulative impacts were significant, the extent of the cumulative impacts analyzed in this Draft Recirculated RSFEIR was based on the limits set forth in the cumulative traffic analysis conducted by the project (refer to Section 6.15.2). The cumulative traffic analysis limited the geographic scope of refined cumulative traffic analyses to an area in which related projects could contribute 50 peak hour trips or more on surface streets in the same area as project impacts. As shown in Table 4.3-24, mobile sources contribute the vast majority of project-related emissions (approximately 92 to 99 percent) for pollutants such as CO, NOx, and PM, and approximately 40 percent for VOCs on a worst-case daily basis. Similarly, emissions from other proposed land uses identified in the vicinity of the Proposed Project (see Table 6.3-1) are expected to be dominated by mobile sources. This is consistent with SCAQMD's basin-wide inventories; for example, in the 2016 Air Quality Management Plan (AQMP), mobile sources contribute approximately 88 percent of basin-wide NOx emissions and approximately 58 percent of basin-wide VOCs.<sup>2</sup> Therefore, it is appropriate to also limit the geographic scope of the detailed cumulative air quality analyses to this "cumulative projects impact area" defined for traffic analyses, as those projects with the potential to contribute non-negligible peak hour trips (equal to or greater than 50) would represent the projects from which non-negligible emissions may contribute to a cumulative impact, that is a measurable change in the environment that results from the incremental impact of the proposed Project when added to other closely related past, present, and reasonably foreseeable probable future projects. According to the SCAQMD, "The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute."<sup>3</sup>

The cumulative project impact area includes the entire City of Moreno Valley and portions of the Cities of Riverside, Redlands, Beaumont, Perris, San Jacinto, Hemet and Calimesa, as well as portions of unincorporated Riverside and San Bernardino County, and the March Joint Powers Authority (JPA). A geographic map for these cumulative projects are shown on Figure 6.3-1. Approximately 359 projects have been identified in the vicinity of the Project and are listed in Table 6.3-1. Out of those 359 projects, approximately 173 environmental documents were available. All 173 were reviewed to identify quantitative emissions for construction and operation of the respective projects; however, not all environmental documents contained emissions for construction and operation. Emissions from all of the identified cumulative projects were calculated based on available information and methodologies.

---

<sup>1</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>2</sup> <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/chapter3.pdf?sfvrsn=4>

<sup>3</sup> South Coast Air Quality Management District, Potential Control Strategies to Address [Cumulative Impacts from Air Pollution, White Paper](#), Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Page D-2. Accessed September 29, 2019.



**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-1 - Air Quality Cumulative Projects Summary**

Project ID	Project Name	Land Use <sup>1</sup>	Size <sup>2</sup>
B-1	Fairway Canyon SCPGA Tract Nos. 31462, 36558, and 36783 (#29)	SF	3,300 DU
B-10	Tract No. 32850 (#39)	SF	95 DU
B-11	San Gorgonio Village, Phase 2 (#45)	RC	225 KSF
B-12	Beaumont Commercial Center	MF	279 DU
B-13	Four Seasons (#23) Tract Nos. 32260 and 33096	SF	1,890 DU
B-14	Potrero Creek Estates (#26)	SF	700 DU
B-2	Tournament Hills 3, TM 36307	MF	571 DU
B-3	Heartland	SF	922 DU
B-4	Hidden Canyon	LI	1,734 KSF
B-5	ProLogis/Rolling Hills Ranch	HI	2,565.68 KSF
B-6	Mountain Bridge Regional Commercial Planned Commu*	BP	1,853.25 KSF
B-7	Kirkwood Ranch (#14)	SF	403 DU
B-8	Noble Creek Vistas (#10)	SF	648 DU
B-9	Sundance (#17)	SF	4,450 DU
C-1	TTM 33931 Fiesta Oak Valley/Mesa Verde Estates	RC	200 KSF
C-2	Summerwind Ranch	BP	1,579 KSF
C-2	Summerwind Ranch	BP	1,000 KSF
C-3	JP Ranch	RC	72.7 KSF
H-1	TTM 36841	SF	588 DU
H-10	Downtown Hemet Specific Plan	**	**
H-2	Rancho Diamante	SF	440 DU
H-3	Tres Cerritos Specific Plan	SF	931 DU
H-4	Sanderson Square	LI	734.98 KSF
H-4	Sanderson Square	LI	995.15 KSF
H-5	Mc Sweeny Farms SP	RC	20.90 KSF
H-6	Ramona Creek	RC	680.788 KSF
H-7	Peppertree Specific Plan	SR	358 KSF
H-8	Florida Promenade Residential SP	SF	145 DU
H-9	TTM 31807 / 31808	SR	599 KSF
M-1	Amstar/Kaliber Development PP22925	HI	409.312 KSF
M-10	Airport Master Plan	WH	559 KSF
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	RC	67 KSF
M-2	Meridian Business Park	LI	487.8 KSF
M-3	Meridian Business Park - Phase 3	WH	2,900 KSF
M-4	March Business Center - South Campus	RC	108.9 KSF
M-5	Meridian LNR	OG	232.76 KSF
M-6	Ben Clark Training Facility	BP	219.35 KSF
M-7	Meridian Business Park - Phase K4	WH	675.5 KSF
M-8	March LifeCare Campus Specific Plan	MO	2,930 KSF
M-9	TM 34748	SF	135 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-1	Auto Mall SP	RC	304.5 KSF
MV-10	TR30998 / Pacific Communities	SF	47 DU
MV-100	Scottish Village	MF	194 DU
MV-101	Restaurant	RC	9 KSF
MV-102	Moreno Valley Professional Center	OG	84 KSF
MV-103	Gateway Business Park	LI	184 KSF
MV-104	373K Industrial Facility	WH	373.03 KSF
MV-105	35369 Tason Myers Property	MF	12 DU
MV-106	35304 Jimmy Lee	MF	12 DU
MV-107	32711 Isaac Genah	SF	9 DU
MV-108	O'Reilly Automotive	RC	2.97 KSF
MV-109	Quail Ranch	SF	1,105 DU
MV-11	TR30411 / Pacific Communities	SF	24 DU
MV-110	TM 33417	MF	60 DU
MV-111	35769 Michael Chen	MF	16 DU
MV-112	PA09-0006 Jim Nydam	MF	15 DU
MV-113	Ironwood Residential	SF	144 DU
MV-114	Stoneridge Town Centre - Vacant Restaurant	RC	5.7 KSF
MV-115	Olivewood Plaza - Office Building	OG	0.02 KSF
MV-116	31621 Peter Sanchez	SF	25 DU
MV-117	MV-101	OG	52 KSF
MV-118	28860 Professor's Fun IV	SF	9 DU
MV-119	32126 Salvador Torres	SF	35 DU
MV-12	Moreno Medical Campus	MO	80 KSF
MV-120	Moreno Valley Shopping Center	RC	189.52 KSF
MV-121	Yum Donut Shop	RC	4.35 KSF
MV-122	Centerpointe Business Park	**	**
MV-123	Rancho Belago Plaza - Retail	RC	14 KSF
MV-124	Alessandro & Lasselle	RC	140 KSF
MV-125	32756 Jimmy Lee	MF	24 DU
MV-126	TTM 33222	SF	235 DU
MV-13	Cresta Bella	OG	30 KSF
MV-14	TR32548 / Gabel, Cook & Assoc	SF	107 DU
MV-15	TR32218 / Whitney	SF	63 DU
MV-16	TR32284 / 26th Corporation & Granite Capitol	SF	32 DU
MV-17	TR31590 / Winchester Associates	SF	96 DU
MV-18	Convenience Store / Fueling Station	RC	5.5 KSF
MV-19	Senior Assisted Living	SR	139 KSF
MV-2	TR35823 / Stowe Passco Devel.	SF	262 DU
MV-20	Moreno Marketplace	RC	93.79 KSF
MV-21	PEN16-0053 Medical Center	MO	80 KSF
MV-22	TR36882 (PA15-0010) SFR	SF	40 DU
MV-23	PEN16-0129/0130 MV Ranch Apartments	MF	417 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-24	TM 36436 (PA12-0005)	SF	159 DU
MV-25	TR32142	SF	81 DU
MV-26	TR 30268 (PA01-0072) Pacific Communities	SF	100 DU
MV-27	TR32917 / Empire land	MF	54 DU
MV-28	TR34329 / Granite Capitol	MF	90 DU
MV-29	TR36340	SF	275 DU
MV-3	ProLogis	WH	1,901 KSF
MV-30	PA03-0168 TR 31517	SF	83 DU
MV-31	PA15-0034 TR 36983	SF	53 DU
MV-32	TTM 31592 (P13-078) SFR	SF	115 DU
MV-33	TR32645 / Winchester Assoc	SF	54 DU
MV-34	TR34397/Winchester Assoc	SF	52 DU
MV-35	TR31771 / Sanchez	SF	25 DU
MV-36	TM 31618 (PA03-0106)	MF	56 DU
MV-37	Vogel /PA09-004	HI	1,616.13 KSF
MV-38	Vogel Properties	LI	434 KSF
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	LI	1,600 KSF
MV-4	Westridge Commerce Center	LI	937.26 KSF
MV-40	PEN17-0036 Warehouse	WH	98.40 KSF
MV-41	First Nandina Logistics Center	WH	1,450 KSF
MV-42	Indian Street Commerce Center	WH	446.35 KSF
MV-43	Ivan Devries / PA06-0017	HI	555.67 KSF
MV-44	Modular Logistics Center (Kearny RE Co)	WH	1,109.38 KSF
MV-45	Iris Plaza	RC	87.12 KSF
MV-46	Harley Knox/Redlands Development	WH	382.28 KSF
MV-47	PA07-0129 TR 35606 SFR	SF	16 DU
MV-48	PA11-001 thru 007 March Business Center	BP	1484.50 KSF
MV-49	Indian Business Park	BP	1,560.05 KSF
MV-5	P06-158 / Gascon	RC	116.36 KSF
MV-50	San Michele Industrial Center	LI	354.81 KSF
MV-51	PA07-0165 thru 01667 First Industrial I & II	LI	769.32 KSF
MV-52	First Industrial III & IV	LI	878.96 KSF
MV-53	I-215 Logistics Center	WH	1,250 KSF
MV-54	Moreno Valley Logistics Center (Prologis)	WH	1,738 KSF
MV-55	MV Commerce Park II (Alere) - Built before 2012	**	**
MV-56	Tract Map 33810	SF	16 DU
MV-57	Tract Map 34151	SF	37 DU
MV-58	Tract Map 33024	SF	8 DU
MV-59	Tract Map 31442	SF	63 DU
MV-6	Highland Fairview Corporate Park	WH	750 KSF
MV-60	Tract Map 36401	SF	92 DU
MV-61	Walmart & Gas Station	RC	180 KSF
MV-62	Tract Map 22180	SF	543 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-63	PA14-0053 (TTM 36760) Legacy Park	SF	221 DU
MV-64	TR22180 / Young Homes	SF	87 DU
MV-65	TR33607 / TL Group	MF	52 DU
MV-66	TR34988 / Stratus Properties	MF	251 DU
MV-67	TR32515	SF	161 DU
MV-68	PA07-0035	HI	207.09 KSF
MV-69	PA07-0039 (Industrial Area SP)	HI	409.60 KSF
MV-7	TR33962 / Pacific Scene Homes	SF	31 DU
MV-70	TR32756 / CTK, Inc.	MF	241 DU
MV-71	TR34681 / Perris Pacific Co.	MF	49 DU
MV-72	35861 Frederick Homes	MF	24 DU
MV-73	TR36038 / Alessandro Village Plaza LLC	MF	96 DU
MV-74	TR34216 / Creative Design Assoc	SR	189 KSF
MV-75	Aqua Bella Specific Plan	SR	1,461 KSF
MV-76	Commercial Medical Plaza PA09-0033 thru 0039, and*	RC	311.63 KSF
MV-77	Minka Lighting	LI	533 KSF
MV-78	Overton Moore Properties PA08-0072	LI	520 KSF
MV-79	Shaw Development	WH	367 KSF
MV-8	TR32460 / Sussex Capital	SF	58 DU
MV-80	PA15-0032 MV Cactus Center	RC	44.3 KSF
MV-81	Ridge Property Trust PA07-0147 & PA 07-0157	WH	700 KSF
MV-82	Centerpointe Bus. Ctr	WH	500 KSF
MV-83	Centerpointe Business Park	LI	356 KSF
MV-84	PA16-0075 Brodiaea Business Center	LI	99.98 KSF
MV-85	Retail Center / Winco Foods	RC	140 KSF
MV-86	TR32505 / DR Horton	SF	71 DU
MV-87	TR31814 / Moreno Valley Investors	MF	60 DU
MV-88	TR33771 / Creative Design Assoc	MF	12 DU
MV-89	TR35663 / Kha	MF	12 DU
MV-9	TR32459 / Sussex Capital	SF	11 DU
MV-90	PEN16-0110 Commercial Pad H	RC	7.31 KSF
MV-91	TR31305 / Richmond American	SF	87 DU
MV-92	TR 33256	SF	99 DU
MV-93	PA14-0042 Edgemont Apartments	MF	112 DU
MV-94	PA15-0002 Box Springs Apartments	MF	266 DU
MV-95	Moreno Beach Market PLace/Lowes	RC	175 KSF
MV-96	31394 Pigeon Pass, Ltd.	SF	78 DU
MV-97	32005 Red Hill Village, LLC	SF	214 DU
MV-98	33388 SCH Development, LLC	SF	16 DU
MV-99	36038 Alessandro Village Plaza, LLC	MF	96 DU
P-1	TR32707	SF	137 DU
P-10	IDS	WH	1,700 KSF
P-11	Ridge II	HI	1,224.99 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

P-12	Starcrest P011-0005; 08-11-0006	LI	454.09 KSF
P-13	Ridge	**	**
P-14	Rados Distribution Center	WH	1,200 KSF
P-15	Duke Perris Logistics Center	WH	780.82 KSF
P-16	Perris Ridge Commerce Center I	WH	1,310 KSF
P-17	SRG Perris LC	WH	580 KSF
P-18	P07-07-0029	WH	1,547 KSF
P-19	P05-0192	WH	697.6 KSF
P-2	TR34716	WH	600 KSF
P-20	P05-0113	WH	871.5 KSF
P-21	P07-09-0018	WH	170 KSF
P-22	NICOL	WH	380 KSF
P-23	Westcoast Textiles	WH	180 KSF
P-24	Optimus Logistics Center 1	WH	1,464 KSF
P-25	Optimus Logistics Center 2	WH	1,038 KSF
P-26	Duke Warehouse	LI	811.62 KSF
P-27	Perris DC (Industrial Property Trust)	WH	864 KSF
P-28	Duke Warehouse	LI	670 KSF
P-29	P06-0411	**	**
P-3	P05-0477	WH	462.3 KSF
P-30	Avelina	SF	492 DU
P-31	Perris Family Apartments	MF	75 DU
P-32	Lewis Retail Center	RC	643 KSF
P-33	Harvest Landing Specific Plan	SF	1,860 DU
P-34	South Perris Industrial Phase 3	WH	3,166.86 KSF
P-35	Verano Apartments	MF	40 DU
P-36	South Perris Industrial Phase 2	WH	3,448.73 KSF
P-37	Cabrillo	SF	183 DU
P-38	Sequoia	SF	223 DU
P-39	South Perris Industrial Phase 1	WH	783.7 KSF
P-4	Bookend	LI	172 KSF
P-40	TR 32041	SF	122 DU
P-41	P 06-0228	LI	149.74 KSF
P-42	TR 31650	SF	61 DU
P-43	TR 31225	SF	57 DU
P-44	TR 33193	MF	94 DU
P-45	P 12-05-0013	MF	75 DU
P-46	P 06-0378	SR	429 KSF
P-47	Park West Specific Plan	SF	521 DU
P-48	TR 33338	SF	75 DU
P-49	TR 31240	SF	114 DU
P-5	Markham East	WH	460 KSF
P-50	P 11-09-0011	RC	80 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

P-51	TR 30973	SF	35 DU
P-52	TR 31226	SF	82 DU
P-53	TR 31659	SF	161 DU
P-54	TTM 32708	SF	238 DU
P-55	Perris Marketplace	RC	450 KSF
P-56	PM 34199 / TPM 34697	LI	9.85 KSF
P-57	P 04-0343	WH	41.65 KSF
P-58	Jordan Distribution	HI	378 KSF
P-59	TR 31407	SF	243 DU
P-6	Perris Circle Industrial Park	LI	600 KSF
P-60	Retail on Redlands	RC	4.5 KSF
P-61	TR32707	WH	350 KSF
P-7	Duke Warehouse	LI	1,189.9 KSF
P-8	First Perry Logistics Project	LI	241 KSF
P-9	Aiere	HI	642 KSF
R-1	Sycamore Canyon Business Park - Bldgs 1&2	BP	1,375.17 KSF
R-10	SR-91/ Van Buren Commercial	RC	23.57 KSF
R-11	Citrus Business Park Specific Plan	BP	340.66 KSF
R-12	Sycamore Canyon Business Park Specific Plan	RC	61.38 KSF
R-13	14601 Dauchy Av. - TM 36370	SF	3 DU
R-14	360 Alessandro Boulevard	RC	3.86 KSF
R-15	Mission Grove Specific Plan	SF	171.70 DU
R-16	Sycamore Canyon Specific Plan	SF	1.53 DU
R-17	5940-5980 Sycamore Canyon Boulevard	MF	275 DU
R-18	Hunter Business Park	LI	9,037.83 KSF
R-19	807 Blaine Street	MF	55 DU
R-2	Alessandro Business Center (Western Realco)	WH	582.77 KSF
R-20	474 Palmyrita Avenue	WH	1,461.45 KSF
R-21	1006 & 1008 Clark Street	SF	15 DU
R-22	3719 Strong Street	SF	9 DU
R-23	1710 Main Street (P12-0717)	RC	8.04KSF
R-24	Downtown Specific Plan	SF	5,000 DU
R-25	P14-0045 thru -0048	MF	208 DU
R-26	Marketplace Specific Plan	LI	943.51 KSF
R-27	2586 University Avenue	RC	3.62 KSF
R-28	2340 Fourteenth Street	SR	134 KSF
R-29	6570 Magnolia Avenue; 3739 & 3747 Central Avenue	RC	3.80 KSF
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	LI	652.02 KSF
R-30	3545 Central Avenue	RC	208.57 KSF
R-31	P08- 0396 / P08-0397 Thru -0399 / TM 35620	MF	36 DU
R-32	Walmart Expansion	RC	22.27 KSF
R-33	5731, 5741, 5761 & 5797 Pickler Street	MF	30 DU
R-34	4247 Van Buren Boulevard	OG	12.17 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

R-35	3990 Reynolds Road	MF	102 DU
R-36	Magnolia Garden Condominiums	MF	62 DU
R-37	3705 Tyler Street	RC	6 KSF
R-38	Park Sierra Avenue	RC	3.5 KSF
R-39	Riverwalk Vista Specific Plan	SF	402 DU
R-4	Quail Run	MF	216 DU
R-40	P12- 0019 / P12-0156 / P12-0158	RC	2.4 KSF
R-41	4824 Jones Avenue	OG	23.12 KSF
R-42	Rancho La Sierra Specific Plan	SF	598 DU
R-43	P05-1528 \ P09-0087 \ TM 34509	SF	50 DU
R-44	6465 Sycamore Canyon Boulevard	RC	4 KSF
R-45	P06-0591	OG	37.94 KSF
R-46	Sycamore-Highlands Specific Plan	SF	35.84 DU
R-47	P06-0160 / P06-1281	WH	107.73 KSF
R-48	P06-1408	RC	75.3 KSF
R-49	Canyon Springs Specific Plan	SR	310 KSF
R-5	Canyon Springs Healthcare Campus	MO	500 KSF
R-50	Orangecrest Specific Plan	SF	3.83 DU
R-51	P10-0808 / P10-0708	RC	2.36 KSF
R-52	19811 Lurin Avenue	SF	32 DU
R-53	P06-1404 / Lurin Avenue / TM 33482	SF	29 DU
R-54	P06-1396 / Mariposa Avenue / TM 33481	SF	25 DU
R-55	P06-0900 / P08- 0269 / P08-0270 / TTM 32301	SF	20 DU
R-56	Office, Magnon & Panattoni	OG	131 KSF
R-57	SEC Sycamore Canyon Boulevard & Box Springs Road	LI	171.62 KSF
R-58	Canyon / Valley Springs Parkway	RC	2.75 KSF
R-59	Alessandro and Gorgonio	RC	4.05 KSF
R-6	2450 Market Street	MF	77 DU
R-60	Alessandro Bl.	BP	101.58 KSF
R-61	Gless Ranch	RC	425.45 KSF
R-62	6091 Victoria Avenue (P13-0432)	RC	1.83 KSF
R-63	8616 California Avenue (P08-0084; PM 35852)	MF	21 DU
R-64	P13-0389 / TM 36579	SF	5 DU
R-65	P13-0723; P13-0724; P13-0725; TM 36654	SF	62 DU
R-66	Azar Plaza	RC	6.15 KSF
R-7	2861 Mary Street	RC	56.10 KSF
R-8	5938-5944 Grand Avenue	SR	37 KSF
R-9	Magnolia Avenue Specific Plan	RC	8,777.62 KSF
RC-1	TR35530 / Quail Ranch Specific Plan	SF	1,251 DU
RC-10	Majestic Freeway Business Center	LI	6,200 KSF
RC-11	Alessandro Commerce Center	WH	814 KSF
RC-12	Cores Industrial Partners	LI	423.67 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

RC-13	Sunny-Cal Specific Plan (#40)	SF	497 DU
RC-14	University Highlands	MF	320 DU
RC-15	TTM 33410 Box Springs	SF	142 DU
RC-16	Sycamore Canyon Specific Plan	**	**
RC-17	PP 24608	RC	9.28 KSF
RC-18	TR 32406	SF	15 DU
RC-19	CUP 03599	RC	52.80 KSF
RC-2	Jack Rabbit Trail	SF	2,000 DU
RC-20	PP 25699	RC	2.8 KSF
RC-21	CUP 03527	WH	8 KSF
RC-22	TR 30592	SF	131 DU
RC-23	PP 25768	LI	52.45 KSF
RC-24	PP 21144	LI	190.80 KSF
RC-25	PP 16976	LI	85 KSF
RC-26	PM 32699	SF	2 DU
RC-27	Yocum Baldwin	LI	188.70 KSF
RC-28	CUP 03315	RC	5.6 KSF
RC-29	18580 Van Buren Boulevard	RC	8.14 KSF
RC-3	The Preserve / Legacy Highlands SP - Commercial and Residential	SF	3,412 DU
RC-30	Knox Logistics	WH	1,259.05 KSF
RC-31	PP 23342	LI	180.6 KSF
RC-32	TTM 31537	SF	726 DU
RC-33	TTM 34130	SF	384 DU
RC-34	Emerald Acres SP #381	SF	432 DU
RC-35	TR 34677,31100,32391,33448,31101,31009,32282	OG	80 KSF
RC-36	TR36478, TR36480, PP25219	SF	468 DU
RC-37	TR 36504	SF	562 DU
RC-38	San Gorgonio Crossings	WH	1,823.76 KSF
RC-39	Tract 33869	SF	39 DU
RC-4	Badlands Sanitary Landfill	**	**
RC-5	Villages of Lakeview - Commercial Development and Residential Development	SF	750 DU
RC-6	Rider Business Center (Core 5 Industrial Partners)	BP	600 KSF
RC-7	Nuevo Distribution Center	WH	1,586.65 KSF
RC-8	Trucking DC (Central Freight, LLC)	**	**
RC-9	Oleander Business Park PP20699	OG	34 KSF
RD-1	Tract 18988	SF	82 DU
RD-10	Park Ave Industrial Center	LI	145.26 KSF
RD-11	Marriott Springhill Suites	RC	55.47 KSF
RD-12	I-10 Redlands LC - B	WH	601.29 KSF
RD-13	Ashley Furniture	WH	1,013 KSF
RD-14	Redlands DC 772,000 SF	WH	772 KSF
RD-15	2220 Almond Ave	WH	423 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

RD-16	APL Logistics	WH	714.73 KSF
RD-2	Redlands Pioneer Tract	SF	55 DU
RD-3	Newland Homes Tract	SF	103 DU
RD-4	Redlands Pennsylvania Tract	SF	67 DU
RD-5	I-10 Redlands LC - A	WH	500.60 KSF
RD-6	Woodsprings Hotel	RC	48.22 KSF
RD-7	RV Storage Facility	RC	127.75 KSF
RD-8	Liberty Lane Apartments	MF	80 DU
RD-9	Hilton Home2 Suites	RC	43.80 KSF
SB-1	Redlands Gateway Logistics - B	WH	614.33 KSF
SB-2	Redlands Gateway Logistics - A	WH	313.47 KSF
SB-3	Prologis 12	WH	593.56 KSF
SB-4	Prologis 17	WH	777.62 KSF
SB-5	Prologis #13	WH	282 KSF
SB-6	Prologis #8	WH	542.98 KSF
SB-7	Sam Redlands Tract	SF	34 DU
SB-8	Jacinto Tract	SF	40 DU
SJ-1	Gateway Area Specific Plan	RC	1,678.24 KSF
SJ-2	TR 31886	SF	321 DU
SJ-3	TR 30598	SF	580 DU
SJ-4	TR 32955	SF	613 DU
SJWA-1	San Jacinto Wildlife Land Management Plan	**	**
1	BP Business Park		
	HI Heavy Industrial		
	LI Light Industrial		
	MF Multifamily Residential		
	MO Medical Office		
	OG General Office		
	RC Retail/Unspecified Commercial		
	SF Single Family Residential		
	SR Senior Residential		
	WH Warehouse-Logistics		
2	DU Dwelling Units		
	KSF Thousand Square Feet		
** Project information not available or planning level document with no direct development proposed.			

**6.3.2.1.1 Cumulative Operational Emissions**

Operational emissions were accumulated from the environmental documents that were gathered for the cumulative analysis. For projects that did not have an environmental document with quantitative emissions available, emissions were modeled utilizing default emission rates and factors from California Emissions Estimator Model (CalEEMod) (version 2016.3.2) and the California Air Resources Board's (CARB) mobile source emissions inventory (EMFAC2017). Cumulative operational emissions include the following: off-site mobile emissions (EMFAC2017), paved on-road dust, area energy emissions from natural gas usage, area source emissions from consumer products usage, and landscaping emissions. Exhaust emissions from truck refrigeration units (TRUs) are also included for medium and heavy duty truck trips generated from retail/commercial, senior housing and warehousing land uses.

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

All cumulative project-level emissions were based on each land use and specific size for all projects for build out year 2035 on a consistent basis with the project buildout year 2035. This assures consistency in the calculations and the most current EMFAC2017 emission factors for each project.

Results of the cumulative operational emissions analysis are provided in Table 6.3-2.

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

Project ID	VOC	NOx	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
B-001	139.12	124.91	682.82	1.90	36.81	17.35
B-002	14.37	15.71	101.66	0.25	4.90	2.29
B-003	38.87	34.90	190.78	0.53	10.28	4.85
B-004	39.14	47.55	146.98	0.71	13.02	6.06
B-005	56.94	60.33	176.22	0.86	15.61	7.45
B-006	44.55	72.13	295.58	1.28	24.43	10.19
B-007	16.99	15.25	83.39	0.23	4.50	2.12
B-008	27.32	24.53	134.08	0.37	7.23	3.41
B-009	187.60	168.44	920.77	2.56	49.64	23.40
B-010	4.00	3.60	19.66	0.05	1.06	0.50
B-011	12.39	98.54	140.66	0.27	5.55	2.60
B-012	7.02	7.67	49.67	0.12	2.40	1.12
B-013	79.68	71.54	391.07	1.09	21.08	9.94
B-014	29.51	26.50	144.84	0.40	7.81	3.68
C-001	11.01	87.59	125.03	0.24	4.93	2.31
C-002	93.01	499.42	877.00	2.29	45.48	20.22
C-003	4.00	31.84	45.45	0.09	1.79	0.84
H-001	24.79	22.26	121.67	0.34	6.56	3.09
H-002	18.55	16.65	91.04	0.25	4.91	2.31
H-003	39.25	35.24	192.64	0.54	10.38	4.90
H-004	40.51	58.89	221.02	0.99	18.64	8.04
H-005	1.15	9.16	13.07	0.03	0.52	0.24
H-006	37.48	298.17	425.61	0.81	16.79	7.85
H-007	8.66	7.11	48.10	0.08	1.70	0.87
H-008	16.76	14.22	89.12	0.19	3.71	1.83
H-009	14.49	11.89	80.48	0.14	2.84	1.46
M-001	16.55	22.80	69.14	0.30	5.60	2.52
M-002	118.54	303.00	298.23	2.27	38.11	16.79
M-003	61.97	176.72	128.30	1.17	19.11	8.43
M-004	6.00	47.70	68.08	0.13	2.69	1.26
M-005	94.76	222.58	253.57	1.79	30.44	13.57
M-006	5.27	8.54	34.98	0.15	2.89	1.21
M-007	14.43	41.16	29.88	0.27	4.45	1.96
M-008	124.11	532.68	1,476.21	5.11	98.21	41.66

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
M-009	5.69	5.11	27.93	0.08	1.51	0.71
M-010	11.95	34.06	24.73	0.23	3.68	1.63
M-011	3.69	29.34	41.89	0.08	1.65	0.77
MV-001	16.76	133.36	190.36	0.36	7.51	3.51
MV-002	16.48	15.86	92.67	0.24	4.78	2.24
MV-003	48.91	125.91	115.21	0.92	15.28	6.81
MV-004	21.16	25.70	79.45	0.38	7.04	3.27
MV-005	6.41	50.96	72.74	0.14	2.87	1.34
MV-006	16.03	45.70	33.18	0.30	4.94	2.18
MV-007	1.31	1.17	6.41	0.02	0.35	0.16
MV-008	2.45	2.20	12.00	0.03	0.65	0.31
MV-009	0.46	0.42	2.28	0.01	0.12	0.06
MV-010	1.98	1.78	9.73	0.03	0.52	0.25
MV-011	1.01	0.91	4.97	0.01	0.27	0.13
MV-012	2.45	7.07	29.64	0.12	2.26	0.94
MV-013	0.69	0.89	3.63	0.02	0.30	0.12
MV-014	4.51	4.05	22.14	0.06	1.19	0.56
MV-015	2.66	2.38	13.04	0.04	0.70	0.33
MV-016	1.35	1.21	6.62	0.02	0.36	0.17
MV-017	4.05	3.63	19.86	0.06	1.07	0.50
MV-018	0.30	2.41	3.44	0.01	0.14	0.06
MV-019	3.36	2.76	18.68	0.03	0.66	0.34
MV-020	5.16	41.08	58.63	0.11	2.31	1.08
MV-021	2.45	7.07	29.64	0.12	2.26	0.94
MV-022	1.69	1.51	8.28	0.02	0.45	0.21
MV-023	10.49	11.47	74.24	0.18	3.58	1.67
MV-024	6.70	6.02	32.90	0.09	1.77	0.84
MV-025	3.41	3.07	16.76	0.05	0.90	0.43
MV-026	4.22	3.79	20.69	0.06	1.12	0.53
MV-027	1.36	1.49	9.61	0.02	0.46	0.22
MV-028	2.26	2.48	16.02	0.04	0.77	0.36
MV-029	11.59	10.41	56.90	0.16	3.07	1.45
MV-030	3.50	3.14	17.17	0.05	0.93	0.44
MV-031	2.23	2.01	10.97	0.03	0.59	0.28
MV-032	4.85	4.35	23.80	0.07	1.28	0.60
MV-033	2.28	2.04	11.17	0.03	0.60	0.28
MV-034	2.19	1.97	10.76	0.03	0.58	0.27
MV-035	1.05	0.95	5.17	0.01	0.28	0.13
MV-036	1.41	1.54	9.97	0.02	0.48	0.22

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-037	35.87	38.00	111.00	0.54	9.83	4.69
MV-038	9.80	11.90	36.79	0.18	3.26	1.52
MV-039	36.12	43.88	135.62	0.65	12.01	5.59
MV-040	2.10	6.00	4.35	0.04	0.65	0.29
MV-041	30.99	88.36	64.15	0.59	9.56	4.22
MV-042	9.54	27.20	19.75	0.18	2.94	1.30
MV-043	12.33	13.07	38.17	0.19	3.38	1.61
MV-044	23.71	67.60	49.08	0.45	7.31	3.23
MV-045	4.80	38.16	54.46	0.10	2.15	1.00
MV-046	8.17	23.30	16.91	0.15	2.52	1.11
MV-047	0.67	0.61	3.31	0.01	0.18	0.08
MV-048	35.69	57.78	236.77	1.03	19.57	8.17
MV-049	37.50	60.72	248.81	1.08	20.57	8.58
MV-050	8.01	9.73	30.08	0.14	2.66	1.24
MV-051	17.37	21.10	65.21	0.31	5.78	2.69
MV-052	19.84	24.10	74.51	0.36	6.60	3.07
MV-053	26.71	76.17	55.30	0.50	8.24	3.63
MV-054	37.14	105.91	76.89	0.70	11.45	5.05
MV-056	0.67	0.61	3.31	0.01	0.18	0.08
MV-057	1.56	1.40	7.66	0.02	0.41	0.19
MV-058	0.34	0.30	1.66	0.00	0.09	0.04
MV-059	2.66	2.38	13.04	0.04	0.70	0.33
MV-060	3.88	3.48	19.04	0.05	1.03	0.48
MV-061	9.91	78.83	112.53	0.22	4.44	2.08
MV-062	22.89	20.55	112.36	0.31	6.06	2.86
MV-063	9.32	8.36	45.73	0.13	2.47	1.16
MV-064	3.67	3.29	18.00	0.05	0.97	0.46
MV-065	1.31	1.43	9.26	0.02	0.45	0.21
MV-066	6.32	6.90	44.69	0.11	2.16	1.01
MV-067	6.79	6.09	33.31	0.09	1.80	0.85
MV-068	4.60	4.87	14.22	0.07	1.26	0.60
MV-069	9.09	9.63	28.13	0.14	2.49	1.19
MV-070	6.06	6.63	42.91	0.10	2.07	0.97
MV-071	1.23	1.35	8.72	0.02	0.42	0.20
MV-072	0.60	0.66	4.27	0.01	0.21	0.10
MV-073	2.42	2.64	17.09	0.04	0.82	0.39
MV-074	4.57	3.75	25.39	0.04	0.90	0.46
MV-075	35.35	29.00	196.29	0.34	6.93	3.56
MV-076	17.16	136.49	194.82	0.37	7.69	3.59

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-077	12.03	14.62	45.18	0.22	4.00	1.86
MV-078	11.74	14.26	44.08	0.21	3.90	1.82
MV-079	7.84	22.36	16.24	0.15	2.42	1.07
MV-080	2.44	19.40	27.69	0.05	1.09	0.51
MV-081	14.96	42.66	30.97	0.28	4.61	2.04
MV-082	10.68	30.47	22.12	0.20	3.30	1.45
MV-083	8.04	9.76	30.18	0.15	2.67	1.24
MV-084	2.26	2.74	8.47	0.04	0.75	0.35
MV-085	7.71	61.32	87.52	0.17	3.45	1.61
MV-086	2.99	2.69	14.69	0.04	0.79	0.37
MV-087	1.51	1.65	10.68	0.03	0.52	0.24
MV-088	0.30	0.33	2.14	0.01	0.10	0.05
MV-089	0.30	0.33	2.14	0.01	0.10	0.05
MV-090	0.40	3.20	4.57	0.01	0.18	0.08
MV-091	3.67	3.29	18.00	0.05	0.97	0.46
MV-092	4.17	3.75	20.48	0.06	1.10	0.52
MV-093	2.82	3.08	19.94	0.05	0.96	0.45
MV-094	6.69	7.32	47.36	0.12	2.28	1.07
MV-095	9.63	76.64	109.40	0.21	4.32	2.02
MV-096	3.29	2.95	16.14	0.04	0.87	0.41
MV-097	9.02	8.10	44.28	0.12	2.39	1.13
MV-098	0.67	0.61	3.31	0.01	0.18	0.08
MV-099	2.42	2.64	17.09	0.04	0.82	0.39
MV-100	4.88	5.34	34.54	0.08	1.67	0.78
MV-101	0.50	3.94	5.63	0.01	0.22	0.10
MV-102	1.94	2.48	10.15	0.04	0.83	0.35
MV-103	4.15	5.05	15.60	0.08	1.38	0.64
MV-104	7.97	22.73	16.50	0.15	2.46	1.08
MV-105	0.30	0.33	2.14	0.01	0.10	0.05
MV-106	0.30	0.33	2.14	0.01	0.10	0.05
MV-107	0.38	0.34	1.86	0.01	0.10	0.05
MV-108	0.16	1.30	1.86	0.00	0.07	0.03
MV-109	46.58	41.82	228.64	0.64	12.33	5.81
MV-110	1.51	1.65	10.68	0.03	0.52	0.24
MV-111	0.40	0.44	2.85	0.01	0.14	0.06
MV-112	0.38	0.41	2.67	0.01	0.13	0.06
MV-113	6.07	5.45	29.80	0.08	1.61	0.76
MV-114	0.31	2.50	3.56	0.01	0.14	0.07
MV-115	0.00	0.00	0.00	0.00	0.00	0.00

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-116	1.05	0.95	5.17	0.01	0.28	0.13
MV-117	1.20	1.54	6.29	0.03	0.51	0.21
MV-118	0.38	0.34	1.86	0.01	0.10	0.05
MV-119	1.48	1.32	7.24	0.02	0.39	0.18
MV-120	10.43	83.00	118.48	0.23	4.67	2.19
MV-121	0.24	1.91	2.72	0.01	0.11	0.05
MV-123	0.77	6.13	8.75	0.02	0.35	0.16
MV-124	7.71	61.32	87.52	0.17	3.45	1.61
MV-125	0.60	0.66	4.27	0.01	0.21	0.10
MV-126	9.91	8.89	48.63	0.14	2.62	1.24
MV-127	7.27	20.72	15.04	0.14	2.24	0.99
MV-129	35.66	43.33	133.93	0.64	11.86	5.52
MV-130	4.74	13.52	9.82	0.09	1.46	0.65
MV-131	32.05	91.41	66.36	0.61	9.89	4.36
MV-132	23.51	67.03	48.67	0.44	7.25	3.20
P-001	5.78	5.19	28.35	0.08	1.53	0.72
P-002	12.82	36.56	26.54	0.24	3.95	1.74
P-003	9.88	28.17	20.45	0.19	3.05	1.34
P-004	3.88	4.72	14.58	0.07	1.29	0.60
P-005	9.83	28.03	20.35	0.19	3.03	1.34
P-006	13.54	16.45	50.86	0.24	4.50	2.10
P-007	26.86	32.63	100.86	0.49	8.93	4.16
P-008	5.44	6.61	20.43	0.10	1.81	0.84
P-009	14.25	15.10	44.09	0.21	3.91	1.86
P-010	36.33	103.60	75.21	0.69	11.20	4.94
P-011	27.19	28.80	84.14	0.41	7.45	3.56
P-012	10.25	12.45	38.49	0.19	3.41	1.59
P-014	25.64	73.13	53.09	0.48	7.91	3.49
P-015	16.69	47.58	34.54	0.32	5.15	2.27
P-016	27.99	79.83	57.96	0.53	8.63	3.81
P-017	12.39	35.34	25.66	0.23	3.82	1.69
P-018	33.06	94.27	68.44	0.62	10.20	4.50
P-019	14.91	42.51	30.86	0.28	4.60	2.03
P-020	18.62	53.11	38.56	0.35	5.74	2.53
P-021	3.63	10.36	7.52	0.07	1.12	0.49
P-022	8.12	23.16	16.81	0.15	2.50	1.10
P-023	3.85	10.97	7.96	0.07	1.19	0.52
P-024	31.28	89.21	64.77	0.59	9.65	4.26
P-025	22.18	63.25	45.92	0.42	6.84	3.02

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-026	18.32	22.26	68.80	0.33	6.09	2.83
P-027	18.46	52.65	38.22	0.35	5.69	2.51
P-028	15.12	18.37	56.79	0.27	5.03	2.34
P-030	20.74	18.62	101.80	0.28	5.49	2.59
P-031	1.89	2.06	13.35	0.03	0.64	0.30
P-032	35.40	281.62	401.98	0.77	15.86	7.42
P-033	78.41	70.40	384.86	1.07	20.75	9.78
P-034	67.67	192.98	140.11	1.28	20.87	9.21
P-035	1.01	1.10	7.12	0.02	0.34	0.16
P-036	76.45	232.06	183.83	1.45	23.96	10.60
P-037	7.71	6.93	37.87	0.11	2.04	0.96
P-038	9.40	8.44	46.14	0.13	2.49	1.17
P-039	16.75	47.76	34.67	0.32	5.17	2.28
P-040	5.14	4.62	25.24	0.07	1.36	0.64
P-041	3.38	4.11	12.69	0.06	1.12	0.52
P-042	2.57	2.31	12.62	0.04	0.68	0.32
P-043	2.40	2.16	11.79	0.03	0.64	0.30
P-044	2.37	2.59	16.73	0.04	0.81	0.38
P-045	1.89	2.06	13.35	0.03	0.64	0.30
P-046	10.38	8.52	57.64	0.10	2.04	1.04
P-047	21.96	19.72	107.80	0.30	5.81	2.74
P-048	3.16	2.84	15.52	0.04	0.84	0.39
P-049	4.81	4.31	23.59	0.07	1.27	0.60
P-050	4.40	35.04	50.01	0.10	1.97	0.92
P-051	1.48	1.32	7.24	0.02	0.39	0.18
P-052	3.46	3.10	16.97	0.05	0.91	0.43
P-053	6.79	6.09	33.31	0.09	1.80	0.85
P-054	10.03	9.01	49.25	0.14	2.65	1.25
P-055	24.77	197.09	281.32	0.54	11.10	5.19
P-056	0.22	0.27	0.84	0.00	0.07	0.03
P-057	0.89	2.54	1.84	0.02	0.27	0.12
P-058	8.39	8.89	25.96	0.13	2.30	1.10
P-059	10.24	9.20	50.28	0.14	2.71	1.28
P-060	0.25	1.97	2.81	0.01	0.11	0.05
P-061	7.48	21.33	15.48	0.14	2.31	1.02
R-001	33.06	53.52	219.33	0.95	18.13	7.56
R-002	12.45	35.51	25.78	0.24	3.84	1.69
R-003	14.72	17.88	55.27	0.27	4.89	2.28
R-004	5.44	5.94	38.45	0.09	1.85	0.87

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-005	15.31	44.19	185.24	0.74	14.13	5.88
R-006	1.94	2.12	13.71	0.03	0.66	0.31
R-007	3.09	24.57	35.07	0.07	1.38	0.65
R-008	0.90	0.73	4.97	0.01	0.18	0.09
R-009	483.24	3,844.34	5,487.47	10.50	216.49	101.24
R-010	1.30	10.32	14.73	0.03	0.58	0.27
R-011	8.19	13.26	54.33	0.24	4.49	1.87
R-012	3.38	26.88	38.37	0.07	1.51	0.71
R-013	0.13	0.11	0.62	0.00	0.03	0.02
R-014	0.21	1.69	2.41	0.00	0.10	0.04
R-015	7.24	6.50	35.53	0.10	1.92	0.90
R-016	0.06	0.06	0.32	0.00	0.02	0.01
R-017	6.92	7.56	48.96	0.12	2.36	1.10
R-018	204.00	247.84	766.09	3.69	67.84	31.56
R-019	1.38	1.51	9.79	0.02	0.47	0.22
R-020	31.23	89.06	64.66	0.59	9.63	4.25
R-021	0.63	0.57	3.10	0.01	0.17	0.08
R-022	0.38	0.34	1.86	0.01	0.10	0.05
R-023	0.44	3.52	5.03	0.01	0.20	0.09
R-024	210.79	189.25	1,034.58	2.88	55.77	26.29
R-025	5.23	5.72	37.03	0.09	1.79	0.84
R-026	46.06	169.90	321.69	0.98	19.01	8.64
R-027	0.20	1.58	2.26	0.00	0.09	0.04
R-028	3.24	2.66	18.00	0.03	0.64	0.33
R-029	0.21	1.66	2.37	0.00	0.09	0.04
R-030	11.48	91.35	130.39	0.25	5.14	2.41
R-031	0.91	0.99	6.41	0.02	0.31	0.14
R-032	1.23	9.75	13.92	0.03	0.55	0.26
R-033	0.75	0.83	5.34	0.01	0.26	0.12
R-034	0.28	0.36	1.47	0.01	0.12	0.05
R-035	2.57	2.81	18.16	0.04	0.88	0.41
R-036	1.56	1.71	11.04	0.03	0.53	0.25
R-037	0.33	2.63	3.75	0.01	0.15	0.07
R-038	0.19	1.53	2.19	0.00	0.09	0.04
R-039	16.95	15.22	83.18	0.23	4.48	2.11
R-040	0.13	1.05	1.50	0.00	0.06	0.03
R-041	0.53	0.68	2.80	0.01	0.23	0.10
R-042	25.21	22.63	123.74	0.34	6.67	3.14
R-043	2.11	1.89	10.35	0.03	0.56	0.26

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

Project ID	VOC	NOx	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
R-044	0.22	1.75	2.50	0.00	0.10	0.05
R-045	0.88	1.12	4.59	0.02	0.37	0.16
R-046	1.51	1.36	7.42	0.02	0.40	0.19
R-047	2.30	6.57	4.77	0.04	0.71	0.31
R-048	4.15	32.98	47.07	0.09	1.86	0.87
R-049	7.50	6.15	41.65	0.07	1.47	0.75
R-050	0.16	0.15	0.79	0.00	0.04	0.02
R-051	0.13	1.03	1.48	0.00	0.06	0.03
R-052	1.35	1.21	6.62	0.02	0.36	0.17
R-053	1.22	1.10	6.00	0.02	0.32	0.15
R-054	1.05	0.95	5.17	0.01	0.28	0.13
R-055	0.84	0.76	4.14	0.01	0.22	0.11
R-056	3.03	3.87	15.84	0.07	1.29	0.54
R-057	3.87	4.71	14.55	0.07	1.29	0.60
R-058	0.15	1.20	1.72	0.00	0.07	0.03
R-059	0.22	1.77	2.53	0.00	0.10	0.05
R-060	2.44	3.95	16.20	0.07	1.34	0.56
R-061	23.42	186.33	265.97	0.51	10.49	4.91
R-062	0.10	0.80	1.14	0.00	0.05	0.02
R-063	0.53	0.58	3.74	0.01	0.18	0.08
R-064	0.21	0.19	1.03	0.00	0.06	0.03
R-065	2.61	2.35	12.83	0.04	0.69	0.33
R-066	0.34	2.69	3.84	0.01	0.15	0.07
RC-001	52.74	47.35	258.85	0.72	13.95	6.58
RC-002	84.32	75.70	413.83	1.15	22.31	10.52
RC-003	143.84	129.15	706.00	1.96	38.06	17.94
RC-005	31.62	28.39	155.19	0.43	8.37	3.94
RC-006	14.42	23.35	95.70	0.41	7.91	3.30
RC-007	33.91	96.69	70.19	0.64	10.46	4.61
RC-009	26.81	28.58	84.66	0.41	7.47	3.54
RC-010	139.95	170.02	525.55	2.53	46.54	21.65
RC-011	17.39	49.60	36.01	0.33	5.36	2.37
RC-012	9.56	11.62	35.91	0.17	3.18	1.48
RC-013	20.95	18.81	102.84	0.29	5.54	2.61
RC-014	8.05	8.80	56.97	0.14	2.75	1.28
RC-015	5.99	5.37	29.38	0.08	1.58	0.75
RC-017	0.51	4.06	5.80	0.01	0.23	0.11
RC-018	0.63	0.57	3.10	0.01	0.17	0.08
RC-019	2.91	23.12	33.01	0.06	1.30	0.61

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
RC-020	0.15	1.23	1.75	0.00	0.07	0.03
RC-021	0.17	0.49	0.35	0.00	0.05	0.02
RC-022	5.52	4.96	27.11	0.08	1.46	0.69
RC-023	1.18	1.44	4.45	0.02	0.39	0.18
RC-024	4.31	5.23	16.17	0.08	1.43	0.67
RC-025	1.92	2.33	7.21	0.03	0.64	0.30
RC-026	0.08	0.08	0.41	0.00	0.02	0.01
RC-027	4.26	5.17	16.00	0.08	1.42	0.66
RC-028	0.31	2.45	3.50	0.01	0.14	0.06
RC-029	0.45	3.57	5.09	0.01	0.20	0.09
RC-030	26.90	76.73	55.70	0.51	8.30	3.66
RC-031	4.08	4.95	15.31	0.07	1.36	0.63
RC-032	30.61	27.48	150.22	0.42	8.10	3.82
RC-033	16.19	14.53	79.46	0.22	4.28	2.02
RC-034	18.21	16.35	89.39	0.25	4.82	2.27
RC-035	121.40	110.21	602.02	1.68	32.62	15.33
RC-036	19.73	17.71	96.84	0.27	5.22	2.46
RC-037	23.69	21.27	116.29	0.32	6.27	2.96
RC-038	38.97	111.14	80.69	0.74	12.02	5.30
RC-039	1.64	1.48	8.07	0.02	0.44	0.21
RD-001	3.46	3.10	16.97	0.05	0.91	0.43
RD-002	2.32	2.08	11.38	0.03	0.61	0.29
RD-003	4.34	3.90	21.31	0.06	1.15	0.54
RD-004	2.82	2.54	13.86	0.04	0.75	0.35
RD-005	10.70	30.51	22.15	0.20	3.30	1.46
RD-006	2.65	21.12	30.15	0.06	1.19	0.56
RD-007	7.03	55.95	79.86	0.15	3.15	1.47
RD-008	2.01	2.20	14.24	0.03	0.69	0.32
RD-009	2.41	19.18	27.38	0.05	1.08	0.51
RD-010	3.28	3.98	12.31	0.06	1.09	0.51
RD-011	3.05	24.29	34.67	0.07	1.37	0.64
RD-012	12.85	36.64	26.60	0.24	3.96	1.75
RD-013	21.65	61.73	44.82	0.41	6.68	2.95
RD-014	16.50	47.04	34.15	0.31	5.09	2.24
RD-015	9.04	25.78	18.71	0.17	2.79	1.23
RD-016	15.27	43.56	31.62	0.29	4.71	2.08
SB-001	13.13	37.44	27.18	0.25	4.05	1.79
SB-002	6.70	19.10	13.87	0.13	2.07	0.91
SB-003	12.68	36.17	26.26	0.24	3.91	1.73

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

Project ID	VOC	NOx	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
SB-004	16.62	47.39	34.40	0.31	5.12	2.26
SB-005	6.03	17.18	12.48	0.11	1.86	0.82
SB-006	11.60	33.09	24.02	0.22	3.58	1.58
SB-007	1.43	1.29	7.04	0.02	0.38	0.18
SB-008	1.69	1.51	8.28	0.02	0.45	0.21
SJ-001	92.39	735.02	1,049.18	2.01	41.39	19.36
SJ-002	13.53	12.15	66.42	0.18	3.58	1.69
SJ-003	24.45	21.95	120.01	0.33	6.47	3.05
SJ-004	25.84	23.20	126.84	0.35	6.84	3.22
Total	5,915.42	15,683.32	31,942.02	107.61	2,015.08	921.24
Proposed Project	363	1,432	978	10	388	125

**6.3.2.1.2 Cumulative Construction Emissions**

Detailed research was conducted to identify as much information on the remaining projects that did not have environmental documents with construction and operational emissions available. However, complete project descriptions and detailed construction schedules were not available for every single project within the cumulative analysis limits. Therefore, with the information that was accumulated, modeling was conducted to estimate construction emissions generated from these cumulative projects. Due to the high number of projects that required modeling, project construction phase duration was based on CalEEMod default lengths and equipment based on site acreage. Construction work days was based on a 6-day work week. Default construction phase equipment levels out at a 200-acre project site. Therefore, all projects larger than 200 acres utilizes assumptions for a 200-acre site and a multiplier is used for the remaining acreage.

Offsite mobile source emissions related to construction are calculated using EMFAC2017 and include construction worker commuting (for all phases of construction), vendor trucks (during building construction phase) and haul trucks (during site prep and excavation phases for projects from 5-40 acres in construction area).

Trip rates are based on the ITE 10<sup>th</sup> Edition with the trip lengths for all other land uses based on CalEEMod defaults including primary trips, diverted trips, and pass-by trip lengths. Vehicle distribution between vehicle categories for these land uses are based on EMFAC2017 vehicle distribution for SCAQMD for 2020. The EMFAC vehicle categories are re-grouped into the same 4 groups used for logistics calculations (Passenger Cars, Light Trucks, Medium Trucks and Heavy Truck).

Out of the 359 cumulative projects that were evaluated, 67 were found to be completed with construction or currently undergoing construction as of November 2019 and have not been included in the analysis. Therefore, 289 potentially cumulative projects could undergo construction activities during the project's 15-year construction period. Results of the cumulative construction emissions analysis is provided in Table 6.3-3

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

Project ID	VOC	NOx	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
B-001	44.69	376.90	473.29	1.42	102.99	39.27
B-003	24.45	125.63	81.59	0.18	21.06	13.09

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
B-004	292.73	62.82	57.85	0.17	11.53	6.55
B-006	312.85	62.82	60.42	0.18	12.22	6.55
B-007	20.93	62.82	40.79	0.08	10.53	6.55
B-008	17.31	125.63	81.59	0.16	21.06	13.09
B-009	73.24	546.63	794.59	2.46	181.44	58.73
B-010	30.79	73.66	43.56	0.11	10.53	6.54
B-011	104.50	42.48	22.27	0.05	20.47	12.01
B-013	26.80	251.27	215.45	0.60	42.12	26.18
B-014	18.67	125.63	81.59	0.16	21.06	13.09
C-001	103.21	42.48	22.27	0.05	10.53	6.54
C-002	319.38	62.82	71.93	0.23	15.36	6.55
C-003	67.60	26.80	16.20	0.04	4.54	2.64
H-001	30.44	62.82	40.79	0.08	10.53	6.55
H-002	22.83	62.82	40.79	0.08	10.53	6.55
H-003	24.69	125.63	81.59	0.18	21.06	13.09
H-004	292.08	62.82	57.77	0.17	11.51	6.55
H-005	38.99	9.21	8.05	0.01	0.92	0.66
H-006	315.70	62.82	40.79	0.08	10.53	6.54
H-007	30.23	62.82	40.79	0.08	10.53	6.55
H-008	20.38	62.82	40.79	0.08	10.53	6.55
M-001	333.75	106.20	51.85	0.21	11.65	6.54
M-003	359.18	66.98	83.09	0.27	18.36	6.55
M-004	101.14	26.80	16.81	0.04	4.54	2.64
M-005	184.81	89.12	114.68	0.39	26.92	8.65
M-006	101.90	42.48	22.27	0.05	20.47	12.01
M-007	313.29	73.66	43.56	0.11	10.53	6.54
M-008	300.51	125.63	94.68	0.32	21.51	13.09
M-009	27.88	62.82	40.79	0.08	10.53	6.55
M-010	259.30	68.24	42.18	0.10	10.53	6.54
M-011	62.32	21.38	16.09	0.03	4.05	2.46
MV-001	141.34	42.48	22.27	0.06	20.47	12.01
MV-002	39.47	62.82	40.79	0.08	10.53	6.55
MV-003	280.95	62.82	69.47	0.22	14.67	6.55
MV-005	108.06	26.80	16.98	0.04	4.54	2.64
MV-006	347.82	73.66	43.56	0.11	10.53	6.54
MV-007	17.70	42.48	22.27	0.05	20.47	12.01
MV-008	32.90	68.24	42.18	0.10	10.53	6.54
MV-009	7.12	42.48	22.27	0.04	10.53	6.54
MV-010	26.70	68.24	42.18	0.10	10.53	6.54

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-011	13.75	42.48	22.27	0.05	20.47	12.01
MV-013	55.83	9.32	8.06	0.01	0.92	0.66
MV-014	22.14	73.66	43.56	0.11	10.53	6.55
MV-015	35.69	73.66	43.56	0.11	10.53	6.54
MV-016	18.26	68.24	42.18	0.10	10.53	6.54
MV-017	31.11	73.66	43.56	0.11	10.53	6.54
MV-021	74.37	26.80	16.67	0.04	4.54	2.64
MV-023	74.90	73.66	43.56	0.11	10.53	6.54
MV-024	24.12	62.82	40.79	0.08	10.53	6.55
MV-025	26.27	73.66	43.56	0.11	10.53	6.54
MV-026	32.40	73.66	43.56	0.11	10.53	6.54
MV-027	19.03	42.48	22.27	0.04	10.53	6.54
MV-028	28.42	42.48	22.27	0.05	20.47	12.01
MV-029	28.42	62.82	40.79	0.08	10.53	6.55
MV-030	26.91	73.66	43.56	0.11	10.53	6.54
MV-031	30.08	68.24	42.18	0.10	10.53	6.54
MV-032	23.78	73.66	43.56	0.11	10.53	6.55
MV-033	30.64	68.24	42.18	0.10	10.53	6.54
MV-034	29.52	68.24	42.18	0.10	10.53	6.54
MV-035	14.32	42.48	22.27	0.05	20.47	12.01
MV-040	91.42	21.38	17.08	0.03	4.05	2.46
MV-041	384.38	62.82	51.66	0.15	10.53	6.54
MV-042	207.10	68.24	42.18	0.10	10.53	6.54
MV-044	294.12	73.66	43.95	0.12	10.53	6.54
MV-045	80.96	26.80	16.44	0.04	4.54	2.64
MV-047	9.25	42.48	22.27	0.05	20.47	12.01
MV-054	293.41	62.82	57.90	0.17	11.54	6.55
MV-056	9.25	42.48	22.27	0.05	20.47	12.01
MV-057	21.07	68.24	42.18	0.10	10.53	6.54
MV-059	35.69	73.66	43.56	0.11	10.53	6.54
MV-060	29.81	73.66	43.56	0.11	10.53	6.54
MV-061	92.91	42.48	22.27	0.05	10.53	6.54
MV-062	28.13	62.82	40.79	0.08	10.53	6.55
MV-063	33.43	62.82	40.79	0.08	10.53	6.55
MV-064	28.20	73.66	43.56	0.11	10.53	6.54
MV-065	18.33	42.48	22.27	0.04	10.53	6.54
MV-066	78.83	68.24	42.18	0.10	10.53	6.54
MV-067	24.42	62.82	40.79	0.08	10.53	6.55
MV-068	106.87	42.48	22.27	0.05	10.53	6.54

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-070	75.70	68.24	42.18	0.10	10.53	6.54
MV-071	17.29	42.48	22.27	0.04	10.53	6.54
MV-072	15.26	21.38	15.73	0.03	4.05	2.46
MV-073	30.30	42.48	22.27	0.05	20.47	12.01
MV-074	21.80	62.82	40.79	0.08	10.53	6.55
MV-075	22.55	125.63	136.89	0.35	28.53	13.09
MV-076	144.64	42.48	22.32	0.06	20.47	12.01
MV-077	247.25	73.66	43.56	0.11	10.53	6.54
MV-079	170.32	42.48	24.86	0.06	20.47	12.01
MV-080	41.29	21.38	15.72	0.03	4.05	2.46
MV-085	72.32	42.48	22.27	0.05	10.53	6.54
MV-087	21.11	42.48	22.27	0.04	10.53	6.54
MV-088	15.26	9.05	8.05	0.01	0.92	0.66
MV-089	15.26	9.05	8.05	0.01	0.92	0.66
MV-090	13.79	9.03	8.05	0.01	0.92	0.66
MV-091	28.20	73.66	43.56	0.11	10.53	6.54
MV-094	83.53	73.66	43.56	0.11	10.53	6.54
MV-095	90.34	42.48	22.27	0.05	10.53	6.54
MV-096	44.13	73.66	43.56	0.11	10.53	6.54
MV-097	32.38	62.82	40.79	0.08	10.53	6.55
MV-098	9.25	42.48	22.27	0.05	20.47	12.01
MV-099	30.30	42.48	22.27	0.05	20.47	12.01
MV-100	60.98	68.24	42.18	0.10	10.53	6.54
MV-101	16.92	9.03	8.05	0.01	0.92	0.66
MV-102	78.08	26.80	16.75	0.04	4.54	2.64
MV-103	94.99	42.48	22.27	0.05	10.53	6.54
MV-104	173.12	42.48	24.97	0.06	20.47	12.01
MV-105	15.26	9.05	8.05	0.01	0.92	0.66
MV-106	15.26	9.05	8.05	0.01	0.92	0.66
MV-107	10.37	21.38	15.09	0.03	4.05	2.46
MV-108	5.75	8.94	8.05	0.01	0.92	0.66
MV-109	29.21	125.63	81.59	0.20	21.06	13.09
MV-110	21.11	42.48	22.27	0.04	10.53	6.54
MV-111	10.26	21.38	15.45	0.03	4.05	2.46
MV-112	19.01	9.06	8.05	0.01	0.92	0.66
MV-113	29.72	62.82	40.79	0.08	10.53	6.55
MV-114	10.81	8.94	8.05	0.01	0.92	0.66
MV-115	0.90	8.94	8.05	0.01	0.92	0.66
MV-116	14.32	42.48	22.27	0.05	20.47	12.01

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-117	48.43	21.38	16.04	0.03	4.05	2.46
MV-118	10.37	21.38	15.09	0.03	4.05	2.46
MV-119	19.95	68.24	42.18	0.10	10.53	6.54
MV-120	97.82	42.48	22.27	0.05	10.53	6.54
MV-121	8.31	8.94	8.05	0.01	0.92	0.66
MV-123	26.18	9.12	8.05	0.01	0.92	0.66
MV-124	72.32	42.48	22.27	0.05	10.53	6.54
MV-125	15.26	21.38	15.73	0.03	4.05	2.46
MV-126	24.32	62.82	40.79	0.08	10.53	6.55
MV-127	157.82	42.48	24.23	0.05	20.47	12.01
MV-129	266.75	62.82	54.48	0.16	10.62	6.55
MV-130	103.06	42.48	22.27	0.05	20.47	12.01
MV-131	253.26	62.82	52.74	0.15	10.53	6.55
MV-132	291.63	73.66	43.76	0.12	10.53	6.54
P-004	88.81	42.48	22.27	0.05	10.53	6.54
P-005	213.42	68.24	42.18	0.10	10.53	6.54
P-006	278.31	73.66	43.56	0.11	10.53	6.54
P-007	315.44	62.82	45.72	0.13	10.53	6.54
P-008	111.93	42.48	22.27	0.05	20.47	12.01
P-009	297.77	73.66	43.56	0.11	10.53	6.54
P-012	210.69	68.24	42.18	0.10	10.53	6.54
P-014	318.13	73.66	45.91	0.13	10.53	6.54
P-022	176.35	42.48	25.12	0.06	20.47	12.01
P-023	92.93	42.48	22.27	0.05	10.53	6.54
P-024	388.08	62.82	51.96	0.15	10.53	6.54
P-025	481.27	73.66	43.56	0.12	10.53	6.54
P-026	376.38	73.66	43.56	0.11	10.53	6.54
P-028	310.75	73.66	43.56	0.11	10.53	6.54
P-030	25.50	62.82	40.79	0.08	10.53	6.55
P-031	26.33	42.48	22.27	0.05	10.53	6.54
P-032	298.19	62.82	40.79	0.08	10.53	6.54
P-033	33.66	188.45	159.91	0.44	31.59	19.64
P-034	392.21	71.06	88.92	0.29	19.94	6.63
P-035	25.27	21.38	16.24	0.03	4.05	2.46
P-036	295.79	76.13	95.90	0.32	21.83	7.18
P-039	363.44	73.66	43.56	0.11	10.53	6.54
P-040	25.21	73.66	43.56	0.11	10.53	6.55
P-041	77.34	42.48	22.27	0.05	10.53	6.54
P-042	34.59	68.24	42.18	0.10	10.53	6.54

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-043	32.33	68.24	42.18	0.10	10.53	6.54
P-044	29.67	42.48	22.27	0.05	20.47	12.01
P-045	26.33	42.48	22.27	0.05	10.53	6.54
P-046	24.80	62.82	40.79	0.08	10.53	6.55
P-047	26.99	62.82	40.79	0.08	10.53	6.55
P-048	42.44	73.66	43.56	0.11	10.53	6.54
P-049	23.58	73.66	43.56	0.11	10.53	6.55
P-050	74.37	26.80	16.33	0.04	4.54	2.64
P-051	19.95	68.24	42.18	0.10	10.53	6.54
P-052	26.59	73.66	43.56	0.11	10.53	6.54
P-053	24.42	62.82	40.79	0.08	10.53	6.55
P-054	24.63	62.82	40.79	0.08	10.53	6.55
P-055	208.76	73.66	43.56	0.11	10.53	6.54
P-056	18.50	9.04	8.05	0.01	0.92	0.66
P-057	77.42	9.50	8.32	0.01	0.92	0.66
P-058	175.42	42.48	25.05	0.06	20.47	12.01
P-059	25.14	62.82	40.79	0.08	10.53	6.55
P-060	8.58	8.94	8.05	0.01	0.92	0.66
R-004	67.87	68.24	42.18	0.10	10.53	6.54
R-005	231.96	73.66	43.56	0.11	10.53	6.54
R-006	27.03	42.48	22.27	0.05	10.53	6.54
R-007	52.22	21.38	15.90	0.03	4.05	2.46
R-008	11.83	42.48	22.27	0.05	20.47	12.01
R-009	188.82	306.26	346.75	1.31	85.98	26.96
R-010	43.91	9.22	8.05	0.01	0.92	0.66
R-011	158.12	42.48	24.27	0.06	20.47	12.01
R-012	57.11	21.38	16.01	0.03	4.05	2.46
R-013	7.00	8.94	8.05	0.01	0.92	0.66
R-014	7.39	8.94	8.05	0.01	0.92	0.66
R-015	26.03	62.82	40.79	0.08	10.53	6.55
R-016	3.68	8.94	8.05	0.01	0.92	0.66
R-017	86.35	73.66	43.56	0.11	10.53	6.54
R-018	195.56	320.38	432.25	1.53	108.77	33.16
R-019	19.37	42.48	22.27	0.04	10.53	6.54
R-020	387.41	62.82	51.92	0.15	10.53	6.54
R-021	9.63	42.48	22.27	0.04	10.53	6.54
R-022	10.37	21.38	15.09	0.03	4.05	2.46
R-023	15.14	9.03	8.05	0.01	0.92	0.66
R-024	79.77	591.67	872.83	2.73	202.55	64.74

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-025	65.37	68.24	42.18	0.10	10.53	6.54
R-026	268.27	62.82	53.47	0.16	10.53	6.55
R-027	6.95	8.94	8.05	0.01	0.92	0.66
R-028	24.21	73.66	43.56	0.11	10.53	6.54
R-029	7.28	8.94	8.05	0.01	0.92	0.66
R-030	107.62	42.48	22.27	0.05	10.53	6.54
R-031	22.77	21.38	16.09	0.03	4.05	2.46
R-032	41.51	9.22	8.05	0.01	0.92	0.66
R-033	19.02	21.38	15.92	0.03	4.05	2.46
R-034	22.79	9.04	8.05	0.01	0.92	0.66
R-035	32.18	42.48	22.27	0.05	20.47	12.01
R-036	21.81	42.48	22.27	0.04	10.53	6.54
R-037	11.36	8.94	8.05	0.01	0.92	0.66
R-038	6.73	8.94	8.05	0.01	0.92	0.66
R-039	20.88	62.82	40.79	0.08	10.53	6.55
R-040	4.69	8.94	8.05	0.01	0.92	0.66
R-041	43.09	9.22	8.05	0.01	0.92	0.66
R-042	30.95	62.82	40.79	0.08	10.53	6.55
R-043	28.39	68.24	42.18	0.10	10.53	6.54
R-044	7.66	8.94	8.05	0.01	0.92	0.66
R-045	70.54	9.49	8.23	0.01	0.92	0.66
R-046	20.42	68.24	42.18	0.10	10.53	6.54
R-047	100.07	21.38	17.27	0.03	4.05	2.46
R-048	70.01	26.80	16.26	0.04	4.54	2.64
R-049	26.21	62.82	40.79	0.08	10.53	6.55
R-050	4.56	21.38	15.01	0.03	4.05	2.46
R-051	4.62	8.94	8.05	0.01	0.92	0.66
R-052	18.26	68.24	42.18	0.10	10.53	6.54
R-053	16.57	42.48	22.27	0.05	20.47	12.01
R-054	14.32	42.48	22.27	0.05	20.47	12.01
R-055	11.50	42.48	22.27	0.05	20.47	12.01
R-056	67.70	42.48	22.27	0.05	10.53	6.54
R-057	88.61	42.48	22.27	0.05	10.53	6.54
R-058	5.33	8.94	8.05	0.01	0.92	0.66
R-059	7.75	8.94	8.05	0.01	0.92	0.66
R-060	94.37	26.80	17.12	0.04	4.54	2.64
R-061	197.38	42.48	24.31	0.06	20.47	12.01
R-062	3.64	8.94	8.05	0.01	0.92	0.66
R-063	13.39	21.38	15.65	0.03	4.05	2.46

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-064	5.87	21.38	15.01	0.03	4.05	2.46
R-065	35.15	68.24	42.18	0.10	10.53	6.54
R-066	11.64	9.03	8.05	0.01	0.92	0.66
RC-001	22.86	188.45	127.47	0.33	31.59	19.64
RC-002	28.29	251.27	223.10	0.62	43.72	26.18
RC-003	45.70	376.90	485.41	1.46	106.26	39.27
RC-005	19.97	125.63	81.59	0.16	21.06	13.09
RC-006	278.31	62.82	40.79	0.08	10.53	6.54
RC-007	267.88	62.82	54.66	0.16	10.66	6.55
RC-009	319.91	62.82	46.13	0.13	10.53	6.54
RC-010	262.94	125.63	154.62	0.54	37.73	13.09
RC-011	377.48	73.66	43.56	0.11	10.53	6.54
RC-012	196.58	42.48	26.05	0.06	20.47	12.01
RC-013	25.76	62.82	40.79	0.08	10.53	6.55
RC-014	100.41	73.66	43.56	0.11	10.53	6.54
RC-015	29.31	62.82	40.79	0.08	10.53	6.55
RC-017	17.44	9.03	8.05	0.01	0.92	0.66
RC-018	9.63	42.48	22.27	0.04	10.53	6.54
RC-019	49.16	21.38	15.83	0.03	4.05	2.46
RC-020	5.43	8.94	8.05	0.01	0.92	0.66
RC-021	15.07	9.03	8.05	0.01	0.92	0.66
RC-022	27.06	62.82	40.79	0.08	10.53	6.55
RC-023	48.84	21.38	16.08	0.03	4.05	2.46
RC-024	98.49	42.48	22.27	0.05	10.53	6.54
RC-025	79.01	21.38	16.75	0.03	4.05	2.46
RC-026	4.75	8.94	8.05	0.01	0.92	0.66
RC-027	97.40	42.48	22.27	0.05	10.53	6.54
RC-028	10.62	8.94	8.05	0.01	0.92	0.66
RC-029	15.33	9.03	8.05	0.01	0.92	0.66
RC-030	333.77	73.66	47.21	0.13	10.53	6.54
RC-031	93.24	42.48	22.27	0.05	10.53	6.54
RC-032	19.35	125.63	81.59	0.16	21.06	13.09
RC-033	19.95	62.82	40.79	0.08	10.53	6.55
RC-034	22.42	62.82	40.79	0.08	10.53	6.55
RC-035	77.66	314.09	373.58	1.10	80.19	32.73
RC-036	24.27	62.82	40.79	0.08	10.53	6.55
RC-037	29.10	62.82	40.79	0.08	10.53	6.55
RC-038	307.88	62.82	59.75	0.18	12.04	6.55
RC-039	22.20	68.24	42.18	0.10	10.53	6.54

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
RD-003	33.37	73.66	43.56	0.11	10.53	6.54
RD-004	37.94	73.66	43.56	0.11	10.53	6.54
RD-006	44.93	21.38	15.76	0.03	4.05	2.46
RD-007	118.61	26.80	17.13	0.04	4.54	2.64
RD-008	25.29	42.48	22.27	0.05	20.47	12.01
RD-009	40.83	21.38	15.72	0.03	4.05	2.46
RD-010	75.04	42.48	22.27	0.05	10.53	6.54
RD-011	51.63	21.38	15.90	0.03	4.05	2.46
SB-007	19.39	68.24	42.18	0.10	10.53	6.54
SB-008	22.76	68.24	42.18	0.10	10.53	6.54
SJ-001	283.22	62.82	49.56	0.15	10.53	6.55
SJ-002	16.72	62.82	40.79	0.08	10.53	6.55
SJ-003	30.03	62.82	40.79	0.08	10.53	6.55
SJ-004	31.72	62.82	40.79	0.08	10.53	6.55
<b>Total</b>	<b>24,780.64</b>	<b>17,509.64</b>	<b>13,633.42</b>	<b>35.53</b>	<b>3,808.65</b>	<b>2,049.37</b>
Proposed Project	164	191	993	2	174	44

**6.3.2.1.3 Localized Operations and Construction**

The localized significance threshold (LST) analysis includes three cumulative projects (MV-5, MV-6, and MV-126) that are located within 1,000 feet of the proposed Project boundary (see Figure 6.3-2) and is focused on two scenarios:

1. Construction year (2020) when all cumulative projects and the proposed Project are assumed to begin construction.
2. Full Build Out (2035) when all cumulative projects and the proposed Project are assumed to begin full operations.

It is assumed that the construction start year of 2020 is the worst-case overlap condition for cumulative projects and the proposed Project. The duration of construction for cumulative projects was estimated using CalEEMod default assumes based on site acreage. Based on site acreage, total construction duration for cumulative projects MV-5 and MV-6 are assumed to be approximately one year and MV-126 is assumed to be approximately 5.6 years. Because MV-5 and MV-6 are only anticipated to require one year of construction (2020), the first year of Project construction (2020) is when the assumed overlap would occur. Therefore, the cumulative LST analysis assumes a worst-case construction overlap year of 2020.

Pursuant to the SCAQMD’s LST methodology, only emissions generated from emission sources located within and along the project boundaries are included in the LST assessment. These emission sources include vehicle travel on the roadway network within and along the borders of the project and emissions from support equipment including forklifts, yard/hostler trucks, and emergency standby electric generators.

The cumulative projects’ emissions that were accumulated and calculated then served as input into the air dispersion model (AERMOD) to derive estimates of the projects’ localized air quality impacts for each potential scenario.

**6.3.2.1.4 Health Risk**

*Geographic Scope of the Cumulative Health Risk Assessment (HRA)*

To assess the regional cumulative impact of the identified 359 projects in addition to that of the Project's, both the universe of the emission sources and air dispersion model receptors were greatly expanded in this cumulative HRA. The air dispersion models included 99 grid area sources (each grid cell is 5 km by 5 km) covering an area of 2,475 square kilometers (km<sup>2</sup>) to represent the onsite and surface street emissions of all cumulative projects, and 63 freeway mainline segments for warehouse projects in the region that may overlap with the traffic routes of the Project. The modeled freeway segments extended from North Palm Springs to Long Beach in the east-west direction and from Rancho Cucamonga to Hemet/San Jacinto in the north-south direction, roughly an area of 3,500 square miles radiating from the cumulative project sites to the north, south, east, and west. The analysis covered major portions of the following freeways from North Palm Springs to the ports of Los Angeles and Long Beach: Interstate 10, State Route 60, State Route 91, Interstate 215, and Interstate 710.

The expanded geographic scope of the assessment also necessitated an expansion in the locations of the receptors where the cumulative projects' impacts were calculated. This expanded network included grid receptors that cover the entire study domain, locations of individual schools within 0.5 mile of the modeled freeway segments and those in the Moreno Valley School District, and over 2,300 census tract centroid locations.

Finally, it is recognized that because of the large geographical extent of the region covered in this cumulative HRA, meteorological conditions differ for different portions of the study region. The air dispersion modeling was separated into two separate pieces as follows. Those emission sources located east of SR-71 were assumed to be influenced by the meteorological conditions represented by the Riverside meteorological (MET) data. Those emission sources located west of SR-71 were assumed to be influenced by the meteorological conditions represented by the Fullerton MET data. The air dispersion modeling was done separately for the region east of SR-71 and for the region west of SR-71. The air pollutant concentrations at each receptor location were then comprised of the sum of the emission impacts from those sources located east of SR-71 and west of SR-71 as influenced by their respective meteorological conditions.

### *Dispersion Modeling*

The cumulative HRA uses the same air dispersion modeling and health risk calculation methodologies used in the project-level HRA; however, the operational AERMOD model was updated to include emissions sources from the 359 cumulative projects and an expanded receptor grid that covers most of the South Coast Air Basin. Operational emissions sources were classified as freeway or non-freeway emissions. Non-freeway emissions included onsite and surface street emissions, and were modeled as large area sources with release heights of 2 meters for the operation scenario and 5 meters for the construction scenario. The freeway emissions for CA-60, I-215, CA-91, and I-710 were modeled as line volume sources with a release height of 2 meters. To minimize the number of AERMOD runs, unit emission rate was utilized in the dispersion modeling. The modeled freeway segments were divided into nine source groups for flexibility in assigning emission rates that represent the varying trip distribution patterns among those warehouse projects. Two AERMOD runs were conducted, one for emission sources that are east of SR-71, and the other one for freeway emission sources that are west of the SR-71. Pre-processed AERMOD-ready MET data were downloaded from the SCAQMD website, the former model run used the Riverside MET data and the last model run used the Fullerton MET data. Both model runs used the same expanded receptor grid, which includes 5,298 receptors covering areas from North Palm Springs to Long Beach in the east-west direction and from Rancho Cucamonga to Hemet/San Jacinto in the north-south direction, roughly an area of 3,500 square miles radiating from the project site to the north, south, east, and west.

### *Construction Emissions Inventory*

As mentioned above, the environmental document research conducted for the project found that 67 projects are either completely constructed or currently undergoing construction. Therefore, the cumulative construction analysis was conducted for the 289 potentially cumulative projects that could undergo construction activities during the project's 15-year construction period. The analysis compiled a construction emissions inventory based on previously completed CEQA documents for each of the cumulative projects where such documents were available. In most cases, toxic air contaminant (TAC) emissions data were lacking but that of total PM<sub>10</sub> and total organic gas (TOG) emissions were presented in available CEQA documents; therefore, maximum daily construction total PM<sub>10</sub> and TOG emissions data was obtained, which was speciated using the speciation profile developed for the Project HRA presented in Section 4.3 of this Draft Recirculated RSFEIR. For projects where emissions data was unavailable in available CEQA documents, their emissions were estimated based on the land use type and building square footage instead, see details in the air quality section above for detail.

### *Operational Emissions Inventory*

The analysis also compiled an inventory of operational TAC emissions based on previously completed CEQA documents for each of the cumulative projects and included the following two steps:

- Step 1: calculate total freeway and non-freeway diesel particulate matter (DPM) emissions. Because in most cases, operational emissions data were lacking, the operational emission inventory was compiled using a similar method as that of the construction emission inventory. Where a project's emissions were presented in available CEQA documents, maximum daily operational total emissions data was obtained and speciated to individual TAC species using the TAC speciation profile developed under the Project HRA; where a project's emissions data were unavailable in available CEQA documents, emissions were estimated based on building square footage and land use type.

To be conservative, the operational emissions used 2020 emission factors, which considering the continuing advancement in clean combustion technologies and more stringent emission regulations, were expected to result in higher emission rates than if based on emission factors for the future years.

- Step 2: distribute the total freeway and non-freeway emissions to specific source groups. To model the TAC concentrations at specific receptor locations for use in risk calculations, the total TAC emissions need to be distributed to specific sources spatially to match the source groups in AERMOD setup. Due to a lack of readily available information to distribute each of the 359 projects' emissions spatially, this analysis evenly distributed all the non-freeway emissions (e.g., onsite construction and operational emissions, and mobiles source emissions on surface streets) among the 99 area sources for all non-warehouse land use. The analysis developed a ratio of freeway-to-non-freeway traffic based off of the Project HRA trip data. The analysis distributed the freeway emissions evenly across the modeled freeway segments based on segment length and non-freeway emissions to the corresponding area source. The daily TAC emissions in units of pounds per day (lbs/day) were converted to unit of grams per second (g/s) by assuming that all of the cumulative projects will have continuous operation schedules (8,760 hours per year) and construction schedule of 10 hours per day, from 7 am to 5pm. Detailed calculations can be found in Appendix A.3.

### *Risk Calculations*

Two sets of 30-year cancer risk calculations were performed for the identified cumulative projects, one includes the cancer risks from exposure to construction plus operation (Cumulative Construction & Operation HRA), and the other includes 30-year exposure to the full operation of the 359 cumulative projects in addition to the Project (Cumulative Operation HRA). An average construction duration was determined for each of the 99 area sources, with the operation duration of each source equaling the 30 years minus the construction duration.

TAC concentrations at each receptor location were obtained by multiplying the actual TAC emissions in the developed emission inventory with the AERMOD-generated TAC dispersion coefficient (ground level TAC concentration generated using unitized emission rate), which were used to estimate the cancer risk and non-cancer HI at each receptor location, using the same calculation method as described in Section 4.3.6 for the project-level HRA. The following conservative assumptions were made for the cancer risk calculations:

- Cumulative Construction & Operation HRA assumed that a fetus in the 3rd trimester (within the mother's womb) commences its lifetime exposure at beginning of construction so that it is exposed to the full construction impact plus full operational impact;
- Cancer risk calculations for the operational exposure portion of the Cumulative Construction & Operation HRA and those for the 30-year exposure of the Operation HRA were conservatively used the same TAC emission rate that were calculated based on 2020 emission factors for all these years;
- All 5,298 receptors were modeled as residential receptors.

#### **6.3.2.1.5 Cumulative Health Effects**

Potential health effects from the cumulative project emissions are generally characterized using the Project level modeling results (discussed further in Section 4.3) and a comparison of overall emissions. Maximum daily operational and construction emissions were estimated for 349 projects in the region surrounding the Project. Maximum daily operational emissions for all cumulative projects are reflective of year 2035, consistent with the full buildout year for the Project. Construction emissions vary by project but occur within years 2020 through year 2035. To capture both potential operational and construction emissions from the cumulative projects in a single year, either maximum daily operational or construction emissions were used for each project, evaluated on a pollutant basis.

Emissions from cumulative projects would be subject to the similar meteorological and photochemical reaction conditions as the Project assessment. The application of an overall scaling factor based on emissions is likely conservative since the cumulative projects are unlikely to have the same distribution

of mobile emissions to the Los Angeles area as the Project. Details on estimated health effects from cumulative projects are shown in Appendix A.2.

### **6.3.3 Cumulative Impact Evaluation**

According to the SCAQMD, “Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.”<sup>4</sup> A significant impact may occur if a project would exceed an applicable federal or state pollutant threshold.

#### **6.3.3.1 Odors**

*Impact: The project’s contribution to cumulative objectionable odors would be less than cumulatively considerable.*

Threshold:	Would the project create objectionable odors affecting a substantial number of people?
------------	--

### **Cumulative Impact Analysis**

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

As stated previously in Section 4.3.5.1, diesel exhaust and volatile organic compounds (VOCs) would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Currently, there are six occupied single-family homes and associated ranch/farm buildings in various locations on the project site. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, west of Redlands Boulevard, and scattered residences along Gilman Springs Road north of Alessandro Boulevard. Diesel exhaust would also be emitted during operation of the project from the trucks that would visit the project site. However, the concentrations would not be at a level to result in a negative odor response at nearby sensitive or worker receptors. In addition, modern emission control systems on diesel vehicles since 2007 virtually eliminate diesel’s characteristic odor. Further, project mitigation requires that 2010 or newer diesel vehicles be used during construction.

During blow-down maintenance activities, natural gas odors will be present around the SDG&E Compressor Plant located south of the project site. When this portion of the Project is developed, these odors will occasionally be detectable from the industrial warehouse properties adjacent to the SDG&E facility. These odors will be infrequent and odorized natural gas will not be present in high concentrations. Therefore, potential odor impacts from on-site natural gas operations are considered to be less than significant and do not require mitigation.

Adherence to applicable provisions of these rules is standard for all development within the Basin. In addition, conditions for the design of waste storage areas on the proposed site would be established through the permit process to ensure enclosures are appropriately designed and maintained to prevent the proliferation of odors. Solid waste generated by the proposed on-site uses will be collected by a

<sup>4</sup> South Coast Air Quality Management District, Potential Control Strategies to Address [Cumulative Impacts from Air Pollution, White Paper](http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4), Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Page D-2. Accessed September 29, 2019.

contracted waste hauler, ensuring that any odors resulting from on-site uses would be adequately managed.

Of the 173 environmental documents that were evaluated, all found that the respective projects would not create objectionable odors that will affect a substantial number of people and many projects were found to have a less than significant impact or no impact at all. None of the projects were of the type described by the SCAQMD as being associated with substantial odors such as agricultural uses, wastewater treatment plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Furthermore, Project-specific impacts would be less than significant and would not exceed the AQMDs significance threshold for odors.<sup>5</sup> Therefore, impacts associated with this issue would be considered cumulatively less than significant and no mitigation is required.

**Significance Level Before Mitigation:** Less than significant.

**Mitigation Measures:** No mitigation measures are required.

**Significance Level After Mitigation:** Less than significant.

#### 6.3.3.2 Long-term Microscale (CO Hot Spot) Emissions

*Impact:* The project's contribution to cumulative impacts associated with the violation of any air quality standard would be less than cumulatively considerable.

Threshold:	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?  For CO, the applicable thresholds are: <ul style="list-style-type: none"><li>• California State one-hour CO standard of 20.0 ppm; and</li><li>• California State eight-hour CO standard of 9.0 ppm.</li></ul>
------------	--

### Cumulative Impact Analysis

As identified in Section 4.3.5.2, no significant CO hot spot impacts would occur due to project operations. The SCAQMD anticipates that CO emissions in the future will decrease with advances in technology. As previously identified, background concentrations in future years are anticipated to continue to decrease as the concerted effort to improve regional air quality progresses. Therefore, ambient CO concentrations, from cumulative projects, in the future years would generally be lower than existing conditions.

For this project analysis, peak hour traffic volumes, at the intersections with the highest traffic volumes and LOS E or F before mitigation were identified and evaluated for each condition analyzed. In addition, the emission factors for "all" vehicle classes are not adjusted for a project-specific fleet to provide a worst-case scenario. In addition, the emission factors do not take into account the project mitigation reductions from requiring that all diesel trucks are model year 2010 or newer. The project evaluation found that no CO hot spot impacts would occur at intersections with the highest traffic volumes and ranged as LOS E or F.

Furthermore, out of the 173 environmental documents that were reviewed, all projects found that no hot spot impacts would occur with their respective projects. Similar to the project, intersections with the

<sup>5</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

highest traffic volumes and worst LOS were identified and evaluated. No exceedance of significance thresholds was estimated. Furthermore, Project-specific impacts would be less than significant and would not exceed the AQMDs significance threshold for CO hot spot emissions.<sup>6</sup> Based on the analysis and SCAQMD methodology, it is reasonable to assume that a less than significant cumulative CO impact would occur.

**Significance Level Before Mitigation:** Less than significant.

**Mitigation Measures:** No mitigation measures are required.

**Significance Level After Mitigation:** Less than significant.

6.3.3.3 Air Quality Plan Management Plan Consistency

*Impact: The project's contribution to the cumulative conflict with implementation of the applicable air quality plan would be cumulatively considerable.*

Threshold:	Would the project conflict with or obstruct implementation of the applicable air quality plan?
------------	--

**Cumulative Impact Analysis**

As previously stated in Section 4.3.6, according to the SCAQMD, the project is consistent with the AQMP if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (SCAQMD 1993, page 12-3).

As discussed previously in Section 4.3.6.2 Construction Emissions, construction activities associated with the project would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NOx, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>.

In addition, out of the 359 cumulative projects that were evaluated, 67 were found to be completed with construction or currently undergoing construction. Therefore, 289 potentially cumulative projects that could undergo construction activities during the project's 15-year construction period. However, even if none of these 289 cumulative projects undergo construction while the project is under construction, a cumulatively considerable impact will occur because projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>7</sup> As previously stated the Project-specific construction emissions presented in Section 4.3.6.2 exceed the applicable SCAQMD significance thresholds for VOC, NOx, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, a cumulatively considerable impact will occur, despite any potential construction activity associated with another project.

The SCAB is classified as nonattainment for the Federal ambient air quality standards for ozone, PM<sub>10</sub>, or PM<sub>2.5</sub>; therefore, according to this criterion, the project would not be consistent with the AQMP. The regional emissions assume a zero baseline for existing emissions on the project site and therefore assumes that the AQMP had no emissions for the project site. The regional significance thresholds can be interpreted to mean that if project emissions exceed the thresholds, then the project would also not be consistent with the assumptions in the AQMP. The project does not meet this criterion. As previously identified in Section 4.3.6.4 Long-Term Operational Emissions, the long-term operation and combined

<sup>6</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>7</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

construction and operational emissions of the project would contribute to long-term regional air pollutants despite implementation of mitigation measures.

As shown in Table 6.3-2 operational emissions gathered from the environmental documents and modeling show that out of the 359 cumulative projects, 25 cumulative projects were identified as exceeding VOC significance thresholds and 59 projects were identified as exceeding NO<sub>x</sub> thresholds. Table 6.3-3 provides the construction emissions gathered from the environmental documents and modeling. The results show that out of the 359 cumulative projects, 95 cumulative projects were identified as exceeding VOC significance thresholds and 22 projects were identified as exceeding NO<sub>x</sub> thresholds. Those projects that were found to exceed the SCAQMD thresholds were primarily industrial land uses or larger single-family residential developments. The number of each project type is provided in Table 6.3-4. As shown, in Table 6.3-4, up to 43 multi-family residential projects have been proposed, in combination with 115 single-family residences and 10 heavy industrial projects.

The cumulative impacts of all 359 projects have been taken into consideration with the SCAQMD thresholds. However, a cumulatively considerable impact will occur because projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>8</sup> As previously stated the Project-specific operation emissions presented in Section 4.3.6.4 exceed the applicable SCAQMD significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, a cumulatively considerable impact will occur, despite the potential operation of any of the identified cumulative projects.

**Table 6.3-4: Air Quality Cumulative Operation Emissions**

Type of Project	Number Identified within Cumulative Analysis Limits
Business Park	11
Heavy Industrial	10
Light Industrial	39
Medical	4
Office	13
Residential - Assisted Living	10
Single-Family Residential	115
Multi-Family Residential	43
Warehouse	64
Retail	65

Notes:

1) The total number of identified projects exceeds 359 due to the multi-use projects that were identified. These multi-use projects may include residential, retail, and office land uses within one project description.

Source: City of Moreno Valley, 2019

<sup>8</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

**Significance Level Before Mitigation:** Construction of the cumulative projects along with the project would result in cumulatively considerable and potentially significant cumulative air impacts. Implementation of the project would contribute to significant long-term cumulative air quality impacts.

**Mitigation Measures:** As indicated in Section 4.3.6.1 Air Quality Management Plan Consistency, to facilitate monitoring and compliance, applicable SCAQMD regulatory requirements will be implemented. **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.4A** are required and shall be incorporated in all project plans, specifications, and contract documents.

**Significance Level After Mitigation: Significant and Unavoidable.** As noted above, construction and operation of the cumulative projects along with the project would exceed applicable thresholds for all criteria pollutants, with the exception of SO<sub>x</sub>. Despite the implementation of mitigation measures, emissions associated with the project cannot be reduced below the applicable thresholds. The project, in the absence of feasible mitigation to reduce the project's emission of criteria pollutants to below SCAQMD construction and operation thresholds, potential air quality impacts resulting from construction and operation will remain significant and unavoidable. Projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>9</sup> Even with mitigation the Project-specific emissions in combination with any of the cumulative projects that have been identified, will result in a cumulative considerable impact.

#### 6.3.3.4 Construction Emissions

*Impact: The project's contribution to the cumulative exceedance of applicable daily thresholds that may affect sensitive receptors would be cumulatively considerable.*

Threshold:	Would the project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  For construction operations, the applicable daily thresholds are: <ul style="list-style-type: none"><li>• 75 pounds per day of ROC/VOC;</li><li>• 100 pounds per day of NO<sub>x</sub>;</li><li>• 550 pounds per day of CO;</li><li>• 150 pounds per day of PM<sub>10</sub>;</li><li>• 150 pounds per day of SO<sub>x</sub>; and</li><li>• 55 pounds per day of PM<sub>2.5</sub>.</li></ul>
------------	---

#### Cumulative Impact Analysis

The construction analysis discussed in Section 4.3.6.2 Construction Emissions found that construction activities associated with the project would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>. Fugitive dust and exhaust emissions during the anticipated peak construction day for the project would also exceed SCAQMD daily construction thresholds. The percentage of dust and exhaust varies by year but for PM<sub>10</sub> is an average of 85 percent dust and 15 percent exhaust. PM<sub>2.5</sub> has an average of 54 percent

<sup>9</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

dust and 46 percent exhaust. Accordingly, projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>10</sup>

Out of the 359 cumulative projects that were evaluated, 67 were found to be completed with construction or currently undergoing construction as of November 2019. Therefore, 289 potentially cumulative projects could undergo construction activities during the project's 15-year construction period. Construction emissions gathered from the environmental documents and modeling show that out of the 289 cumulative projects, 95 cumulative projects were identified as exceeding VOC significance thresholds, 22 projects were identified as exceeding NO<sub>x</sub> thresholds, and 2 projects would exceed CO, PM<sub>2.5</sub> and PM<sub>10</sub> thresholds. However, even if none of the 289 potential cumulative projects undergo construction while the project is under construction, a cumulatively considerable impact will occur because projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>11</sup> As previously stated the Project-specific construction emissions presented in Section 4.3.6.2 exceed the applicable SCAQMD significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, a cumulatively considerable impact will occur, despite any potential construction activity associated with another project.

**Significance Level Before Mitigation:** Construction of the cumulative projects along with the project would result in cumulatively considerable and potentially significant cumulative air impacts.

**Mitigation Measures:** As identified in Section 4.3.6.2, **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C and 4.3.6.2D** to reduce construction emissions of criteria pollutants are required. The project will also be required to comply with SCAQMD Rules 402 and 403.

**Significance Level After Mitigation:** Despite the implementation of mitigation measures, emissions associated with construction of the Project cannot be reduced below the applicable thresholds. In the absence of feasible mitigation to reduce the Project's emission of criteria pollutants to below SCAQMD thresholds, potential air quality impacts resulting from construction of the Project and potential construction of any of the identified cumulative projects will still be considered cumulatively significant and unavoidable.

---

<sup>10</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

6.3.3.5 Localized Construction and Operational Air Quality Impacts

*Impact: The project's contribution to the cumulative exceedance of localized daily thresholds that may affect sensitive receptors would be cumulatively considerable.*

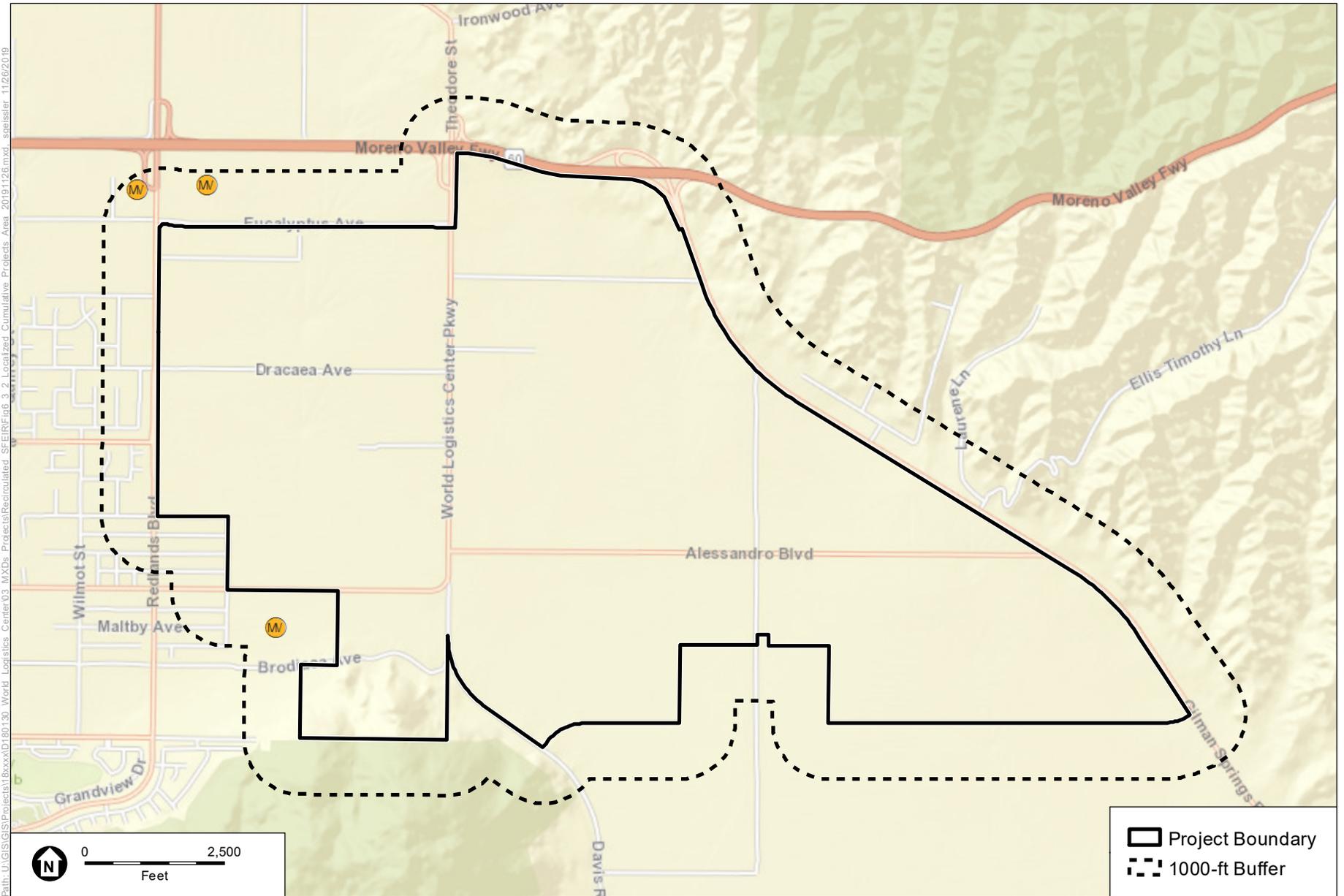
Threshold:	Would the project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  The applicable localized thresholds are: <ul style="list-style-type: none"><li>• 20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction or operation;</li><li>• 0.18 ppm (State 1 hour), 0.100 ppm (National 1 hour), and 0.030 ppm (Annual) of NOX during construction or operation;</li><li>• 10.4 µg/m<sup>3</sup> (24 hours) 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub>; during operation and</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operation</li><li>• During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operations to assess the significance of the activities.</li></ul>
------------	---

**Cumulative Impact Analysis**

The localized construction and operational analyses provided in Section 4.3.6.3, Localized Construction and Operational Air Quality Impacts, found that without mitigation, the Project would exceed the localized significance thresholds for PM<sub>10</sub> for one or more of the LST assessment years (2022, 2025, or 2035) analyzed under this revised LST assessment. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an exceedance of the ambient air quality standards for PM<sub>10</sub>. Accordingly, projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>12</sup>

Out of the 359 cumulative projects that were identified, three cumulative projects (MV-5, MV-6, and MV-126) are located within 1,000 feet of the proposed Project boundary. As previously stated, the cumulative analysis focused on two cumulative scenarios: Construction start year (2020) and Full Build Out (2035).

<sup>12</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.



SOURCE: ESRI; ESA; Highland Fairview 3/29/2018

World Logistics Center  
**Figure 6.3-2**  
 Localized Cumulative Projects Area

### **Construction Start Year (2020) LST Assessment**

It was assumed that all cumulative projects would commence construction in January 2020, consistent with the Project. Off-road construction equipment emissions were estimated based on CalEEMod default factors based on construction site acreage. On-road trips were estimated based on project square footage and assumed hauling activity and emissions calculated utilizing EMFAC2017 emission factors. The cumulative localized assessment results for the Construction Start Year (2020) condition are provided in Table 6.3-5 for receptors located within the project boundaries and in Table 6.3-6 for receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.<sup>13</sup>

As noted from Table 6.3-5, the project in addition to cumulative projects would exceed the SCAQMD's localized significance thresholds for the national 1-hour NO<sub>2</sub> and annual PM<sub>10</sub> threshold at a receptor located within the project boundaries. As shown in Table 6.3-6, the project in addition to cumulative projects would exceed the SCAQMD's localized significance thresholds for the national 1-hour NO<sub>2</sub> threshold at a receptor located outside the project boundaries.

### **Full Buildout (2035) LST Assessment**

The cumulative on-site emissions for the Project were estimated from the traffic-generated by the various project vehicles as provided by the TIA. Vehicle emissions were assumed to be representative of the calendar year 2020 vehicle fleet. Also included were emissions from various support equipment including forklifts, yard trucks, and standby emergency generators. Onsite emissions from the cumulative projects include landscaping equipment, consumer products, and on-site energy usage (natural gas) based on total square footage. Mobile emissions from the cumulative projects were estimated using ITE 10<sup>th</sup> Edition trip rates per 1,000 square feet and EMFAC2017 emission factors. The cumulative localized assessment results for the Project Full Build Out (2035) condition are provided in Table 6.3-7 for receptors located within the project boundaries and in Table 6.3-8 for receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.

As noted from Table 6.3-7, the project would exceed the SCAQMD's significance thresholds for the 24-hour PM<sub>10</sub> and annual PM<sub>10</sub> thresholds for receptors located within the project's boundaries. As shown in Table 6.3-8, the project would exceed the SCAQMD's significance thresholds for the 24-hour PM<sub>10</sub>, annual PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> threshold for receptors located outside the project's boundaries.

---

<sup>13</sup> In keeping with the SCAQMD recommendations, background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average. Historical data for years 2016, 2017, and 2018 were obtained from SCAQMD's Riverside-Rubidoux air monitoring station.

**Table 6.3-5: Cumulative Localized Assessment of Construction Start year (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.16	2.4	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.093	0.166	0.180	No
	National 1 hour, ppm	0.058	0.062	0.120	0.100	Yes
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	8.5	8.5	10.4	No
	Annual, µg/m <sup>3</sup>	NA	2.6	2.6	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.4	2.4	10.4	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences within the project boundaries.

Source: ESA, 2019

**Table 6.3-6: Cumulative Localized Assessment of Construction Start Year (2020) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.13	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.077	0.150	0.180	No
	National 1 hour, ppm	0.058	0.065	0.123	0.100	Yes
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	4.8	4.8	10.4	No
	Annual, µg/m <sup>3</sup>	NA	0.5	0.5	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.2	2.2	10.4	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 6.3-7: Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.07	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.018	0.091	0.180	No
	National 1 hour, ppm	0.058	0.016	0.074	0.100	No
	Annual, ppm	0.015	0.003	0.018	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	9.3	9.3	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	4.7	4.7	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.4	2.4	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2019.

**Table 6.3-8: Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.06	2.1	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.019	0.092	0.180	No
	National 1 hour, ppm	0.058	0.017	0.075	0.100	No
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	9.3	9.3	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	3.0	3.0	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.6	2.6	2.5	Yes

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Summary.** The cumulative localized significance analysis demonstrates that without mitigation, the cumulative projects would exceed the localized significance thresholds for national 1-hour NO<sub>2</sub>, annual PM<sub>10</sub>, 24-hour PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> for one or more of the LST assessment years (2020 or 2035) analyzed. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an exceedance of the national 1-hour NO<sub>2</sub>, annual PM<sub>10</sub>, 24-hour PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> ambient air quality standards. Despite the results of the environmental document review, due to the findings of the project's localized threshold analysis the air pollutant emissions from the project would result in a significant cumulative impact and could exceed or contribute to an exceedance of the ambient air quality standards for NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

**Significance Level Before Mitigation: Potentially Significant.** Construction and operation of the cumulative projects along with the Project would result in cumulatively considerable significant localized impacts.

**Mitigation Measures:** As identified in Section 4.3.6.2, **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C and 4.3.6.2D** to reduce construction emissions of criteria pollutants are required. The project will also be required to comply with SCAQMD Rules 402 and 403. Additionally, **Mitigation Measures 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D and 4.3.6.3E** are required to reduce emissions of criteria pollutants during project operations.

**Significance Level After Mitigation: Significant and unavoidable.** After application of mitigation, the Project, along with cumulative projects MV-5, MV-6, and MV-126 would continue to exceed the localized significance thresholds at one or more of the existing residences located within the project boundaries for the national 1-hour NO<sub>2</sub> and PM<sub>10</sub> (24-hour and annual) all assessment conditions. In addition, the project would continue to exceed the localized significance thresholds at offsite receptors for NO<sub>2</sub> (national 1-hour), PM<sub>10</sub> (24-hour and annual), and PM<sub>2.5</sub> (24-hour). Projects that exceed the

Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>14</sup>

#### 6.3.3.6 Long-Term Operational Emissions

*Impact: The project's contribution to the exceedance of cumulative operational thresholds would be cumulatively considerable.*

Threshold:	Would the project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  For long-term operations, the applicable daily thresholds are: <ul style="list-style-type: none"><li>• 55 pounds of VOC;</li><li>• 55 pounds of NOX;</li><li>• 550 pounds of CO;</li><li>• 150 pounds of PM10;</li><li>• 55 pounds of PM2.5; and</li><li>• 150 pounds of SOX.</li></ul>
------------	---

#### Cumulative Impact Analysis

Long-term air pollutant emission impacts that would result from the project are those associated with stationary sources and mobile sources involving any project-related change (e.g., emissions from the use of motor vehicles by Project-generated traffic). Cumulative long-term impacts would take into consideration both the Project related emissions and those generated by the 359 cumulative projects that have been identified.

As identified in Section 4.3.6.4 Long-Term Operation Emissions, operational emissions for the project would exceed SCAQMD daily operational thresholds for all criteria pollutants with the exception of SOX for the “worst-case” 2020 scenario. Furthermore, emissions of VOC, NOx, CO, PM10, and PM2.5 are significant after full buildout.

As shown, in Table 6.3.2 operational emissions gathered from the environmental documents and modeling show that out of the 359 cumulative projects, 25 cumulative projects were identified as exceeding VOC significance thresholds, 59 projects were identified as exceeding NOX thresholds, and 16 projects were identified as exceeding CO thresholds. None of the 359 projects would exceed the PM2.5 and PM10 significance thresholds. However, because the project-specific emissions exceed the SCAQMD significance thresholds, this Project is considered by the SCAQMD to be cumulatively considerable, despite the potential operation of any of the identified cumulative projects.

**Significance Level Before Mitigation: Potentially Significant.** Operation of the cumulative projects along with the Project would result in potentially significant cumulative long term air quality impacts.

**Mitigation Measures:** Section 4.3.6.3 Localized Construction and Operational Air Quality Impacts identified **Mitigation Measures 4.3.6.3A** through **4.3.6.3E** that would reduce operational emissions of criteria pollutants associated with the project. Additionally, **Mitigation Measure 4.3.6.4A**, was provided

<sup>14</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

in Section 4.3.6.4 Long-Term Operational Emissions and is required to further reduce operational emissions.

**Significance Level After Mitigation: Significant and unavoidable.** Even with mitigation, operational emissions generated by the Project are still significant. Mitigated operational Project emissions of criteria pollutants in combination with the 359 cumulative projects will still exceed SCAQMD significance thresholds resulting in a significant and unavoidable cumulative operational air quality impact.

6.3.3.7 Impacts to Sensitive Receptors

*Impact: The project's contribution to the cumulative exposure of substantial pollutant concentrations on sensitive receptors would be cumulatively considerable.*

Threshold:	Would the project expose sensitive receptors to substantial pollutant concentrations?  For localized air quality impacts, the applicable thresholds are: <ul style="list-style-type: none"><li>• 20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction and operation;</li><li>• 0.18 ppm (State 1 hour), 0.100 ppm National 1 hour), and 0.030 ppm (Annual) of NOX during construction and operation;</li><li>• 10.4 µg/m<sup>3</sup> (24-hours) and 1 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during operations; and</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operations.</li><li>• During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance threshold for operations.</li></ul> For health risk impacts, the applicable thresholds are: <ul style="list-style-type: none"><li>• Maximum Individual Cancer Risk: An increased cancer risk greater than 10 in 1 million at any receptor location;</li><li>• Cancer burden: An increase in cancer burden of 0.5 or</li><li>• Non-cancer hazard indices (HI): A cumulative increase for any target organ system exceeding 3.0 at any receptor location.</li></ul>
------------	--

**Cumulative Impact Analysis**

The SCAQMD uses the same significance thresholds for project specific and cumulative health risk impacts. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0.

Because the cumulative HRA included emissions from both the Project and the 359 cumulative projects, the cancer risks and CHIs calculated are the cumulative health risk values that will be compared to the selected cumulative HRA threshold.

*Cancer Risk for Sensitive/Residential Receptors.* Thirty-year exposure to cumulative construction and operations results in a cancer risk of 139.8 in one million at the maximum exposed receptor and thirty year cumulative operations would result in a cancer risk of 171.5 in one million at the maximum exposed receptor. These impacts at the maximum exposed project receptor are above the cumulative cancer threshold of 10 in a million with and without mitigation. Therefore, the the construction and operation of

cumulative projects in addition to the Project (with mitigation incorporated) is expected to have a significant and unavoidable cumulative impact.

*Non-Cancer Hazard Index (HI).* The non-cancer HI value at each of the modeled receptor locations are less than SCAQMD cumulative threshold of 3.0. Therefore, the project is expected to have a less than significant cumulative impact.

*Estimates of Cancer Burden.* Cumulative cancer risks were estimated at the geographical center (centroid) of census tracts that are within the study area of the cumulative HRA. For the 70-year exposure duration with the inclusion of the Current OEHHA Guidance without consideration of the results of the HEI ACERS Study, the cancer burden is estimated to be 72.2 for construction and operations and 90.3 for full operations, out of a population of about 10.8 million individuals that were conservatively estimated to have a cancer risk of 1 in a million or more for the 359 cumulative projects. This is compared to the Project cancer burden impact, estimated at approximately 0.47. The SCAQMD has established a threshold for cancer burden of 0.5. Because the SCAQMD's cancer burden significance threshold is exceeded with and without mitigation for the 359 cumulative projects, the cumulative cancer burden impact is expected to be significant and unavoidable.

**Significance Level Before Mitigation: Potentially significant.** Operation of the cumulative projects along with the Project would result in potentially significant cumulative health risk impacts.

**Mitigation Measures:** The mitigation measures previously identified in Section 4.3 are required (**Mitigation Measures 4.1.6.1A, 4.3.6.2A, 4.3.6.2B, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.3E**) to reduce construction and operational emissions of criteria pollutants would reduce the estimated cancer risks associated with the project. Additionally, **Mitigation Measure 4.3.6.5A** is required to ensure that significant health risk does not occur at on-site residential receptors.

**Significance Level After Mitigation: Significant and unavoidable.** Project cancer risks are reduced after implementation of mitigation. However, the SCAQMD cancer risk and cancer burden significance threshold would be exceeded at sensitive receptor locations within the cumulative HRA study area. Therefore, the cancer risk impact to sensitive receptors and cancer burden to general population will be cumulatively significant and unavoidable. As discussed in Section 4.3, the Project impacts would be reduced to less-than-significant levels after implementation of mitigation. However, because the Project would result in an increase in cancer risk of 9.1 under construction + operations and 7.1 30-year operations, the Project contribution would be cumulatively considerable.

#### 6.3.3.8 Cumulative Health Effects

Tables 6.3-9 and 6.3-10 below show the estimated annual percent of background health incidence for PM<sub>2.5</sub> and Ozone health effects associated with cumulative projects (including the unmitigated Project). When taken into context, the small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment.

**Table 6.3-9: Estimated Annual PM<sub>2.5</sub> Health Effects of Cumulative Project Emissions**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.16%	130,805
Mortality, All Cause [30-99]	0.14%	325,048
Hospital Admissions, Asthma [0-64]	0.09%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.02%	224,047
Hospital Admissions, All Respiratory [65-99]	0.05%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.06%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.07%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.06%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.06%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.06%	40,966
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets. Source: Ramboll, 2019		

Potential PM<sub>2.5</sub>-related health effects associated with increases in ambient air concentrations estimated from cumulative Projects (including the unmitigated Project) include asthma-related emergency room visits (204 incidences per year), asthma-related hospital admissions (16 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (44 incidences per year), all respiratory-related hospital admissions (98 incidences per year), mortality (467 incidences per year), and nonfatal acute myocardial infarction (less than 24 incidences per year for all age groups).

**Table 6.3-10: Estimated Annual Ozone Health Effects of Cumulative Project Emissions**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.02%	193,354
Mortality, Non-Accidental [0-99]	0.01%	210,692
Emergency Room Visits, Asthma [0-17]	0.31%	50,722
Emergency Room Visits, Asthma [18-99]	0.23%	80,084
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets. Source: Ramboll, 2019		

Potential ozone-related health effects associated with increases in ambient air concentrations estimated from cumulative Projects (including the unmitigated Project) include respiratory-related hospital admissions (33 incidences per year), mortality (16 incidences per year), and asthma-related emergency room visits for any age range (lower than 188 incidences per year for all age groups).

**Uncertainty.** Analyses that evaluate the increases in concentrations resulting from individual sources, and the health effects of increases or decreases in pollutants as a result of regulation on a localized basis, are routinely done. This analysis does not tie the increase in concentration to a specific health effect in an individual; however, it does use scientific correlations of certain types of health effects from pollution to estimate increases in effects to the population at large.

Aside from the uncertainty as to the causal basis of the statistical associations in air pollution epidemiology studies of PM and mortality, some epidemiological studies have found no correlation between mortality and increased PM (Enstrom, 2005; 2017; Lipfert et al., 2000; Murray and Nelson, 2000; Greven et al., 2011; You et al., 2018; Zhou et al., 2015). Although there are a greater number of

publications reporting a positive PM association for mortality compared to those reporting no association.

There is a degree of uncertainty in these results from a combination of the uncertainty in the emissions themselves, the increase in concentration resulting from the PGM and the uncertainty of the application of the C-R increase. All simulations of physical processes, whether ambient air concentrations, or health effects from air pollution, have a level of uncertainty associated with them, due to simplifying assumptions. The overall uncertainty is a combination of the uncertainty associated with each piece of the modeling study, in this case, the emissions quantification, the emissions model, the PGM, and BenMAP. While these results reflect a level of uncertainty, regulatory agencies, including the USEPA have judged that, even with the uncertainty in the results, the results provide sufficient information to the public to allow them to understand the potential health effects of increases or decreases in air pollution (USEPA 2012).

**NOTE TO READERS:** Section 6.7, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 6.7 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 6.7 replaces the cumulative analysis provided in Section 4.7 of the FEIR prepared in 2015.

## **6.7 Greenhouse Gas Emissions, Climate Change and Sustainability**

Cumulative effects to greenhouse gas (GHG) emissions, climate change and sustainability are described in this section. A summary of the project’s potential impacts related to GHG emissions and consistency with plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs is provided in Section 6.7.1. The cumulative impact geographic area for GHG emissions, climate change, and sustainability issues is provided in Section 6.7.2. The potential cumulative impacts and the project’s contribution to cumulative impacts related to GHG emissions and consistency with plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs are discussed in Section 6.7.3. In addition, a brief summary of the impact significance of the project’s contribution to cumulative impacts for each issue is also provided in Section 6.7.3 as well as applicable mitigation measures and significance determination after mitigation. Cumulative emissions calculations are included as Appendix A.3 of this Draft Recirculated RSFEIR.

The land use assumptions for the identified cumulative projects were taken from either the project-specific information contained in the associated cumulative project CEQA documents, the City of Moreno Valley General Plan, and/or the SCAG Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) 2040 regional population and employment forecasts for all areas outside of the City of Moreno Valley. Where project-specific information was available for the cumulative projects, it was incorporated into the cumulative impact analysis. Where project-specific information was not available, the underlying General Plan or SCAG RTP/SCS land use designations were used. Where project-specific and planned cumulative project land uses were inconsistent, the more intense land use was utilized. Within Moreno Valley, the cumulative analysis assumed build-out of the City’s General Plan except for locations where other past, present, and reasonably foreseeable projects were identified, in which case those were used instead. Because it is unlikely that the city will fully build out by 2035, the cumulative impact analysis assumes worse case cumulative development than is likely to occur and is therefore conservative in the sense that it would over-state cumulative impacts.

The cumulative projects identified in Table 6.7-1 and their respective CEQA documents have been reviewed and evaluated in conjunction with the project to determine if they would contribute to a cumulatively considerable impact to greenhouse gas emissions, climate change and sustainability. These potentially cumulative impacts are documented in the following section.

### **6.7.1 Project Impact Findings**

The project’s effects on greenhouse gas emissions, climate change, and sustainability are summarized in this section, and the impacts have been evaluated against the following thresholds that were developed based on the CEQA Guidelines Appendix G thresholds, as modified to address potential project impacts. After each threshold, a significance determination for the project impacts is provided as well as a reference to the specific section and impact number if the impact determination is significant.

Could the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., exceeds the SCAQMD’s 10,000 mt CO<sub>2</sub>e emissions screening threshold of significance); **Less than Significant with Mitigation, Section 4.7.6.1.**
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. **Less than Significant with Mitigation, Section 4.7.6.2.**

As shown, there are no project-specific significant and unavoidable impacts to greenhouse gas emissions identified in Section 4.7 of this Draft Recirculated RSFEIR.

### 6.7.2 Geographic and Temporal Scope

CEQA requires that lead agencies consider the cumulative impacts of GHG emissions from even relatively small (on a global basis) increases in GHG emissions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and therefore significant. In the case of global climate change, the proximity of the project to other GHG emission generating activities is not directly relevant to the determination of a cumulative impact because climate change is a global condition. GHG emission impacts are, by their very nature cumulative, as both the California Natural Resources Agency and CAPCOA have recognized. In addition, the California Supreme Court agrees that GHG emissions are global.

For purposes of this analysis, the cumulative impact geographic area for GHG emissions is based on the limits set forth in the cumulative traffic analysis conducted by the project. This area includes the entire City of Moreno Valley and portions of the Cities of Riverside, Redlands, Beaumont, Perris, San Jacinto, Hemet and Calimesa, as well as portions of unincorporated Riverside and San Bernardino County, and the March JPA. The primary sources of GHG emissions from this project would be related to energy consumption in buildings and related uses (lighting for streets and parking lots, etc.) and in the transport of goods by future tenants. Regulations applicable to the GHG-intensity of power and petroleum production in California are promulgated at the state level. Regulations, policies, and plans to reduce GHGs potentially applicable to the project are adopted by the State of California, regional governmental agencies (such as SCAG and SCAQMD), and local governments, in support of State laws AB32 and SB32.

As part of the GHG cumulative analysis a review of available environmental documents for projects within the Project vicinity was conducted. Approximately 359 projects have been identified in the vicinity of the Project and are listed in Table 6.7-1. Out of those 359 projects, approximately 173 environmental documents were available. All 173 were reviewed to identify quantitative emissions for construction and operation of the respective projects; however, not all environmental documents contained emissions for construction and operation. Emissions from all of the identified cumulative projects were calculated based on available information and methodologies.

Detailed research was conducted to identify as much information on the remaining projects that did not have environmental documents with construction and operational emissions available. However, complete project descriptions, detailed construction schedules, and any operational efficiencies were not available for every single project within the cumulative analysis limits. Therefore, with the information that was accumulated, modeling was conducted, utilizing CalEEMod and EMFAC2017 default factors, to estimate construction and operational emissions generated from these cumulative projects. The same methodologies used to calculate air quality emissions were also used to calculate GHG emissions, see Section 6.3.2.

The projects located within the cumulative GHG emissions, climate change and sustainability impact area are shown in Figure 6.7-1 and listed in Table 6.7-1.



**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.7-1: Greenhouse Gas Emissions, Climate Change and Sustainability Cumulative Projects Summary**

Project ID	Project Name	Land Use <sup>1</sup>	Size <sup>2</sup>
B-1	Fairway Canyon SCPGA Tract Nos. 31462, 36558, and 36783 (#29)	SF	3,300 DU
B-10	Tract No. 32850 (#39)	SF	95 DU
B-11	San Gorgonio Village, Phase 2 (#45)	RC	225 KSF
B-12	Beaumont Commercial Center	MF	279 DU
B-13	Four Seasons (#23) Tract Nos. 32260 and 33096	SF	1,890 DU
B-14	Potrero Creek Estates (#26)	SF	700 DU
B-2	Tournament Hills 3, TM 36307	MF	571 DU
B-3	Heartland	SF	922 DU
B-4	Hidden Canyon	LI	1,734 KSF
B-5	ProLogis/Rolling Hills Ranch	HI	2,565.68 KSF
B-6	Mountain Bridge Regional Commercial Planned Commu*	BP	1,853.25 KSF
B-7	Kirkwood Ranch (#14)	SF	403 DU
B-8	Noble Creek Vistas (#10)	SF	648 DU
B-9	Sundance (#17)	SF	4,450 DU
C-1	TTM 33931 Fiesta Oak Valley/Mesa Verde Estates	RC	200 KSF
C-2	Summerwind Ranch	BP	1,579 KSF
C-2	Summerwind Ranch	BP	1,000 KSF
C-3	JP Ranch	RC	72.7 KSF
H-1	TTM 36841	SF	588 DU
H-10	Downtown Hemet Specific Plan	**	**
H-2	Rancho Diamante	SF	440 DU
H-3	Tres Cerritos Specific Plan	SF	931 DU
H-4	Sanderson Square	LI	734.98 KSF
H-4	Sanderson Square	LI	995.15 KSF
H-5	Mc Sweeny Farms SP	RC	20.90 KSF
H-6	Ramona Creek	RC	680.788 KSF
H-7	Peppertree Specific Plan	SR	358 KSF
H-8	Florida Promenade Residential SP	SF	145 DU
H-9	TTM 31807 / 31808	SR	599 KSF
M-1	Amstar/Kaliber Development PP22925	HI	409.312 KSF
M-10	Airport Master Plan	WH	559 KSF
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	RC	67 KSF
M-2	Meridian Business Park	LI	487.8 KSF
M-3	Meridian Business Park - Phase 3	WH	2,900 KSF
M-4	March Business Center - South Campus	RC	108.9 KSF
M-5	Meridian LNR	OG	232.76 KSF
M-6	Ben Clark Training Facility	BP	219.35 KSF
M-7	Meridian Business Park - Phase K4	WH	675.5 KSF
M-8	March LifeCare Campus Specific Plan	MO	2,930 KSF
M-9	TM 34748	SF	135 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-1	Auto Mall SP	RC	304.5 KSF
MV-10	TR30998 / Pacific Communities	SF	47 DU
MV-100	Scottish Village	MF	194 DU
MV-101	Restaurant	RC	9 KSF
MV-102	Moreno Valley Professional Center	OG	84 KSF
MV-103	Gateway Business Park	LI	184 KSF
MV-104	373K Industrial Facility	WH	373.03 KSF
MV-105	35369 Tason Myers Property	MF	12 DU
MV-106	35304 Jimmy Lee	MF	12 DU
MV-107	32711 Isaac Genah	SF	9 DU
MV-108	O'Reilly Automotive	RC	2.97 KSF
MV-109	Quail Ranch	SF	1,105 DU
MV-11	TR30411 / Pacific Communities	SF	24 DU
MV-110	TM 33417	MF	60 DU
MV-111	35769 Michael Chen	MF	16 DU
MV-112	PA09-0006 Jim Nydam	MF	15 DU
MV-113	Ironwood Residential	SF	144 DU
MV-114	Stoneridge Town Centre - Vacant Restaurant	RC	5.7 KSF
MV-115	Olivewood Plaza - Office Building	OG	0.02 KSF
MV-116	31621 Peter Sanchez	SF	25 DU
MV-117	MV-101	OG	52 KSF
MV-118	28860 Professor's Fun IV	SF	9 DU
MV-119	32126 Salvador Torres	SF	35 DU
MV-12	Moreno Medical Campus	MO	80 KSF
MV-120	Moreno Valley Shopping Center	RC	189.52 KSF
MV-121	Yum Donut Shop	RC	4.35 KSF
MV-122	Centerpointe Business Park	**	**
MV-123	Rancho Belago Plaza - Retail	RC	14 KSF
MV-124	Alessandro & Lasselle	RC	140 KSF
MV-125	32756 Jimmy Lee	MF	24 DU
MV-126	TTM 33222	SF	235 DU
MV-13	Cresta Bella	OG	30 KSF
MV-14	TR32548 / Gabel, Cook & Assoc	SF	107 DU
MV-15	TR32218 / Whitney	SF	63 DU
MV-16	TR32284 / 26th Corporation & Granite Capitol	SF	32 DU
MV-17	TR31590 / Winchester Associates	SF	96 DU
MV-18	Convenience Store / Fueling Station	RC	5.5 KSF
MV-19	Senior Assisted Living	SR	139 KSF
MV-2	TR35823 / Stowe Passco Devel.	SF	262 DU
MV-20	Moreno Marketplace	RC	93.79 KSF
MV-21	PEN16-0053 Medical Center	MO	80 KSF
MV-22	TR36882 (PA15-0010) SFR	SF	40 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-23	PEN16-0129/0130 MV Ranch Apartments	MF	417 DU
MV-24	TM 36436 (PA12-0005)	SF	159 DU
MV-25	TR32142	SF	81 DU
MV-26	TR 30268 (PA01-0072) Pacific Communities	SF	100 DU
MV-27	TR32917 / Empire land	MF	54 DU
MV-28	TR34329 / Granite Capitol	MF	90 DU
MV-29	TR36340	SF	275 DU
MV-3	ProLogis	WH	1,901 KSF
MV-30	PA03-0168 TR 31517	SF	83 DU
MV-31	PA15-0034 TR 36983	SF	53 DU
MV-32	TTM 31592 (P13-078) SFR	SF	115 DU
MV-33	TR32645 / Winchester Assoc	SF	54 DU
MV-34	TR34397/Winchester Assoc	SF	52 DU
MV-35	TR31771 / Sanchez	SF	25 DU
MV-36	TM 31618 (PA03-0106)	MF	56 DU
MV-37	Vogel /PA09-004	HI	1,616.13 KSF
MV-38	Vogel Properties	LI	434 KSF
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	LI	1,600 KSF
MV-4	Westridge Commerce Center	LI	937.26 KSF
MV-40	PEN17-0036 Warehouse	WH	98.40 KSF
MV-41	First Nandina Logistics Center	WH	1,450 KSF
MV-42	Indian Street Commerce Center	WH	446.35 KSF
MV-43	Ivan Devries / PA06-0017	HI	555.67 KSF
MV-44	Modular Logistics Center (Kearny RE Co)	WH	1,109.38 KSF
MV-45	Iris Plaza	RC	87.12 KSF
MV-46	Harley Knox/Redlands Development	WH	382.28 KSF
MV-47	PA07-0129 TR 35606 SFR	SF	16 DU
MV-48	PA11-001 thru 007 March Business Center	BP	1484.50 KSF
MV-49	Indian Business Park	BP	1,560.05 KSF
MV-5	P06-158 / Gascon	RC	116.36 KSF
MV-50	San Michele Industrial Center	LI	354.81 KSF
MV-51	PA07-0165 thru 01667 First Industrial I & II	LI	769.32 KSF
MV-52	First Industrial III & IV	LI	878.96 KSF
MV-53	I-215 Logistics Center	WH	1,250 KSF
MV-54	Moreno Valley Logistics Center (Prologis)	WH	1,738 KSF
MV-55	MV Commerce Park II (Alere) - Built before 2012	**	**
MV-56	Tract Map 33810	SF	16 DU
MV-57	Tract Map 34151	SF	37 DU
MV-58	Tract Map 33024	SF	8 DU
MV-59	Tract Map 31442	SF	63 DU
MV-6	Highland Fairview Corporate Park	WH	750 KSF
MV-60	Tract Map 36401	SF	92 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-61	Walmart & Gas Station	RC	180 KSF
MV-62	Tract Map 22180	SF	543 DU
MV-63	PA14-0053 (TTM 36760) Legacy Park	SF	221 DU
MV-64	TR22180 / Young Homes	SF	87 DU
MV-65	TR33607 / TL Group	MF	52 DU
MV-66	TR34988 / Stratus Properties	MF	251 DU
MV-67	TR32515	SF	161 DU
MV-68	PA07-0035	HI	207.09 KSF
MV-69	PA07-0039 (Industrial Area SP)	HI	409.60 KSF
MV-7	TR33962 / Pacific Scene Homes	SF	31 DU
MV-70	TR32756 / CTK, Inc.	MF	241 DU
MV-71	TR34681 / Perris Pacific Co.	MF	49 DU
MV-72	35861 Frederick Homes	MF	24 DU
MV-73	TR36038 / Alessandro Village Plaza LLC	MF	96 DU
MV-74	TR34216 / Creative Design Assoc	SR	189 KSF
MV-75	Aqua Bella Specific Plan	SR	1,461 KSF
MV-76	Commercial Medical Plaza PA09-0033 thru 0039, and*	RC	311.63 KSF
MV-77	Minka Lighting	LI	533 KSF
MV-78	Overton Moore Properties PA08-0072	LI	520 KSF
MV-79	Shaw Development	WH	367 KSF
MV-8	TR32460 / Sussex Capital	SF	58 DU
MV-80	PA15-0032 MV Cactus Center	RC	44.3 KSF
MV-81	Ridge Property Trust PA07-0147 & PA 07-0157	WH	700 KSF
MV-82	Centerpointe Bus. Ctr	WH	500 KSF
MV-83	Centerpointe Business Park	LI	356 KSF
MV-84	PA16-0075 Brodiaea Business Center	LI	99.98 KSF
MV-85	Retail Center / Winco Foods	RC	140 KSF
MV-86	TR32505 / DR Horton	SF	71 DU
MV-87	TR31814 / Moreno Valley Investors	MF	60 DU
MV-88	TR33771 / Creative Design Assoc	MF	12 DU
MV-89	TR35663 / Kha	MF	12 DU
MV-9	TR32459 / Sussex Capital	SF	11 DU
MV-90	PEN16-0110 Commercial Pad H	RC	7.31 KSF
MV-91	TR31305 / Richmond American	SF	87 DU
MV-92	TR 33256	SF	99 DU
MV-93	PA14-0042 Edgemont Apartments	MF	112 DU
MV-94	PA15-0002 Box Springs Apartments	MF	266 DU
MV-95	Moreno Beach Market PLace/Lowes	RC	175 KSF
MV-96	31394 Pigeon Pass, Ltd.	SF	78 DU
MV-97	32005 Red Hill Village, LLC	SF	214 DU
MV-98	33388 SCH Development, LLC	SF	16 DU
MV-99	36038 Alessandro Village Plaza, LLC	MF	96 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
P-1	TR32707	SF	137 DU
P-10	IDS	WH	1,700 KSF
P-11	Ridge II	HI	1,224.99 KSF
P-12	Starcrest P011-0005; 08-11-0006	LI	454.09 KSF
P-13	Ridge	**	**
P-14	Rados Distribution Center	WH	1,200 KSF
P-15	Duke Perris Logistics Center	WH	780.82 KSF
P-16	Perris Ridge Commerce Center I	WH	1,310 KSF
P-17	SRG Perris LC	WH	580 KSF
P-18	P07-07-0029	WH	1,547 KSF
P-19	P05-0192	WH	697.6 KSF
P-2	TR34716	WH	600 KSF
P-20	P05-0113	WH	871.5 KSF
P-21	P07-09-0018	WH	170 KSF
P-22	NICOL	WH	380 KSF
P-23	Westcoast Textiles	WH	180 KSF
P-24	Optimus Logistics Center 1	WH	1,464 KSF
P-25	Optimus Logistics Center 2	WH	1,038 KSF
P-26	Duke Warehouse	LI	811.62 KSF
P-27	Perris DC (Industrial Property Trust)	WH	864 KSF
P-28	Duke Warehouse	LI	670 KSF
P-29	P06-0411	**	**
P-3	P05-0477	WH	462.3 KSF
P-30	Avelina	SF	492 DU
P-31	Perris Family Apartments	MF	75 DU
P-32	Lewis Retail Center	RC	643 KSF
P-33	Harvest Landing Specific Plan	SF	1,860 DU
P-34	South Perris Industrial Phase 3	WH	3,166.86 KSF
P-35	Verano Apartments	MF	40 DU
P-36	South Perris Industrial Phase 2	WH	3,448.73 KSF
P-37	Cabrillo	SF	183 DU
P-38	Sequoia	SF	223 DU
P-39	South Perris Industrial Phase 1	WH	783.7 KSF
P-4	Bookend	LI	172 KSF
P-40	TR 32041	SF	122 DU
P-41	P 06-0228	LI	149.74 KSF
P-42	TR 31650	SF	61 DU
P-43	TR 31225	SF	57 DU
P-44	TR 33193	MF	94 DU
P-45	P 12-05-0013	MF	75 DU
P-46	P 06-0378	SR	429 KSF
P-47	Park West Specific Plan	SF	521 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
P-48	TR 33338	SF	75 DU
P-49	TR 31240	SF	114 DU
P-5	Markham East	WH	460 KSF
P-50	P 11-09-0011	RC	80 KSF
P-51	TR 30973	SF	35 DU
P-52	TR 31226	SF	82 DU
P-53	TR 31659	SF	161 DU
P-54	TTM 32708	SF	238 DU
P-55	Perris Marketplace	RC	450 KSF
P-56	PM 34199 / TPM 34697	LI	9.85 KSF
P-57	P 04-0343	WH	41.65 KSF
P-58	Jordan Distribution	HI	378 KSF
P-59	TR 31407	SF	243 DU
P-6	Perris Circle Industrial Park	LI	600 KSF
P-60	Retail on Redlands	RC	4.5 KSF
P-61	TR32707	WH	350 KSF
P-7	Duke Warehouse	LI	1,189.9 KSF
P-8	First Perry Logistics Project	LI	241 KSF
P-9	Aiere	HI	642 KSF
R-1	Sycamore Canyon Business Park - Bldgs 1&2	BP	1,375.17 KSF
R-10	SR-91/ Van Buren Commercial	RC	23.57 KSF
R-11	Citrus Business Park Specific Plan	BP	340.66 KSF
R-12	Sycamore Canyon Business Park Specific Plan	RC	61.38 KSF
R-13	14601 Dauchy Av. - TM 36370	SF	3 DU
R-14	360 Alessandro Boulevard	RC	3.86 KSF
R-15	Mission Grove Specific Plan	SF	171.70 DU
R-16	Sycamore Canyon Specific Plan	SF	1.53 DU
R-17	5940-5980 Sycamore Canyon Boulevard	MF	275 DU
R-18	Hunter Business Park	LI	9,037.83 KSF
R-19	807 Blaine Street	MF	55 DU
R-2	Alessandro Business Center (Western Realco)	WH	582.77 KSF
R-20	474 Palmyrita Avenue	WH	1,461.45 KSF
R-21	1006 & 1008 Clark Street	SF	15 DU
R-22	3719 Strong Street	SF	9 DU
R-23	1710 Main Street (P12-0717)	RC	8.04KSF
R-24	Downtown Specific Plan	SF	5,000 DU
R-25	P14-0045 thru -0048	MF	208 DU
R-26	Marketplace Specific Plan	LI	943.51 KSF
R-27	2586 University Avenue	RC	3.62 KSF
R-28	2340 Fourteenth Street	SR	134 KSF
R-29	6570 Magnolia Avenue; 3739 & 3747 Central Avenue	RC	3.80 KSF
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	LI	652.02 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
R-30	3545 Central Avenue	RC	208.57 KSF
R-31	P08- 0396 / P08-0397 Thru -0399 / TM 35620	MF	36 DU
R-32	Walmart Expansion	RC	22.27 KSF
R-33	5731, 5741, 5761 & 5797 Pickler Street	MF	30 DU
R-34	4247 Van Buren Boulevard	OG	12.17 KSF
R-35	3990 Reynolds Road	MF	102 DU
R-36	Magnolia Garden Condominiums	MF	62 DU
R-37	3705 Tyler Street	RC	6 KSF
R-38	Park Sierra Avenue	RC	3.5 KSF
R-39	Riverwalk Vista Specific Plan	SF	402 DU
R-4	Quail Run	MF	216 DU
R-40	P12- 0019 / P12-0156 / P12-0158	RC	2.4 KSF
R-41	4824 Jones Avenue	OG	23.12 KSF
R-42	Rancho La Sierra Specific Plan	SF	598 DU
R-43	P05-1528 \ P09-0087 \ TM 34509	SF	50 DU
R-44	6465 Sycamore Canyon Boulevard	RC	4 KSF
R-45	P06-0591	OG	37.94 KSF
R-46	Sycamore-Highlands Specific Plan	SF	35.84 DU
R-47	P06-0160 / P06-1281	WH	107.73 KSF
R-48	P06-1408	RC	75.3 KSF
R-49	Canyon Springs Specific Plan	SR	310 KSF
R-5	Canyon Springs Healthcare Campus	MO	500 KSF
R-50	Orangecrest Specific Plan	SF	3.83 DU
R-51	P10-0808 / P10-0708	RC	2.36 KSF
R-52	19811 Lurin Avenue	SF	32 DU
R-53	P06-1404 / Lurin Avenue / TM 33482	SF	29 DU
R-54	P06-1396 / Mariposa Avenue / TM 33481	SF	25 DU
R-55	P06-0900 / P08- 0269 / P08-0270 / TTM 32301	SF	20 DU
R-56	Office, Magnon & Panattoni	OG	131 KSF
R-57	SEC Sycamore Canyon Boulevard & Box Springs Road	LI	171.62 KSF
R-58	Canyon / Valley Springs Parkway	RC	2.75 KSF
R-59	Alessandro and Gorgonio	RC	4.05 KSF
R-6	2450 Market Street	MF	77 DU
R-60	Alessandro Bl.	BP	101.58 KSF
R-61	Gless Ranch	RC	425.45 KSF
R-62	6091 Victoria Avenue (P13-0432)	RC	1.83 KSF
R-63	8616 California Avenue (P08-0084; PM 35852)	MF	21 DU
R-64	P13-0389 / TM 36579	SF	5 DU
R-65	P13- 0723; P13-0724; P13-0725; TM 36654	SF	62 DU
R-66	Azar Plaza	RC	6.15 KSF
R-7	2861 Mary Street	RC	56.10 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
R-8	5938-5944 Grand Avenue	SR	37 KSF
R-9	Magnolia Avenue Specific Plan	RC	8,777.62 KSF
RC-1	TR35530 / Quail Ranch Specific Plan	SF	1,251 DU
RC-10	Majestic Freeway Business Center	LI	6,200 KSF
RC-11	Alessandro Commerce Center	WH	814 KSF
RC-12	Cores Industrial Partners	LI	423.67 KSF
RC-13	Sunny-Cal Specific Plan (#40)	SF	497 DU
RC-14	University Highlands	MF	320 DU
RC-15	TTM 33410 Box Springs	SF	142 DU
RC-16	Sycamore Canyon Specific Plan	**	**
RC-17	PP 24608	RC	9.28 KSF
RC-18	TR 32406	SF	15 DU
RC-19	CUP 03599	RC	52.80 KSF
RC-2	Jack Rabbit Trail	SF	2,000 DU
RC-20	PP 25699	RC	2.8 KSF
RC-21	CUP 03527	WH	8 KSF
RC-22	TR 30592	SF	131 DU
RC-23	PP 25768	LI	52.45 KSF
RC-24	PP 21144	LI	190.80 KSF
RC-25	PP 16976	LI	85 KSF
RC-26	PM 32699	SF	2 DU
RC-27	Yocum Baldwin	LI	188.70 KSF
RC-28	CUP 03315	RC	5.6 KSF
RC-29	18580 Van Buren Boulevard	RC	8.14 KSF
RC-3	The Preserve / Legacy Highlands SP - Commercial and Residential	SF	3,412 DU
RC-30	Knox Logistics	WH	1,259.05 KSF
RC-31	PP 23342	LI	180.6 KSF
RC-32	TTM 31537	SF	726 DU
RC-33	TTM 34130	SF	384 DU
RC-34	Emerald Acres SP #381	SF	432 DU
RC-35	TR 34677,31100,32391,33448,31101,31009,32282	OG	80 KSF
RC-36	TR36478, TR36480, PP25219	SF	468 DU
RC-37	TR 36504	SF	562 DU
RC-38	San Gorgonio Crossings	WH	1,823.76 KSF
RC-39	Tract 33869	SF	39 DU
RC-4	Badlands Sanitary Landfill	**	**
RC-5	Villages of Lakeview - Commercial Development and Residential Development	SF	750 DU
RC-6	Rider Business Center (Core 5 Industrial Partners)	BP	600 KSF
RC-7	Nuevo Distribution Center	WH	1,586.65 KSF
RC-8	Trucking DC (Central Freight, LLC)	**	**
RC-9	Oleander Business Park PP20699	OG	34 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Project Name	Land Use <sup>1</sup>	Size <sup>2</sup>
RD-1	Tract 18988	SF	82 DU
RD-10	Park Ave Industrial Center	LI	145.26 KSF
RD-11	Marriott Springhill Suites	RC	55.47 KSF
RD-12	I-10 Redlands LC - B	WH	601.29 KSF
RD-13	Ashley Furniture	WH	1,013 KSF
RD-14	Redlands DC 772,000 SF	WH	772 KSF
RD-15	2220 Almond Ave	WH	423 KSF
RD-16	APL Logistics	WH	714.73 KSF
RD-2	Redlands Pioneer Tract	SF	55 DU
RD-3	Newland Homes Tract	SF	103 DU
RD-4	Redlands Pennsylvania Tract	SF	67 DU
RD-5	I-10 Redlands LC - A	WH	500.60 KSF
RD-6	Woodsprings Hotel	RC	48.22 KSF
RD-7	RV Storage Facility	RC	127.75 KSF
RD-8	Liberty Lane Apartments	MF	80 DU
RD-9	Hilton Home2 Suites	RC	43.80 KSF
SB-1	Redlands Gateway Logistics - B	WH	614.33 KSF
SB-2	Redlands Gateway Logistics - A	WH	313.47 KSF
SB-3	Prologis 12	WH	593.56 KSF
SB-4	Prologis 17	WH	777.62 KSF
SB-5	Prologis #13	WH	282 KSF
SB-6	Prologis #8	WH	542.98 KSF
SB-7	Sam Redlands Tract	SF	34 DU
SB-8	Jacinto Tract	SF	40 DU
SJ-1	Gateway Area Specific Plan	RC	1,678.24 KSF
SJ-2	TR 31886	SF	321 DU
SJ-3	TR 30598	SF	580 DU
SJ-4	TR 32955	SF	613 DU
SJWA-1	San Jacinto Wildlife Land Management Plan	**	**
<p>1 BP Business Park  HI Heavy Industrial  LI Light Industrial  MF Multifamily Residential  MO Medical Office  OG General Office  RC Retail/Unspecified Commercial  SF Single Family Residential  SR Senior Residential  WH Warehouse-Logistics</p> <p>2 DU Dwelling Units  KSF Thousand Square Feet</p> <p>** Project information not available or planning level document with no direct development proposed.</p>			

**6.7.3 Cumulative Evaluation**

Bearing in mind that CEQA does not require “perfection” but instead “adequacy, completeness, and a good faith effort at full disclosure,” the analysis of project GHG emissions and climate change is based on methodologies and information available at the time this Draft Recirculated RSFEIR was prepared. While information is presented below to assist the public and the City’s decision-makers in understanding the project’s potential contribution to global climate change impacts, the information available to the City is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

**6.7.3.1 Greenhouse Gas Emissions**

*Impact: The project’s contribution to the generation of cumulative greenhouse gas emissions would not be cumulatively considerable.*

<b>Threshold:</b>	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
-------------------	--

**Cumulative Impact Analysis**

During construction, the project would emit GHGs mainly from direct sources such as combustion of fuels from worker, vendor, haul vehicles and construction equipment. Section 4.7.6.1 Greenhouse Gas Emissions, found that construction of the project would contribute approximately from 18,783 metric tons of CO<sub>2</sub>e in its first year of construction and up to approximately 23,521 mt CO<sub>2</sub>e per year of construction during the 15-year construction period. Over the 15-year construction period the project would emit a total of 221,853 mt CO<sub>2</sub>e. The SCAQMD recommends that construction emissions be averaged over a 30-year period. Average over a 30-year period results in approximately 7,395 mt CO<sub>2</sub>e.

In addition, out of the 359 cumulative projects that were evaluated during preparation of the Revised Sections of the FEIR in 2018, 68 were found to be completed with construction or currently undergoing construction as of November 2019. Therefore, 291 potentially cumulative projects are located within the Basin that could undergo construction activities during the project’s 15-year construction period.

The SCAQMD recommends that construction-related GHG emissions be amortized over a project’s 30-year lifetime in order to include these emissions as part of a project’s annualized lifetime total emissions, so that GHG reduction measures will address construction GHG emissions as part of a project’s overall GHG reduction strategies. In accordance with this methodology, the estimated construction GHG emissions have been amortized over a 30-year period and are included in the annualized operational GHG emissions.

Operational or long-term emissions occur over the life of the project. CARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32 and SB 32. The program began on January 1, 2012, placing GHG emissions limits on capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 MT CO<sub>2</sub>e per year), and enforcing compliance obligations beginning with 2013 emissions. Vehicle fuels were placed under the cap in 2015, and with the passage of AB 398, the program was extended through 2030. The Cap-and-Trade Program allocates emissions permits across covered entities in each sector. As shown in Section 4.7.6.1 Greenhouse Gas Emissions, the project’s unmitigated uncapped emissions at full buildout in 2035 are approximately 22,974 mt CO<sub>2</sub>e per year which are over the SCAQMD’s significance threshold of 10,000 mt CO<sub>2</sub>e per year.

The quantitative analysis of operation and construction emissions utilized the SCAQMD’s Interim CEQA GHG Significance Thresholds to determine the respective project’s level of significance. Significance thresholds for each project were determined based on land use. The projects that were identified as either residential or commercial projects are considered part of the SCAQMD’s draft threshold for

residential/commercial projects and 3,000 mt CO<sub>2</sub>e per year was used in each of the greenhouse assessments. The projects that were identified as industrial/warehouses were compared against a threshold of 10,000 mt CO<sub>2</sub>e for industrial projects. Of the 359 projects analyzed, 94 projects exceeded their given threshold and 261 projects were below threshold. Given that the unmitigated project and 94 of the cumulative projects are over threshold, impacts would be potentially significant and cumulatively considerable.

**Significance Level Before Mitigation:** Cumulatively considerable significant impact.

**Mitigation Measures:** As identified in Section 4.7.6.1, **Mitigation Measures 4.7.6.1A, 4.7.6.1B, 4.7.6.1C, 4.7.6.1D, and 4.7.6.1E.1 or 4.7.6.1E.2** are required to reduce solid waste and greenhouse gas emissions from construction and operation of project development, and the purchase of credits to offset emissions and reach net-zero GHG emissions.

**Significance Level After Mitigation:** The Project's mitigated uncapped emissions total 8,563 MTCO<sub>2</sub>e at buildout in 2035, would not exceed the SCAQMD's significance threshold of 10,000 mt CO<sub>2</sub>e per year, and would be less than significant. As shown in Table 6.7-2, it is estimated that 94 projects would exceed the applicable numeric threshold, contributing to a potentially significant cumulative impact. When considered with the other projects' significant impacts, the Project would not contribute to a significant cumulative impact given that the project would generate uncapped emissions that are less than the 10,000 MTCO<sub>2</sub>e significance threshold.

**Table 6.7-2: Cumulative Annual GHG Emissions**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
B-001	SF Res	183,838	6,128	38,700	44,828	3,000	Yes
B-002	MF Res	0	0	4,793	4,793	3,000	Yes
B-003	SF Res	24,210	807	10,813	11,620	3,000	Yes
B-004	Light Industrial	5,622	187	15,860	16,047	10,000	Yes
B-005	Heavy Industrial	0	0	20,269	20,269	10,000	Yes
B-006	Business Park	6,618	221	24,215	24,436	3,000	Yes
B-007	SF Res	8,185	273	4,726	4,999	3,000	Yes
B-008	SF Res	19,952	665	7,599	8,264	3,000	Yes
B-009	SF Res	317,101	10,570	52,187	62,757	3,000	Yes
B-010	SF Res	1,014	34	1,114	1,148	3,000	No
B-011	Retail-Commercial	552	18	7,249	7,268	3,000	Yes
B-012	MF Res	0	0	2,342	2,342	3,000	No
B-013	SF Res	78,595	2,620	22,165	24,785	3,000	Yes
B-014	SF Res	20,714	690	8,209	8,900	3,000	Yes
C-001	Retail-Commercial	511	17	6,444	6,461	3,000	Yes
C-002	Business Park	11,613	387	52,851	53,238	3,000	Yes
C-003	Retail-Commercial	334	11	2,342	2,353	3,000	No
H-001	SF Res	9,602	320	6,896	7,216	3,000	Yes
H-002	SF Res	8,472	282	5,160	5,442	3,000	Yes
H-003	SF Res	24,373	812	10,918	11,731	3,000	Yes
H-004	Business Park	6,321	211	19,725	19,936	3,000	Yes
H-005	Retail-Commercial	67	2	674	676	3,000	No
H-006	Retail-Commercial	1,361	45	21,934	21,980	3,000	Yes
H-007	Senior Res	3,522	117	1,839	1,956	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
H-008	SF Res	11,597	387	3,961	4,347	3,000	Yes
H-009	Senior Res	0	0	3,077	3,077	3,000	Yes
M-001	Heavy Industrial	1,598	53	6,548	6,602	10,000	No
M-002	Light Industrial	0	0	44,681	44,681	10,000	Yes
M-003	Warehouse	12,706	424	22,741	23,164	10,000	Yes
M-004	Retail-Commercial	361	12	3,509	3,521	3,000	Yes
M-005	Light Industrial	50,188	1,673	36,068	37,741	10,000	Yes
M-006	Business Park	572	19	2,866	2,885	3,000	No
M-007	Warehouse	1,228	41	5,297	5,338	10,000	No
M-008	Medical Office	21,328	711	97,194	97,905	3,000	Yes
M-009	SF Res	1,456	49	1,583	1,632	3,000	No
M-010	Warehouse	1,069	36	4,383	4,419	10,000	No
M-011	Retail-Commercial	305	10	2,159	2,169	3,000	No
MV-001	Retail-Commercial	647	22	9,811	9,832	3,000	Yes
MV-002	MF Res	5,432	181	4,886	5,067	3,000	Yes
MV-003	Light Industrial	10,213	340	18,264	18,604	10,000	Yes
MV-004	Light Industrial	0	0	8,572	8,572	10,000	No
MV-005	Retail-Commercial	370	12	3,749	3,761	3,000	Yes
MV-006	Warehouse	1,302	43	5,881	5,925	10,000	No
MV-007	SF Res	387	13	364	376	3,000	No
MV-008	SF Res	554	18	680	699	3,000	No
MV-009	SF Res	317	11	129	140	3,000	No
MV-010	SF Res	546	18	551	569	3,000	No
MV-011	SF Res	380	13	281	294	3,000	No
MV-012	Medical Office	0	0	2,104	2,104	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
MV-013	Office	71	2	303	305	3,000	No
MV-014	SF Res	1,555	52	1,255	1,307	3,000	No
MV-015	SF Res	698	23	739	762	3,000	No
MV-016	SF Res	534	18	375	393	3,000	No
MV-017	SF Res	1,014	34	1,126	1,160	3,000	No
MV-018	Retail-Commercial	0	0	177	177	3,000	No
MV-019	Senior Res	0	0	714	714	3,000	No
MV-020	Retail-Commercial	0	0	3,022	3,022	3,000	Yes
MV-021	Medical Office	349	12	2,104	2,116	3,000	No
MV-022	SF Res	0	0	469	469	3,000	No
MV-023	MF Res	1,552	52	3,501	3,552	3,000	Yes
MV-024	SF Res	2,224	74	1,865	1,939	3,000	No
MV-025	SF Res	912	30	950	980	3,000	No
MV-026	SF Res	1,016	34	1,173	1,207	3,000	No
MV-027	MF Res	367	12	453	466	3,000	No
MV-028	MF Res	462	15	756	771	3,000	No
MV-029	SF Res	3,582	119	3,225	3,344	3,000	Yes
MV-030	SF Res	912	30	973	1,004	3,000	No
MV-031	SF Res	549	18	622	640	3,000	No
MV-032	SF Res	1,571	52	1,349	1,401	3,000	No
MV-033	SF Res	549	18	633	652	3,000	No
MV-034	SF Res	548	18	610	628	3,000	No
MV-035	SF Res	380	13	293	306	3,000	No
MV-036	MF Res	0	0	470	470	3,000	No
MV-037	Heavy Industrial	0	0	12,768	12,768	10,000	Yes

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
MV-038	Light Industrial	0	0	3,970	3,970	10,000	No
MV-039	Light Industrial	0	0	14,634	14,634	10,000	Yes
MV-040	Warehouse	342	11	772	783	10,000	No
MV-041	Warehouse	3,320	111	11,370	11,481	10,000	Yes
MV-042	Warehouse	958	32	3,500	3,532	10,000	No
MV-043	Heavy Industrial	0	0	4,390	4,390	10,000	No
MV-044	Warehouse	2,554	85	8,699	8,785	10,000	No
MV-045	Retail-Commercial	346	12	2,807	2,818	3,000	No
MV-046	Warehouse	0	0	2,998	2,998	10,000	No
MV-047	SF Res	374	12	188	200	3,000	No
MV-048	Business Park	0	0	19,397	19,397	3,000	Yes
MV-049	Business Park	0	0	20,384	20,384	3,000	Yes
MV-050	Light Industrial	0	0	3,245	3,245	10,000	No
MV-051	Light Industrial	0	0	7,036	7,036	10,000	No
MV-052	Light Industrial	0	0	8,039	8,039	10,000	No
MV-053	Warehouse	0	0	9,802	9,802	10,000	No
MV-054	Warehouse	5,625	187	13,629	13,816	10,000	Yes
MV-056	SF Res	374	12	188	200	3,000	No
MV-057	SF Res	536	18	434	452	3,000	No
MV-058	SF Res	0	0	94	94	3,000	No
MV-059	SF Res	698	23	739	762	3,000	No
MV-060	SF Res	923	31	1,079	1,110	3,000	No
MV-061	Retail-Commercial	496	17	5,799	5,816	3,000	Yes
MV-062	SF Res	9,278	309	6,368	6,677	3,000	Yes
MV-063	SF Res	2,401	80	2,592	2,672	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
MV-064	SF Res	920	31	1,020	1,051	3,000	No
MV-065	MF Res	366	12	437	449	3,000	No
MV-066	MF Res	807	27	2,107	2,134	3,000	No
MV-067	SF Res	2,236	75	1,888	1,963	3,000	No
MV-068	Heavy Industrial	533	18	1,636	1,654	10,000	No
MV-069	Heavy Industrial	0	0	3,236	3,236	10,000	No
MV-070	MF Res	795	27	2,023	2,050	3,000	No
MV-071	MF Res	363	12	411	423	3,000	No
MV-072	MF Res	275	9	201	211	3,000	No
MV-073	MF Res	470	16	806	822	3,000	No
MV-074	Senior Res	1,763	59	971	1,030	3,000	No
MV-075	Senior Res	45,745	1,525	7,505	9,030	3,000	Yes
MV-076	Retail-Commercial	655	22	10,041	10,062	3,000	Yes
MV-077	Light Industrial	1,086	36	4,875	4,911	10,000	No
MV-078	Light Industrial	0	0	4,756	4,756	10,000	No
MV-079	Warehouse	711	24	2,878	2,902	10,000	No
MV-080	Retail-Commercial	290	10	1,427	1,437	3,000	No
MV-081	Warehouse	0	0	5,489	5,489	10,000	No
MV-082	Warehouse	0	0	3,921	3,921	10,000	No
MV-083	Light Industrial	0	0	3,256	3,256	10,000	No
MV-084	Light Industrial	0	0	914	914	10,000	No
MV-085	Retail-Commercial	462	15	4,511	4,526	3,000	Yes
MV-086	SF Res	0	0	833	833	3,000	No
MV-087	MF Res	375	12	504	516	3,000	No
MV-088	MF Res	62	2	101	103	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
MV-089	MF Res	62	2	101	103	3,000	No
MV-090	Retail-Commercial	59	2	236	237	3,000	No
MV-091	SF Res	920	31	1,020	1,051	3,000	No
MV-092	SF Res	0	0	1,161	1,161	3,000	No
MV-093	MF Res	0	0	940	940	3,000	No
MV-094	MF Res	868	29	2,233	2,262	3,000	No
MV-095	Retail-Commercial	491	16	5,638	5,655	3,000	Yes
MV-096	SF Res	714	24	915	939	3,000	No
MV-097	SF Res	2,381	79	2,510	2,589	3,000	No
MV-098	SF Res	374	12	188	200	3,000	No
MV-099	MF Res	470	16	806	822	3,000	No
MV-100	MF Res	739	25	1,629	1,653	3,000	No
MV-101	Retail-Commercial	59	2	290	292	3,000	No
MV-102	Office	352	12	848	860	3,000	No
MV-103	Light Industrial	515	17	1,683	1,700	10,000	No
MV-104	Warehouse	716	24	2,925	2,949	10,000	No
MV-105	MF Res	62	2	101	103	3,000	No
MV-106	MF Res	62	2	101	103	3,000	No
MV-107	SF Res	255	9	106	114	3,000	No
MV-108	Retail-Commercial	57	2	96	98	3,000	No
MV-109	SF Res	27,106	904	12,959	13,862	3,000	Yes
MV-110	MF Res	375	12	504	516	3,000	No
MV-111	MF Res	266	9	134	143	3,000	No
MV-112	MF Res	66	2	126	128	3,000	No
MV-113	SF Res	1,473	49	1,689	1,738	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
MV-114	Retail-Commercial	58	2	184	186	3,000	No
MV-115	Office	57	2	0	2	3,000	No
MV-116	SF Res	380	13	293	306	3,000	No
MV-117	Office	300	10	525	535	3,000	No
MV-118	SF Res	255	9	106	114	3,000	No
MV-119	SF Res	535	18	410	428	3,000	No
MV-120	Retail-Commercial	505	17	6,106	6,123	3,000	Yes
MV-121	Retail-Commercial	58	2	140	142	3,000	No
MV-123	Retail-Commercial	64	2	451	453	3,000	No
MV-124	Retail-Commercial	462	15	4,511	4,526	3,000	Yes
MV-125	MF Res	275	9	201	211	3,000	No
MV-126	SF Res	3,432	114	2,756	2,870	3,000	No
MV-127	Warehouse	684	23	2,666	2,689	10,000	No
MV-129	Light Industrial	5,234	174	14,451	14,626	10,000	Yes
MV-130	Warehouse	570	19	1,740	1,759	10,000	No
MV-131	Warehouse	4,916	164	11,762	11,926	10,000	Yes
MV-132	Warehouse	2,443	81	8,626	8,707	10,000	No
P-001	SF Res	0	0	1,607	1,607	3,000	No
P-002	Warehouse	0	0	4,705	4,705	10,000	No
P-003	Warehouse	0	0	3,625	3,625	10,000	No
P-004	Light Industrial	503	17	1,573	1,590	10,000	No
P-005	Warehouse	971	32	3,607	3,640	10,000	No
P-006	Light Industrial	1,201	40	5,488	5,528	10,000	No
P-007	Light Industrial	2,702	90	10,883	10,973	10,000	Yes
P-008	Light Industrial	594	20	2,204	2,224	10,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
P-009	Heavy Industrial	1,244	41	5,072	5,113	10,000	No
P-010	Warehouse	0	0	13,331	13,331	10,000	Yes
P-011	Heavy Industrial	0	0	9,678	9,678	10,000	No
P-012	Light Industrial	965	32	4,153	4,185	10,000	No
P-014	Warehouse	2,688	90	9,410	9,500	10,000	No
P-015	Warehouse	0	0	6,123	6,123	10,000	No
P-016	Warehouse	0	0	10,273	10,273	10,000	Yes
P-017	Warehouse	0	0	4,548	4,548	10,000	No
P-018	Warehouse	0	0	12,131	12,131	10,000	Yes
P-019	Warehouse	0	0	5,470	5,470	10,000	No
P-020	Warehouse	0	0	6,834	6,834	10,000	No
P-021	Warehouse	0	0	1,333	1,333	10,000	No
P-022	Warehouse	722	24	2,980	3,004	10,000	No
P-023	Warehouse	510	17	1,411	1,428	10,000	No
P-024	Warehouse	3,343	111	11,480	11,592	10,000	Yes
P-025	Warehouse	1,969	66	8,140	8,205	10,000	No
P-026	Light Industrial	1,514	50	7,423	7,474	10,000	No
P-027	Warehouse	0	0	6,775	6,775	10,000	No
P-028	Light Industrial	1,271	42	6,128	6,170	10,000	No
P-030	SF Res	8,865	296	5,770	6,065	3,000	Yes
P-031	MF Res	426	14	630	644	3,000	No
P-032	Retail-Commercial	1,209	40	20,717	20,757	3,000	Yes
P-033	SF Res	58,216	1,941	21,813	23,754	3,000	Yes
P-034	Warehouse	13,703	457	24,833	25,290	10,000	Yes
P-035	MF Res	296	10	336	346	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
P-036	Retail-Commercial	21,179	706	28,655	29,361	3,000	Yes
P-037	SF Res	0	0	2,146	2,146	3,000	No
P-038	SF Res	0	0	2,615	2,615	3,000	No
P-039	Warehouse	1,338	45	6,146	6,190	10,000	No
P-040	SF Res	1,585	53	1,431	1,484	3,000	No
P-041	Light Industrial	481	16	1,370	1,386	10,000	No
P-042	SF Res	555	18	715	734	3,000	No
P-043	SF Res	554	18	668	687	3,000	No
P-044	MF Res	468	16	789	805	3,000	No
P-045	MF Res	426	14	630	644	3,000	No
P-046	Senior Res	5,138	171	2,204	2,375	3,000	No
P-047	SF Res	9,084	303	6,110	6,413	3,000	Yes
P-048	SF Res	711	24	880	903	3,000	No
P-049	SF Res	1,571	52	1,337	1,389	3,000	No
P-050	Retail-Commercial	341	11	2,578	2,589	3,000	No
P-051	SF Res	535	18	410	428	3,000	No
P-052	SF Res	912	30	962	992	3,000	No
P-053	SF Res	2,236	75	1,888	1,963	3,000	No
P-054	SF Res	3,438	115	2,791	2,906	3,000	No
P-055	Retail-Commercial	995	33	14,499	14,532	3,000	Yes
P-056	Light Industrial	60	2	90	92	10,000	No
P-057	Warehouse	76	3	327	329	10,000	No
P-058	Heavy Industrial	718	24	2,986	3,010	10,000	No
P-059	SF Res	3,450	115	2,850	2,965	3,000	No
P-060	Retail-Commercial	58	2	145	147	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
P-061	Warehouse	0	0	2,745	2,745	10,000	No
R-001	Business Park	0	0	17,968	17,968	3,000	Yes
R-002	Warehouse	0	0	4,570	4,570	10,000	No
R-003	Light Industrial	0	0	5,964	5,964	10,000	No
R-004	MF Res	768	26	1,813	1,839	3,000	No
R-005	Medical Office	1,198	40	13,150	13,190	3,000	Yes
R-006	MF Res	429	14	646	661	3,000	No
R-007	Retail-Commercial	298	10	1,808	1,817	3,000	No
R-008	Senior Res	403	13	190	204	3,000	No
R-009	Retail-Commercial	170,897	5,697	282,806	288,503	3,000	Yes
R-010	Retail-Commercial	67	2	759	761	3,000	No
R-011	Business Park	715	24	4,451	4,475	3,000	Yes
R-012	Retail-Commercial	303	10	1,978	1,988	3,000	No
R-013	SF Res	58	2	35	37	3,000	No
R-014	Retail-Commercial	58	2	124	126	3,000	No
R-015	SF Res	2,265	75	2,014	2,089	3,000	No
R-016	SF Res	57	2	18	20	3,000	No
R-017	MF Res	879	29	2,309	2,338	3,000	No
R-018	Light Industrial	197,176	6,573	82,663	89,235	10,000	Yes
R-019	MF Res	368	12	462	474	3,000	No
R-020	Warehouse	3,341	111	11,460	11,572	10,000	Yes
R-021	SF Res	319	11	176	187	3,000	No
R-022	SF Res	255	9	106	114	3,000	No
R-023	Retail-Commercial	59	2	259	261	3,000	No
R-024	SF Res	351,603	11,720	58,637	70,357	3,000	Yes

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
R-025	MF Res	757	25	1,746	1,771	3,000	No
R-026	Business Park	5,336	178	22,771	22,949	3,000	Yes
R-027	Retail-Commercial	58	2	117	118	3,000	No
R-028	Senior Res	1,057	35	688	724	3,000	No
R-029	Retail-Commercial	58	2	122	124	3,000	No
R-030	Retail-Commercial	520	17	6,720	6,737	3,000	Yes
R-031	MF Res	287	10	302	312	3,000	No
R-032	Retail-Commercial	67	2	718	720	3,000	No
R-033	MF Res	282	9	252	261	3,000	No
R-034	Office	61	2	123	125	3,000	No
R-035	MF Res	475	16	856	872	3,000	No
R-036	MF Res	376	13	520	533	3,000	No
R-037	Retail-Commercial	58	2	193	195	3,000	No
R-038	Retail-Commercial	58	2	113	115	3,000	No
R-039	SF Res	8,141	271	4,714	4,986	3,000	Yes
R-040	Retail-Commercial	57	2	77	79	3,000	No
R-041	Office	68	2	234	236	3,000	No
R-042	SF Res	9,683	323	7,013	7,336	3,000	Yes
R-043	SF Res	547	18	586	605	3,000	No
R-044	Retail-Commercial	58	2	129	131	3,000	No
R-045	Office	75	2	383	386	3,000	No
R-046	SF Res	535	18	420	438	3,000	No
R-047	Warehouse	349	12	845	856	10,000	No
R-048	Retail-Commercial	337	11	2,426	2,437	3,000	No
R-049	Senior Res	3,154	105	1,592	1,698	3,000	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
R-050	SF Res	253	8	45	53	3,000	No
R-051	Retail-Commercial	57	2	76	78	3,000	No
R-052	SF Res	534	18	375	393	3,000	No
R-053	SF Res	386	13	340	353	3,000	No
R-054	SF Res	380	13	293	306	3,000	No
R-055	SF Res	379	13	235	247	3,000	No
R-056	Office	465	16	1,323	1,338	3,000	No
R-057	Light Industrial	503	17	1,570	1,586	10,000	No
R-058	Retail-Commercial	57	2	88	90	3,000	No
R-059	Retail-Commercial	58	2	130	132	3,000	No
R-060	Business Park	367	12	1,327	1,340	3,000	No
R-061	Retail-Commercial	775	26	13,707	13,733	3,000	Yes
R-062	Retail-Commercial	57	2	59	61	3,000	No
R-063	MF Res	273	9	176	185	3,000	No
R-064	SF Res	253	8	59	67	3,000	No
R-065	SF Res	556	19	727	746	3,000	No
R-066	Retail-Commercial	59	2	198	200	3,000	No
RC-001	SF Res	43,931	1,464	14,671	16,135	3,000	Yes
RC-002	SF Res	81,912	2,730	23,455	26,185	3,000	Yes
RC-003	SF Res	189,155	6,305	40,014	46,319	3,000	Yes
RC-005	SF Res	21,537	718	8,796	9,513	3,000	Yes
RC-006	Business Park	1,243	41	7,840	7,881	3,000	Yes
RC-007	Warehouse	5,138	171	12,442	12,613	10,000	Yes
RC-009	Heavy Industrial	2,729	91	9,608	9,699	10,000	No
RC-010	Light Industrial	69,526	2,318	56,707	59,025	10,000	Yes

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
RC-011	Warehouse	1,368	46	6,383	6,429	10,000	No
RC-012	Light Industrial	762	25	3,875	3,900	10,000	No
RC-013	SF Res	8,909	297	5,829	6,125	3,000	Yes
RC-014	MF Res	1,109	37	2,686	2,723	3,000	No
RC-015	SF Res	1,473	49	1,665	1,714	3,000	No
RC-017	Retail-Commercial	59	2	299	301	3,000	No
RC-018	SF Res	319	11	176	187	3,000	No
RC-019	Retail-Commercial	294	10	1,701	1,711	3,000	No
RC-020	Retail-Commercial	57	2	90	92	3,000	No
RC-021	Warehouse	60	2	63	65	10,000	No
RC-022	SF Res	1,453	48	1,536	1,585	3,000	No
RC-023	Light Industrial	297	10	480	490	10,000	No
RC-024	Light Industrial	521	17	1,745	1,762	10,000	No
RC-025	Light Industrial	328	11	777	788	10,000	No
RC-026	SF Res	57	2	23	25	3,000	No
RC-027	Light Industrial	517	17	1,726	1,743	10,000	No
RC-028	Retail-Commercial	58	2	180	182	3,000	No
RC-029	Retail-Commercial	59	2	262	264	3,000	No
RC-030	Warehouse	2,777	93	9,873	9,966	10,000	No
RC-031	Light Industrial	510	17	1,652	1,669	10,000	No
RC-032	SF Res	21,151	705	8,514	9,219	3,000	Yes
RC-033	SF Res	8,035	268	4,503	4,771	3,000	Yes
RC-034	SF Res	8,404	280	5,066	5,346	3,000	Yes
RC-035	MF Res	143,338	4,778	34,208	38,986	3,000	Yes
RC-036	SF Res	8,690	290	5,488	5,778	3,000	Yes

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
RC-037	SF Res	9,427	314	6,591	6,905	3,000	Yes
RC-038	Warehouse	5,837	195	14,301	14,496	10,000	Yes
RC-039	SF Res	540	18	457	475	3,000	No
RD-001	SF Res	0	0	962	962	3,000	No
RD-002	SF Res	0	0	645	645	3,000	No
RD-003	SF Res	1,025	34	1,208	1,242	3,000	No
RD-004	SF Res	704	23	786	809	3,000	No
RD-005	Warehouse	0	0	3,926	3,926	10,000	No
RD-006	Retail-Commercial	291	10	1,554	1,563	3,000	No
RD-007	Retail-Commercial	376	13	4,116	4,128	3,000	Yes
RD-008	MF Res	452	15	672	687	3,000	No
RD-009	Retail-Commercial	290	10	1,411	1,421	3,000	No
RD-010	Light Industrial	477	16	1,329	1,344	10,000	No
RD-011	Retail-Commercial	298	10	1,787	1,797	3,000	No
RD-012	Warehouse	0	0	4,715	4,715	10,000	No
RD-013	Warehouse	0	0	7,944	7,944	10,000	No
RD-014	Warehouse	0	0	6,054	6,054	10,000	No
RD-015	Warehouse	0	0	3,317	3,317	10,000	No
RD-016	Warehouse	0	0	5,605	5,605	10,000	No
SB-001	Warehouse	0	0	4,817	4,817	10,000	No
SB-002	Warehouse	0	0	2,458	2,458	10,000	No
SB-003	Warehouse	0	0	4,655	4,655	10,000	No
SB-004	Warehouse	0	0	6,098	6,098	10,000	No
SB-005	Warehouse	0	0	2,211	2,211	10,000	No
SB-006	Warehouse	0	0	4,258	4,258	10,000	No

Project ID	Land Use	Emissions (MTCO <sub>2e</sub> )				Threshold	Impact?
		Total Construction Emissions	Amortized Construction Emissions	Total Operational Emissions	Total Amortized Construction and Operational Emissions		
SB-007	SF Res	535	18	399	417	3,000	No
SB-008	SF Res	540	18	469	487	3,000	No
SJ-001	Retail-Commercial	5,692	190	54,071	54,261	3,000	Yes
SJ-002	SF Res	7,530	251	3,764	4,015	3,000	Yes
SJ-003	SF Res	9,564	319	6,802	7,121	3,000	Yes
SJ-004	SF Res	9,808	327	7,189	7,516	3,000	Yes
<b>Total</b>	<b>-</b>	<b>2,626,148</b>	<b>87,538</b>	<b>2,324,161</b>	<b>2,411,700</b>	<b>-</b>	<b>-</b>

**6.7.3.2 Greenhouse Gas Plan, Policy, Regulation Consistency**

*Impact: The project, together with cumulative projects, would not cumulatively contribute to conflicts with applicable plans, policies and regulations to reduce greenhouse gas emissions. The project would not be cumulatively considerable.*

<b>Threshold:</b> Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?
---

**Cumulative Impact Analysis**

Section 4.7.6.2 Greenhouse Gas Plan, Policy, Regulation Consistency, assesses the project's consistency with applicable federal, state, regional, and local GHG reduction strategies. The project would comply with all mandatory reduction strategies such as water conservation, energy efficiency, solid waste reduction, and efficiency measures related to transportation and motor vehicles. In addition, the project would go beyond energy conservation measures and exceed minimum compliance with 2019 Title 24 requirements.

Although all cumulative projects are required to comply with mandatory federal, state, regional, and applicable local GHG reduction measures, it would be speculative to assume that all cumulative projects would be consistent with all applicable plans, policies, and regulations related to the reduction of GHG emissions. However, as discussed in Section 4.7.6.2, the project would comply with and would not conflict with applicable GHG reduction measures. Additionally, the project would contribute to further reductions by exceeding minimum compliance with Title 24 requirements, incorporating an alternative fuel service station, and supporting infrastructure to accommodate future electric vehicle populations. Therefore, the project's contribution to cumulative impacts would not be cumulatively considerable.

**Significance Level Before Mitigation:** Cumulatively considerable significant impact.

**Mitigation Measures:** Implementation of previously referenced **Mitigation Measures 4.3.6.2A, 4.3.6.3B, 4.3.6.4A, 4.3.6.3C, 4.3.6.3D, 4.7.6.1A, 4.7.6.1B, 4.7.6.1C, 4.7.6.1D, 4.7.6.1E, 4.16.1.6.1A, 4.16.1.6.1B, and 4.16.1.6.1C** will help reduce project-related GHG emissions and therefore make it more consistent with GHG reduction plans, policies, and/or regulations.

**Significance Level After Mitigation:** As mentioned above, it would be speculative to assume that all 359 listed cumulative projects would be consistent with all applicable plans, policies, and regulations related to the reduction of GHG emissions. Therefore, it is possible that any of the cumulative projects are inconsistent with any plans, policies, and regulations and would result in a potentially significant impact. Therefore, the cumulative impact would be potentially significant. However, because the project's impact would be less than significant with mitigation, the project is not contributing to cumulatively considerable impacts.

**NOTE TO READERS:** Section 6.17, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 6.17 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 6.17 replaces the cumulative analysis provided in Section 4.16.4.7 of the FEIR prepared in 2015.

## **6.17 Energy**

Cumulative effects to energy are described in this section. A summary of the project’s incremental contribution to potential cumulative impacts to energy issues is provided in Section 6.17.1. The geographic and temporal scopes of the cumulative analysis are described in Section 6.17.2. The potential cumulative impacts and the project’s contribution to cumulative impacts to each of the energy issues are discussed in Section 6.17.3. In addition, a brief summary of the impact significance of the project’s contribution to cumulative impacts for each issue is also provided in Section 6.17.3 as well as applicable mitigation measures and significance determination after mitigation. Cumulative emissions calculations are included as Appendix E.6 of this Draft Recirculated RSFEIR.

The cumulative projects identified in Table 6.17-1 and their respective CEQA documents (if available) have been reviewed and evaluated in conjunction with the project to determine if they could contribute to a cumulatively considerable impact to energy. These potentially cumulative impacts are documented in the following section.

### **6.17.1 Project Impact Findings**

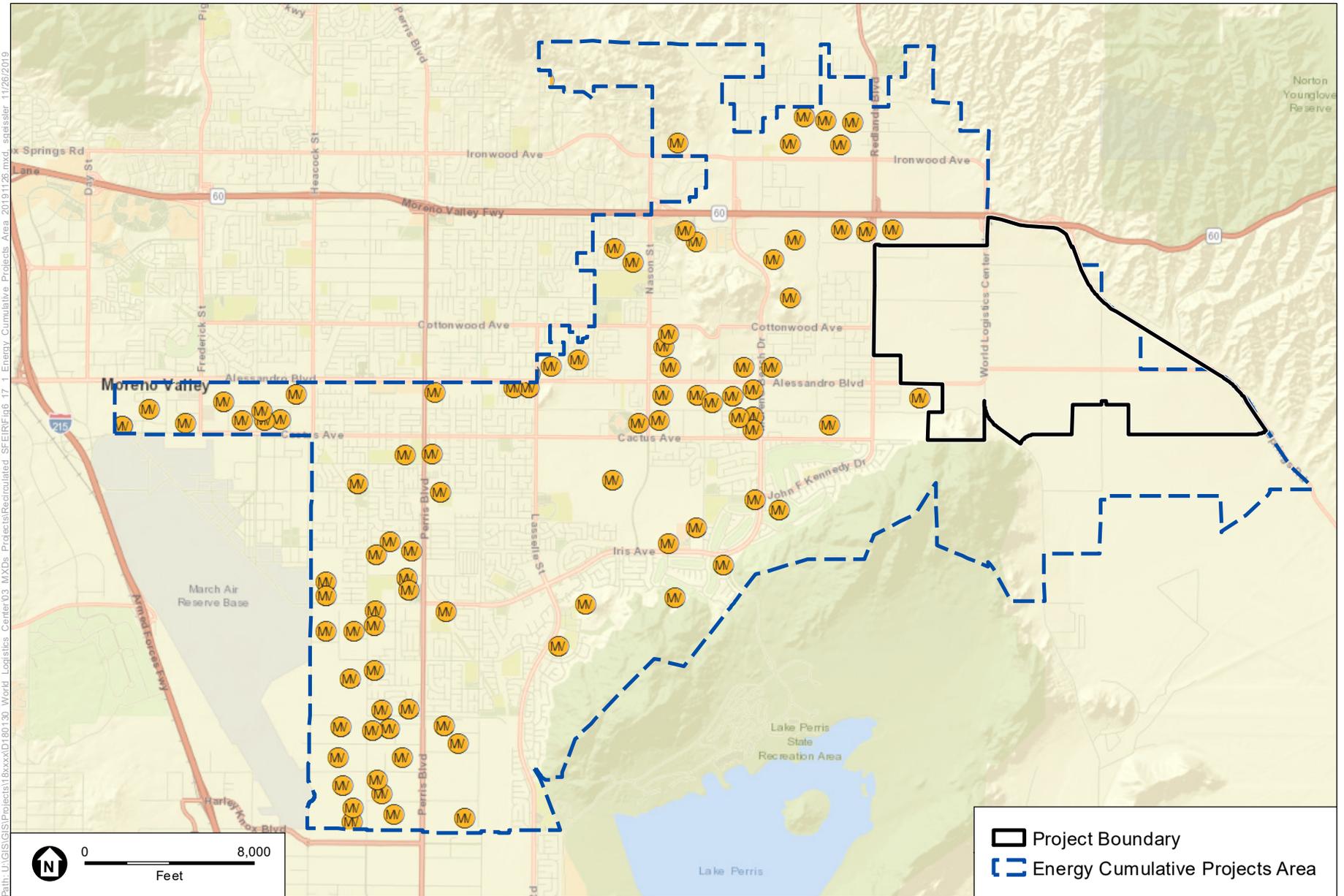
The project’s effects to energy are summarized in this section, and the impacts have been evaluated against the following thresholds that were developed based on the CEQA Guidelines Appendix G thresholds, as modified to address potential project impacts. After each threshold, a significance determination for the project impacts is provided as well as a reference to the specific section and impact number if the impact determination is significant.

Would the project:

- Result in energy use and consumption that would cause wasteful, inefficient, and unnecessary consumption of energy? **Less than Significant, Section 4.17.7.1.**
- Require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects? **Less than Significant, Section 4.17.7.2.**
- Complies with Existing Energy Standards. **Less than Significant, Section 4.17.7.2.**

### **6.17.2 Geographic and Temporal Scope**

The geographic area for evaluating potential cumulative energy impacts is the Moreno Valley Electric Utility (MVU) service area for electricity (shown on Figure 6.17-1), the Southern California Gas Company service area for natural gas, and the State for transportation fuel use. Cumulative impacts to energy could result from the project in conjunction with other past, present and future projects located within the applicable service area for each energy sector. The MVU service area covers over half of the City of Moreno Valley and follows the southern, eastern, and portions of the northern city boundary. The MVU service boundary is the appropriate cumulative project area boundary for electricity as the project is located within the MVU service area. Cumulative projects within the MVU service area has been evaluated with the Project to determine if any cumulative electricity impact would occur. All other cumulative projects identified in the Traffic Impact Assessment (TIA) have been included in the analysis of cumulative natural gas and transportation fuel impacts. The project would contribute to cumulative impacts to energy starting when the project begins to demand energy resources and would last for the duration of the project.



SOURCE: ESRI; ESA; Highland Fairview 3/29/2018

World Logistics Center  
**Figure 6.17-1**  
 Energy Cumulative Projects Area



## Draft Recirculated Revised Sections of the Final Environmental Impact Report

Electrical and natural gas use for the cumulative projects was calculated using the land use size and type along with CalEEMod default energy use and intensity rates for each project. Electricity and Natural gas consumption from building operations was calculated using the default Title 24, non-title 24 and lighting use rates for each project based on the default 2016 Title 24 values. Electricity use from the supply, treatment and distribution of water and wastewater was also calculated based on CalEEMod's water use rates and electricity intensities.

Gallons of transportation fuel (diesel and natural gas) was quantified for each project as a result of construction and operational mobile source activities. Construction consumption was quantified for onsite construction equipment (assumed all diesel), as well as on-road diesel (haul and vendor trips) and gasoline (worker commute trips). Operational consumption was quantified for on-road diesel, gasoline, and natural gas vehicle use. Transportation fuel consumption for the cumulative projects was calculated using the annual metric tons of CO<sub>2</sub>e and the energy per gallon of fuel from the EIA for gasoline and diesel and per thousand cubic feet for natural gas. Diesel and gasoline consumption is reported as gallons of fuel whereas natural gas is reported in million British Thermal Units.

**Table 6.17-1: Energy Cumulative Projects Summary**

Project ID	Project Name	Land Use <sup>1</sup>	Size <sup>2</sup>
B-1	Fairway Canyon SCPGA Tract Nos. 31462, 36558, and 36783 (#29)	SF	3,300 DU
B-10	Tract No. 32850 (#39)	SF	95 DU
B-11	San Gorgonio Village, Phase 2 (#45)	RC	225 KSF
B-12	Beaumont Commercial Center	MF	279 DU
B-13	Four Seasons (#23) Tract Nos. 32260 and 33096	SF	1,890 DU
B-14	Potrero Creek Estates (#26)	SF	700 DU
B-2	Tournament Hills 3, TM 36307	MF	571 DU
B-3	Heartland	SF	922 DU
B-4	Hidden Canyon	LI	1,734 KSF
B-5	ProLogis/Rolling Hills Ranch	HI	2,565.68 KSF
B-6	Mountain Bridge Regional Commercial Planned Community*	BP	1,853.25 KSF
B-7	Kirkwood Ranch (#14)	SF	403 DU
B-8	Noble Creek Vistas (#10)	SF	648 DU
B-9	Sundance (#17)	SF	4,450 DU
C-1	TTM 33931 Fiesta Oak Valley/Mesa Verde Estates	RC	200 KSF
C-2	Summerwind Ranch	BP	1,579 KSF
C-2	Summerwind Ranch	BP	1,000 KSF
C-3	JP Ranch	RC	72.7 KSF
H-1	TTM 36841	SF	588 DU
H-10	Downtown Hemet Specific Plan	**	**
H-2	Rancho Diamante	SF	440 DU
H-3	Tres Cerritos Specific Plan	SF	931 DU
H-4	Sanderson Square	LI	734.98 KSF
H-4	Sanderson Square	LI	995.15 KSF
H-5	Mc Sweeny Farms SP	RC	20.90 KSF
H-6	Ramona Creek	RC	680.788 KSF
H-7	Peppertree Specific Plan	SR	358 KSF
H-8	Florida Promenade Residential SP	SF	145 DU
H-9	TTM 31807 / 31808	SR	599 KSF
M-1	Amstar/Kaliber Development PP22925	HI	409.312 KSF
M-10	Airport Master Plan	WH	559 KSF
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	RC	67 KSF
M-2	Meridian Business Park	LI	487.8 KSF
M-3	Meridian Business Park – Phase 3	WH	2,900 KSF
M-4	March Business Center – South Campus	RC	108.9 KSF
M-5	Meridian LNR	OG	232.76 KSF
M-6	Ben Clark Training Facility	BP	219.35 KSF
M-7	Meridian Business Park – Phase K4	WH	675.5 KSF
M-8	March LifeCare Campus Specific Plan	MO	2,930 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
M-9	TM 34748	SF	135 DU
MV-1	Auto Mall SP	RC	304.5 KSF
MV-10	TR30998 / Pacific Communities	SF	47 DU
MV-100	Scottish Village	MF	194 DU
MV-101	Restaurant	RC	9 KSF
MV-102	Moreno Valley Professional Center	OG	84 KSF
MV-103	Gateway Business Park	LI	184 KSF
MV-104	373K Industrial Facility	WH	373.03 KSF
MV-105	35369 Tason Myers Property	MF	12 DU
MV-106	35304 Jimmy Lee	MF	12 DU
MV-107	32711 Isaac Genah	SF	9 DU
MV-108	O'Reilly Automotive	RC	2.97 KSF
MV-109	Quail Ranch	SF	1,105 DU
MV-11	TR30411 / Pacific Communities	SF	24 DU
MV-110	TM 33417	MF	60 DU
MV-111	35769 Michael Chen	MF	16 DU
MV-112	PA09-0006 Jim Nydam	MF	15 DU
MV-113	Ironwood Residential	SF	144 DU
MV-114	Stoneridge Town Centre – Vacant Restaurant	RC	5.7 KSF
MV-115	Olivewood Plaza – Office Building	OG	0.02 KSF
MV-116	31621 Peter Sanchez	SF	25 DU
MV-117	MV-101	OG	52 KSF
MV-118	28860 Professor's Fun IV	SF	9 DU
MV-119	32126 Salvador Torres	SF	35 DU
MV-12	Moreno Medical Campus	MO	80 KSF
MV-120	Moreno Valley Shopping Center	RC	189.52 KSF
MV-121	Yum Donut Shop	RC	4.35 KSF
MV-122	Centerpointe Business Park	**	**
MV-123	Rancho Belago Plaza – Retail	RC	14 KSF
MV-124	Alessandro & Lasselle	RC	140 KSF
MV-125	32756 Jimmy Lee	MF	24 DU
MV-126	TTM 33222	SF	235 DU
MV-13	Cresta Bella	OG	30 KSF
MV-14	TR32548 / Gabel, Cook & Assoc.	SF	107 DU
MV-15	TR32218 / Whitney	SF	63 DU
MV-16	TR32284 / 26th Corporation & Granite Capitol	SF	32 DU
MV-17	TR31590 / Winchester Associates	SF	96 DU
MV-18	Convenience Store / Fueling Station	RC	5.5 KSF
MV-19	Senior Assisted Living	SR	139 KSF
MV-2	TR35823 / Stowe Passco Devel.	SF	262 DU
MV-20	Moreno Marketplace	RC	93.79 KSF
MV-21	PEN16-0053 Medical Center	MO	80 KSF
MV-22	TR36882 (PA15-0010) SFR	SF	40 DU
MV-23	PEN16-0129/0130 MV Ranch Apartments	MF	417 DU
MV-24	TM 36436 (PA12-0005)	SF	159 DU
MV-25	TR32142	SF	81 DU
MV-26	TR 30268 (PA01-0072) Pacific Communities	SF	100 DU
MV-27	TR32917 / Empire land	MF	54 DU
MV-28	TR34329 / Granite Capitol	MF	90 DU
MV-29	TR36340	SF	275 DU
MV-3	ProLogis	WH	1,901 KSF
MV-30	PA03-0168 TR 31517	SF	83 DU
MV-31	PA15-0034 TR 36983	SF	53 DU
MV-32	TTM 31592 (P13-078) SFR	SF	115 DU
MV-33	TR32645 / Winchester Assoc.	SF	54 DU
MV-34	TR34397/Winchester Assoc.	SF	52 DU
MV-35	TR31771 / Sanchez	SF	25 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-36	TM 31618 (PA03-0106)	MF	56 DU
MV-37	Vogel /PA09-004	HI	1,616.13 KSF
MV-38	Vogel Properties	LI	434 KSF
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	LI	1,600 KSF
MV-4	Westridge Commerce Center	LI	937.26 KSF
MV-40	PEN17-0036 Warehouse	WH	98.40 KSF
MV-41	First Nandina Logistics Center	WH	1,450 KSF
MV-42	Indian Street Commerce Center	WH	446.35 KSF
MV-43	Ivan Devries / PA06-0017	HI	555.67 KSF
MV-44	Modular Logistics Center (Kearny RE Co)	WH	1,109.38 KSF
MV-45	Iris Plaza	RC	87.12 KSF
MV-46	Harley Knox/Redlands Development	WH	382.28 KSF
MV-47	PA07-0129 TR 35606 SFR	SF	16 DU
MV-48	PA11-001 thru 007 March Business Center	BP	1484.50 KSF
MV-49	Indian Business Park	BP	1,560.05 KSF
MV-5	P06-158 / Gascon	RC	116.36 KSF
MV-50	San Michele Industrial Center	LI	354.81 KSF
MV-51	PA07-0165 thru 01667 First Industrial I & II	LI	769.32 KSF
MV-52	First Industrial III & IV	LI	878.96 KSF
MV-53	I-215 Logistics Center	WH	1,250 KSF
MV-54	Moreno Valley Logistics Center (Prologis)	WH	1,738 KSF
MV-55	MV Commerce Park II (Alere) – Built before 2012	**	**
MV-56	Tract Map 33810	SF	16 DU
MV-57	Tract Map 34151	SF	37 DU
MV-58	Tract Map 33024	SF	8 DU
MV-59	Tract Map 31442	SF	63 DU
MV-6	Highland Fairview Corporate Park	WH	750 KSF
MV-60	Tract Map 36401	SF	92 DU
MV-61	Walmart & Gas Station	RC	180 KSF
MV-62	Tract Map 22180	SF	543 DU
MV-63	PA14-0053 (TTM 36760) Legacy Park	SF	221 DU
MV-64	TR22180 / Young Homes	SF	87 DU
MV-65	TR33607 / TL Group	MF	52 DU
MV-66	TR34988 / Stratus Properties	MF	251 DU
MV-67	TR32515	SF	161 DU
MV-68	PA07-0035	HI	207.09 KSF
MV-69	PA07-0039 (Industrial Area SP)	HI	409.60 KSF
MV-7	TR33962 / Pacific Scene Homes	SF	31 DU
MV-70	TR32756 / CTK, Inc.	MF	241 DU
MV-71	TR34681 / Perris Pacific Co.	MF	49 DU
MV-72	35861 Frederick Homes	MF	24 DU
MV-73	TR36038 / Alessandro Village Plaza LLC	MF	96 DU
MV-74	TR34216 / Creative Design Assoc.	SR	189 KSF
MV-75	Aqua Bella Specific Plan	SR	1,461 KSF
MV-76	Commercial Medical Plaza PA09-0033 thru 0039, and*	RC	311.63 KSF
MV-77	Minka Lighting	LI	533 KSF
MV-78	Overton Moore Properties PA08-0072	LI	520 KSF
MV-79	Shaw Development	WH	367 KSF
MV-8	TR32460 / Sussex Capital	SF	58 DU
MV-80	PA15-0032 MV Cactus Center	RC	44.3 KSF
MV-81	Ridge Property Trust PA07-0147 & PA 07-0157	WH	700 KSF
MV-82	Centerpointe Bus. Ctr.	WH	500 KSF
MV-83	Centerpointe Business Park	LI	356 KSF
MV-84	PA16-0075 Brodiaea Business Center	LI	99.98 KSF
MV-85	Retail Center / Winco Foods	RC	140 KSF
MV-86	TR32505 / DR Horton	SF	71 DU
MV-87	TR31814 / Moreno Valley Investors	MF	60 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-88	TR33771 / Creative Design Assoc.	MF	12 DU
MV-89	TR35663 / Kha	MF	12 DU
MV-9	TR32459 / Sussex Capital	SF	11 DU
MV-90	PEN16-0110 Commercial Pad H	RC	7.31 KSF
MV-91	TR31305 / Richmond American	SF	87 DU
MV-92	TR 33256	SF	99 DU
MV-93	PA14-0042 Edgemont Apartments	MF	112 DU
MV-94	PA15-0002 Box Springs Apartments	MF	266 DU
MV-95	Moreno Beach Market Place/Lowes	RC	175 KSF
MV-96	31394 Pigeon Pass, Ltd.	SF	78 DU
MV-97	32005 Red Hill Village, LLC	SF	214 DU
MV-98	33388 SCH Development, LLC	SF	16 DU
MV-99	36038 Alessandro Village Plaza, LLC	MF	96 DU
P-1	TR32707	SF	137 DU
P-10	IDS	WH	1,700 KSF
P-11	Ridge II	HI	1,224.99 KSF
P-12	Starcrest P011-0005; 08-11-0006	LI	454.09 KSF
P-13	Ridge	**	**
P-14	Rados Distribution Center	WH	1,200 KSF
P-15	Duke Perris Logistics Center	WH	780.82 KSF
P-16	Perris Ridge Commerce Center I	WH	1,310 KSF
P-17	SRG Perris LC	WH	580 KSF
P-18	P07-07-0029	WH	1,547 KSF
P-19	P05-0192	WH	697.6 KSF
P-2	TR34716	WH	600 KSF
P-20	P05-0113	WH	871.5 KSF
P-21	P07-09-0018	WH	170 KSF
P-22	NICOL	WH	380 KSF
P-23	Westcoast Textiles	WH	180 KSF
P-24	Optimus Logistics Center 1	WH	1,464 KSF
P-25	Optimus Logistics Center 2	WH	1,038 KSF
P-26	Duke Warehouse	LI	811.62 KSF
P-27	Perris DC (Industrial Property Trust)	WH	864 KSF
P-28	Duke Warehouse	LI	670 KSF
P-29	P06-0411	**	**
P-3	P05-0477	WH	462.3 KSF
P-30	Avelina	SF	492 DU
P-31	Perris Family Apartments	MF	75 DU
P-32	Lewis Retail Center	RC	643 KSF
P-33	Harvest Landing Specific Plan	SF	1,860 DU
P-34	South Perris Industrial Phase 3	WH	3,166.86 KSF
P-35	Verano Apartments	MF	40 DU
P-36	South Perris Industrial Phase 2	WH	3,448.73 KSF
P-37	Cabrillo	SF	183 DU
P-38	Sequoia	SF	223 DU
P-39	South Perris Industrial Phase 1	WH	783.7 KSF
P-4	Bookend	LI	172 KSF
P-40	TR 32041	SF	122 DU
P-41	P 06-0228	LI	149.74 KSF
P-42	TR 31650	SF	61 DU
P-43	TR 31225	SF	57 DU
P-44	TR 33193	MF	94 DU
P-45	P 12-05-0013	MF	75 DU
P-46	P 06-0378	SR	429 KSF
P-47	Park West Specific Plan	SF	521 DU
P-48	TR 33338	SF	75 DU
P-49	TR 31240	SF	114 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
P-5	Markham East	WH	460 KSF
P-50	P 11-09-0011	RC	80 KSF
P-51	TR 30973	SF	35 DU
P-52	TR 31226	SF	82 DU
P-53	TR 31659	SF	161 DU
P-54	TTM 32708	SF	238 DU
P-55	Perris Marketplace	RC	450 KSF
P-56	PM 34199 / TPM 34697	LI	9.85 KSF
P-57	P 04-0343	WH	41.65 KSF
P-58	Jordan Distribution	HI	378 KSF
P-59	TR 31407	SF	243 DU
P-6	Perris Circle Industrial Park	LI	600 KSF
P-60	Retail on Redlands	RC	4.5 KSF
P-61	TR32707	WH	350 KSF
P-7	Duke Warehouse	LI	1,189.9 KSF
P-8	First Perry Logistics Project	LI	241 KSF
P-9	Aiere	HI	642 KSF
R-1	Sycamore Canyon Business Park – Bldgs 1&2	BP	1,375.17 KSF
R-10	SR-91/ Van Buren Commercial	RC	23.57 KSF
R-11	Citrus Business Park Specific Plan	BP	340.66 KSF
R-12	Sycamore Canyon Business Park Specific Plan	RC	61.38 KSF
R-13	14601 Dauchy Av. – TM 36370	SF	3 DU
R-14	360 Alessandro Boulevard	RC	3.86 KSF
R-15	Mission Grove Specific Plan	SF	171.70 DU
R-16	Sycamore Canyon Specific Plan	SF	1.53 DU
R-17	5940-5980 Sycamore Canyon Boulevard	MF	275 DU
R-18	Hunter Business Park	LI	9,037.83 KSF
R-19	807 Blaine Street	MF	55 DU
R-2	Alessandro Business Center (Western Realco)	WH	582.77 KSF
R-20	474 Palmyrita Avenue	WH	1,461.45 KSF
R-21	1006 & 1008 Clark Street	SF	15 DU
R-22	3719 Strong Street	SF	9 DU
R-23	1710 Main Street (P12-0717)	RC	8.04KSF
R-24	Downtown Specific Plan	SF	5,000 DU
R-25	P14-0045 thru -0048	MF	208 DU
R-26	Marketplace Specific Plan	LI	943.51 KSF
R-27	2586 University Avenue	RC	3.62 KSF
R-28	2340 Fourteenth Street	SR	134 KSF
R-29	6570 Magnolia Avenue; 3739 & 3747 Central Avenue	RC	3.80 KSF
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	LI	652.02 KSF
R-30	3545 Central Avenue	RC	208.57 KSF
R-31	P08- 0396 / P08-0397 Thru -0399 / TM 35620	MF	36 DU
R-32	Walmart Expansion	RC	22.27 KSF
R-33	5731, 5741, 5761, & 5797 Pickler Street	MF	30 DU
R-34	4247 Van Buren Boulevard	OG	12.17 KSF
R-35	3990 Reynolds Road	MF	102 DU
R-36	Magnolia Garden Condominiums	MF	62 DU
R-37	3705 Tyler Street	RC	6 KSF
R-38	Park Sierra Avenue	RC	3.5 KSF
R-39	Riverwalk Vista Specific Plan	SF	402 DU
R-4	Quail Run	MF	216 DU
R-40	P12- 0019 / P12-0156 / P12-0158	RC	2.4 KSF
R-41	4824 Jones Avenue	OG	23.12 KSF
R-42	Rancho La Sierra Specific Plan	SF	598 DU
R-43	P05-1528 / P09-0087 / TM 34509	SF	50 DU
R-44	6465 Sycamore Canyon Boulevard	RC	4 KSF
R-45	P06-0591	OG	37.94 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
R-46	Sycamore-Highlands Specific Plan	SF	35.84 DU
R-47	P06-0160 / P06-1281	WH	107.73 KSF
R-48	P06-1408	RC	75.3 KSF
R-49	Canyon Springs Specific Plan	SR	310 KSF
R-5	Canyon Springs Healthcare Campus	MO	500 KSF
R-50	Orangetrest Specific Plan	SF	3.83 DU
R-51	P10-0808 / P10-0708	RC	2.36 KSF
R-52	19811 Lurin Avenue	SF	32 DU
R-53	P06-1404 / Lurin Avenue / TM 33482	SF	29 DU
R-54	P06-1396 / Mariposa Avenue / TM 33481	SF	25 DU
R-55	P06-0900 / P08- 0269 / P08-0270 / TTM 32301	SF	20 DU
R-56	Office, Magnon & Panattoni	OG	131 KSF
R-57	SEC Sycamore Canyon Boulevard & Box Springs Road	LI	171.62 KSF
R-58	Canyon / Valley Springs Parkway	RC	2.75 KSF
R-59	Alessandro and Gorgonio	RC	4.05 KSF
R-6	2450 Market Street	MF	77 DU
R-60	Alessandro Bl.	BP	101.58 KSF
R-61	Gless Ranch	RC	425.45 KSF
R-62	6091 Victoria Avenue (P13-0432)	RC	1.83 KSF
R-63	8616 California Avenue (P08-0084; PM 35852)	MF	21 DU
R-64	P13-0389 / TM 36579	SF	5 DU
R-65	P13-0723; P13-0724; P13-0725; TM 36654	SF	62 DU
R-66	Azar Plaza	RC	6.15 KSF
R-7	2861 Mary Street	RC	56.10 KSF
R-8	5938-5944 Grand Avenue	SR	37 KSF
R-9	Magnolia Avenue Specific Plan	RC	8,777.62 KSF
RC-1	TR35530 / Quail Ranch Specific Plan	SF	1,251 DU
RC-10	Majestic Freeway Business Center	LI	6,200 KSF
RC-11	Alessandro Commerce Center	WH	814 KSF
RC-12	Cores Industrial Partners	LI	423.67 KSF
RC-13	Sunny-Cal Specific Plan (#40)	SF	497 DU
RC-14	University Highlands	MF	320 DU
RC-15	TTM 33410 Box Springs	SF	142 DU
RC-16	Sycamore Canyon Specific Plan	**	**
RC-17	PP 24608	RC	9.28 KSF
RC-18	TR 32406	SF	15 DU
RC-19	CUP 03599	RC	52.80 KSF
RC-2	Jack Rabbit Trail	SF	2,000 DU
RC-20	PP 25699	RC	2.8 KSF
RC-21	CUP 03527	WH	8 KSF
RC-22	TR 30592	SF	131 DU
RC-23	PP 25768	LI	52.45 KSF
RC-24	PP 21144	LI	190.80 KSF
RC-25	PP 16976	LI	85 KSF
RC-26	PM 32699	SF	2 DU
RC-27	Yocum Baldwin	LI	188.70 KSF
RC-28	CUP 03315	RC	5.6 KSF
RC-29	18580 Van Buren Boulevard	RC	8.14 KSF
RC-3	The Preserve / Legacy Highlands SP – Commercial and Residential	SF	3,412 DU
RC-30	Knox Logistics	WH	1,259.05 KSF
RC-31	PP 23342	LI	180.6 KSF
RC-32	TTM 31537	SF	726 DU
RC-33	TTM 34130	SF	384 DU
RC-34	Emerald Acres SP #381	SF	432 DU
RC-35	TR 34677, 31100, 32391, 33448, 31101, 31009, 32282	OG	80 KSF
RC-36	TR36478, TR36480, PP25219	SF	468 DU
RC-37	TR 36504	SF	562 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
RC-38	San Gorgonio Crossings	WH	1,823.76 KSF
RC-39	Tract 33869	SF	39 DU
RC-4	Badlands Sanitary Landfill	**	**
RC-5	Villages of Lakeview – Commercial Development and Residential Development	SF	750 DU
RC-6	Rider Business Center (Core 5 Industrial Partners)	BP	600 KSF
RC-7	Nuevo Distribution Center	WH	1,586.65 KSF
RC-8	Trucking DC (Central Freight LLC)	**	**
RC-9	Oleander Business Park PP20699	OG	34 KSF
RD-1	Tract 18988	SF	82 DU
RD-10	Park Ave Industrial Center	LI	145.26 KSF
RD-11	Marriott Springhill Suites	RC	55.47 KSF
RD-12	I-10 Redlands LC – B	WH	601.29 KSF
RD-13	Ashley Furniture	WH	1,013 KSF
RD-14	Redlands DC 772,000 SF	WH	772 KSF
RD-15	2220 Almond Ave	WH	423 KSF
RD-16	APL Logistics	WH	714.73 KSF
RD-2	Redlands Pioneer Tract	SF	55 DU
RD-3	Newland Homes Tract	SF	103 DU
RD-4	Redlands Pennsylvania Tract	SF	67 DU
RD-5	I-10 Redlands LC – A	WH	500.60 KSF
RD-6	Woodsprings Hotel	RC	48.22 KSF
RD-7	RV Storage Facility	RC	127.75 KSF
RD-8	Liberty Lane Apartments	MF	80 DU
RD-9	Hilton Home2 Suites	RC	43.80 KSF
SB-1	Redlands Gateway Logistics – B	WH	614.33 KSF
SB-2	Redlands Gateway Logistics – A	WH	313.47 KSF
SB-3	Prologis 12	WH	593.56 KSF
SB-4	Prologis 17	WH	777.62 KSF
SB-5	Prologis #13	WH	282 KSF
SB-6	Prologis #8	WH	542.98 KSF
SB-7	Sam Redlands Tract	SF	34 DU
SB-8	Jacinto Tract	SF	40 DU
SJ-1	Gateway Area Specific Plan	RC	1,678.24 KSF
SJ-2	TR 31886	SF	321 DU
SJ-3	TR 30598	SF	580 DU
SJ-4	TR 32955	SF	613 DU
SJWA-1	San Jacinto Wildlife Land Management Plan	**	**

Notes:

<sup>1</sup> BP: Business Park	MF: Multifamily Residential	RC: Retail/Unspecified Commercial
HI: Heavy Industrial	MO: Medical Office	SF: Single Family Residential
LI: Light Industrial	OG: General Office	SR: Senior Residential
		WH: Warehouse-Logistics

\*\* Project information not available or planning level document with no direct development proposed.

DU = dwelling units; KSF = thousand square feet

**6.17.3 Cumulative Impact Evaluation**

**6.17.3.1 Cumulative Energy Consumption**

**Impact:** *The Project would not result in environmental impacts related to energy consumption, supply, energy standards and expansion of facilities.*

Threshold:	<p>Would the project result in energy use and consumption that would cause wasteful, inefficient, and unnecessary consumption of energy?</p> <p>Would the project require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?</p> <p>Would the project comply with Existing Energy Standards?</p>
------------	--

**Electricity**

The geographic context for the cumulative analysis of electricity is MVU’s service area. Electricity demand for all cumulative projects located in within the MVU’s service area has been estimated. Growth within this geography is anticipated to increase the demand for electricity and the need for infrastructure, such as new or expanded facilities.

The cumulative projects would require electricity for water conveyance during ground-moving activities. would require a relatively large amount of water to cover the affected construction areas. Electrical consumption due to the conveyance of water used for dust control is presented in Table 6.17-2.

Buildout of the Project, the cumulative projects, and additional growth forecasted to occur in the City would increase electricity consumption during Project construction and operation, and may cumulatively increase the need for electricity supplies. The cumulative projects do not take into account electricity use from electric vehicle charging stations as the specifics of EV stations are not known for the cumulative projects. Table 6.17-2 provides a project by project summary of electrical needs in MWh.

Water use related to dust control is regulated under SCAQMD’s Rules 402 and 403 and is required to limit fugitive particulate matter generated by construction activities. The project would be in compliance with Rules 402 and 403 and would require a relatively large amount of water to cover the entire acreage of the project site. The expected electricity consumption associated with water use during construction equates to only 0.43 percent of MVU’s forecasted sales for 2020 (expected starting year of construction).

MVU forecasts that its peak demand in 2037, the latest available forecast from the Integrated Resource Plan (IRP), would be approximately 231,555 MWh/year. The Project’s estimated net new electrical consumption would account for between 74 to 113 percent of MVU’s projected electricity sales in 2024 depending on the electric vehicle (EV) penetration scenario. Total energy consumption from all cumulative projects is estimated at 592,748 MWh annually and is 256 percent of MVU’s forecasted sales in 2037. The utility has a considerable amount of time to procure energy resources in anticipation of the Project’s development, and has committed to taking the Project’s needs into consideration in future IRP development.

**Table 6.17-2: Cumulative Electrical Consumption within MVU Service Area**

Project ID	Annual Construction (MWh)	Annual Operation (MWh)	Project ID	Annual Construction (MWh)	Annual Operation (MWh)
MV-001	0.86	4,293	MV-052	—	11,568
MV-002	0.63	3,694	MV-053	—	6,714
MV-003	0.73	15,041	MV-054	0.74	9,335
MV-004	—	12,335	MV-056	0.20	148

**Table 6.17-2: Cumulative Electrical Consumption within MVU Service Area**

<b>Project ID</b>	<b>Annual Construction (MWh)</b>	<b>Annual Operation (MWh)</b>	<b>Project ID</b>	<b>Annual Construction (MWh)</b>	<b>Annual Operation (MWh)</b>
MV-005	0.37	1,641	MV-057	0.43	342
MV-006	0.83	4,028	MV-058	—	74
MV-007	0.39	287	MV-059	0.62	583
MV-008	0.68	537	MV-060	0.70	852
MV-009	0.15	102	MV-061	0.52	2,538
MV-010	0.55	435	MV-062	0.60	5,026
MV-011	0.30	222	MV-063	0.69	2,046
MV-012	—	914	MV-064	0.67	805
MV-013	0.21	391	MV-065	0.17	305
MV-014	0.49	990	MV-066	0.70	1,474
MV-015	0.62	583	MV-068	0.36	2,725
MV-016	0.37	296	MV-069	—	5,391
MV-017	0.67	889	MV-070	0.68	1,415
MV-018	—	78	MV-071	0.16	288
MV-019	—	777	MV-074	0.58	1,057
MV-020	—	1,322	MV-075	1.09	8,168
MV-021	0.24	914	MV-076	0.88	4,394
MV-022	—	370	MV-077	0.82	7,015
MV-023	0.77	2,449	MV-078	—	6,844
MV-024	0.50	1,472	MV-079	0.44	1,971
MV-025	0.62	750	MV-080	0.15	625
MV-026	0.69	926	MV-081	—	3,760
MV-027	0.18	317	MV-082	—	2,686
MV-028	0.27	529	MV-083	—	4,685
MV-029	0.61	2,545	MV-084	—	1,316
MV-033	0.63	500	MV-089	0.10	70
MV-034	0.61	481	MV-090	0.06	103
MV-035	0.32	231	MV-093	—	658
MV-036	—	329	MV-102	0.25	1,096
MV-037	—	21,270	MV-105	0.10	70
MV-038	—	5,712	MV-106	0.10	70
MV-039	—	21,058	MV-108	0.02	42
MV-040	0.14	528	MV-111	0.06	94
MV-041	0.91	7,788	MV-112	0.11	88
MV-042	0.50	2,397	MV-118	0.14	83
MV-043	—	7,313	MV-121	0.03	61
MV-044	0.76	5,959	MV-123	0.10	197
MV-045	0.28	1,228	MV-124	0.40	1,974
MV-046	—	2,053	MV-126	0.52	2,175
MV-048	—	19,944	<b>Cum Project Total</b>	<b>29</b>	<b>290,603</b>
MV-049	—	20,959	<b>Net Project</b>	<b>1,496</b>	<b>302,145</b>
MV-050	—	4,670	<b>Total</b>	<b>1,525</b>	<b>592,748</b>
MV-051	—	10,125	MVU	231,555	231,555
			%MVU	0.66%	256%

Source: ESA, 2019

As the utility provider for the Project and cumulative projects, MVU has determined that the increased electricity demand would be minor compared to existing supply and infrastructure within its service area and would be consistent with growth expectations for its service area. MVU's 2018 IRP predicts an increase in electricity demand over a 10-year period that is planned to be met by increasing solar, wind, and geothermal power, and supplementing with natural gas as needed. MVU's IRP specifically mentions World Logistics Center and states that, "a portion of the anticipated demand [of the Project] is incorporated in MVU's load forecast. MVU will monitor development progress at the World Logistics

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

Center and other local projects to determine potential impacts to customer energy requirements”.<sup>1</sup> MVU forecasts projected growth in the region and with its 2018 IRP already has plans in place that account for future development including the Project and cumulative projects.

Furthermore, like the Project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and State energy standards under Title 24, and incorporate mitigation measures, as necessary. Although the phrase “rolling blackouts” is a household phrase and heat waves in 2017 registered record-setting elevated temperatures, the electrical grid largely holds strong. As discussed above and based on evidence from MVU, the Project would not have a cumulatively considerable impact on existing energy resources either individually or incrementally when considering the anticipated growth in the service area. Accordingly, the impacts related to electricity consumption would not be cumulatively considerable, and thus would be less than significant.

### Natural Gas

The geographic context for the cumulative analysis of natural gas is Southern California Gas’s (So Cal Gas) service area. All of the cumulative projects identified by the TIA and listed below are in So Cal Gas’ service area. Growth within this geography is not anticipated to increase the demand for natural gas and the need for infrastructure, such as new or expanded facilities.

Buildout of the Project, the cumulative projects, and additional growth forecasted to occur in the City could increase natural gas consumption during Project construction and operation, and may cumulatively increase the need for natural gas supplies. Table 6.17-3 provides a project by project summary of natural gas needs in MMBTU.

**Table 6.17-3: Cumulative Natural Gas Consumption**

Project ID	Annual MMBtu	Project ID	Annual MMBtu	Project ID	Annual MMBtu
B-001	100,967	MV-078	16,640	R-015	5,253
B-002	8,447	MV-079	734	R-016	47
B-003	28,210	MV-080	89	R-017	4,068
B-004	55,488	MV-081	1,400	R-018	289,211
B-005	82,102	MV-082	1,000	R-019	814
B-006	5,560	MV-083	11,392	R-020	2,923
B-007	12,330	MV-084	3,199	R-021	459
B-008	19,826	MV-085	280	R-022	275
B-009	136,152	MV-086	2,172	R-023	16
B-010	2,907	MV-087	888	R-024	152,980
B-011	450	MV-088	178	R-025	3,077
B-012	4,128	MV-089	178	R-026	596
B-013	57,826	MV-090	15	R-026	30,192
B-014	21,417	MV-091	2,662	R-026	1,043
C-001	400	MV-093	1,657	R-027	7
C-002	2,000	MV-094	3,935	R-028	2,087
C-002	4,737	MV-095	350	R-029	8
C-003	145	MV-096	2,386	R-030	417
H-001	17,990	MV-097	6,548	R-031	533
H-002	13,462	MV-098	490	R-032	45
H-003	28,485	MV-099	1,420	R-033	444
H-004	23,519	MV-100	2,870	R-034	36
H-004	2,985	MV-101	18	R-035	1,509
H-005	42	MV-102	252	R-036	917
H-006	1,362	MV-103	5,888	R-037	12
H-007	5,575	MV-104	746	R-038	7

<sup>1</sup> Moreno Valley Utility, Integrated Resource Plan (2015).

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-3: Cumulative Natural Gas Consumption**

Project ID	Annual MMBtu	Project ID	Annual MMBtu	Project ID	Annual MMBtu
H-008	6,853	MV-105	178	R-039	12,300
H-008	4,436	MV-106	178	R-040	5
H-009	9,329	MV-107	275	R-041	69
M-001	20	MV-108	6	R-042	18,296
M-001	774	MV-109	33,809	R-043	1,530
M-001	1,351	MV-110	888	R-044	8
M-001	13,098	MV-111	237	R-045	114
M-002	9,050	MV-112	222	R-046	1,097
M-002	1,407	MV-113	4,406	R-047	215
M-002	15,610	MV-114	11	R-048	151
M-003	5,800	MV-115	0	R-049	4,828
M-004	218	MV-116	765	R-050	117
M-005	6,124	MV-117	156	R-051	5
M-005	698	MV-118	275	R-052	979
M-005	33,966	MV-119	1,071	R-053	887
M-006	658	MV-120	379	R-054	765
M-007	1,351	MV-121	9	R-055	612
M-008	1,250	MV-123	28	R-056	393
M-008	8,790	MV-124	280	R-057	5,492
M-009	4,130	MV-125	355	R-058	5
M-010	1,118	MV-126	7,190	R-059	8
M-011	134	MV-127	680	R-060	305
MV-001	609	MV-129	50,560	R-061	851
MV-002	8,016	MV-130	444	R-062	4
MV-002	3,196	MV-131	3,000	R-063	311
MV-003	3,802	MV-132	2,200	R-064	153
MV-003	11,744	P-001	4,192	R-065	1,897
MV-004	29,992	P-002	1,200	R-066	12
MV-005	233	P-003	925	RC-001	38,276
MV-006	1,500	P-004	5,504	RC-002	61,192
MV-007	948	P-005	920	RC-003	104,394
MV-008	1,775	P-006	19,200	RC-005	22,947
MV-009	337	P-007	38,076	RC-006	1,800
MV-010	1,438	P-008	7,712	RC-007	3,173
MV-011	734	P-009	20,544	RC-009	102
MV-012	240	P-010	3,400	RC-009	37,527
MV-013	90	P-011	39,200	RC-010	198,400
MV-014	3,274	P-012	14,531	RC-011	1,628
MV-015	1,928	P-014	2,400	RC-012	13,557
MV-016	979	P-015	1,562	RC-013	15,206
MV-017	2,937	P-016	2,620	RC-014	4,734
MV-018	11	P-017	1,160	RC-015	4,345
MV-019	2,165	P-018	3,094	RC-017	19
MV-020	188	P-019	1,395	RC-018	459
MV-021	240	P-020	1,743	RC-019	106
MV-022	1,224	P-021	340	RC-020	6
MV-023	6,169	P-022	760	RC-021	16
MV-024	4,865	P-023	360	RC-022	4,008
MV-025	2,478	P-024	2,928	RC-023	1,678
MV-026	3,060	P-025	2,076	RC-024	6,106
MV-027	799	P-026	25,972	RC-025	2,720
MV-028	1,331	P-027	1,728	RC-026	61
MV-029	8,414	P-028	21,440	RC-027	6,038
MV-030	2,539	P-030	15,053	RC-028	11
MV-031	1,622	P-031	1,110	RC-029	16
MV-032	3,519	P-032	1,286	RC-030	2,518

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-3: Cumulative Natural Gas Consumption**

Project ID	Annual MMBtu	Project ID	Annual MMBtu	Project ID	Annual MMBtu
MV-033	1,652	P-033	56,909	RC-031	5,779
MV-034	1,591	P-034	6,334	RC-032	22,213
MV-035	765	P-035	592	RC-033	11,749
MV-036	828	P-036	6,897	RC-034	13,217
MV-037	51,716	P-036	100	RC-035	84,904
MV-038	13,888	P-037	5,599	RC-035	240
MV-039	51,200	P-038	6,823	RC-035	1,509
MV-040	197	P-039	1,567	RC-036	14,319
MV-041	2,900	P-040	3,733	RC-037	17,195
MV-042	893	P-041	4,792	RC-038	3,648
MV-043	17,781	P-042	1,866	RC-039	1,193
MV-044	2,219	P-043	1,744	RD-001	2,509
MV-045	174	P-044	1,391	RD-002	1,683
MV-046	765	P-045	1,110	RD-003	3,151
MV-047	490	P-046	6,681	RD-004	2,050
MV-048	4,453	P-047	15,941	RD-005	1,001
MV-049	4,680	P-048	2,295	RD-006	96
MV-050	11,354	P-049	3,488	RD-007	255
MV-051	24,618	P-050	160	RD-008	1,184
MV-052	28,127	P-051	1,071	RD-009	88
MV-053	2,500	P-052	2,509	RD-010	4,648
MV-054	3,476	P-053	4,926	RD-011	111
MV-056	490	P-054	7,282	RD-012	1,203
MV-057	1,132	P-055	900	RD-013	2,026
MV-058	245	P-056	315	RD-014	1,544
MV-059	1,928	P-057	83	RD-015	846
MV-060	2,815	P-058	12,096	RD-016	1,429
MV-061	360	P-059	7,435	SB-001	1,229
MV-062	16,614	P-060	9	SB-002	627
MV-063	6,762	P-061	700	SB-003	1,187
MV-064	2,662	R-001	4,126	SB-004	1,555
MV-065	769	R-002	1,166	SB-005	564
MV-066	3,713	R-003	20,865	SB-006	1,086
MV-067	4,926	R-004	3,196	SB-007	1,040
MV-068	6,627	R-005	1,500	SB-008	1,224
MV-069	13,107	R-006	1,139	SJ-001	3
MV-070	3,565	R-007	112	SJ-002	9,821
MV-071	725	R-008	576	SJ-003	17,746
MV-072	355	R-009	17,555	SJ-004	18,755
MV-073	1,420	R-010	47		
MV-074	2,943	R-011	1,022		
MV-075	22,754	R-012	123		
				<b>Total Cum.</b>	<b>3,181,269</b>
MV-076	623	R-013	92	<b>Net Project (Building Energy)</b>	<b>0</b>
MV-077	17,056	R-014	8	<b>Total</b>	<b>3,181,269</b>
				SoCalGas	873,793,575
				%SoCalGas	0.36%

Source: ESA, 2019

Though electricity usage is predicted to rise, natural gas demand is expected to decline overall from 2016-2035 accounting for population and economic growth as well as efficiency improvements and the State's transition away from fossil fuel-generated electricity to increased renewable energy. SoCalGas predicts a decline in every sector (residential, industrial, commercial, electricity generation, and vehicular), with the exception of wholesale and international gas sales to Mexico. The 2016 California Gas Report states, "SoCalGas projects total gas demand to decline at an annual rate of 0.6% from 2016 to 2035. The decline in throughput demand is due to modest economic growth, CPUC-mandated

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

energy efficiency (EE) standards and programs, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure (AMI).<sup>2</sup> Buildout of the Project and cumulative projects in the Statewide service area is not expected to increase natural gas consumption and the need for natural gas supplies from building energy.

Natural gas consumption from the Project was compared to Statewide natural gas fuel consumption since natural gas as a fuel can be procured from anywhere and is not limited to the service provider's resources. The Project would not generate any natural gas use for building operations, as shown in Table 6.17-3, above. Natural gas consumption would primarily be from operation of on-site equipment and the planned CNG/LNG fueling station which will be publicly accessible and are included as transportation fuels in Table 6.17-4, below. From a cumulative standpoint, natural gas consumption from all cumulative projects (including the proposed Project) would be 3,181,269 MMBtu or 0.36 percent of the SoCalGas's total natural gas use.

Although future development projects would result in use of nonrenewable natural gas resources which could limit future availability, the use of such resources would be on a relatively small scale and would be consistent with regional and local growth expectations for SoCal Gas's service area and would not strain Statewide natural gas resources. Further, like the Project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and State energy standards in Title 24, and incorporate mitigation measures, as necessary. While initially the Project and cumulative projects could result in increased natural gas demand compared to existing uses on each specific project site, the overall demand for natural gas over time is expected to decline due to increases in regional natural gas efficiencies and the transition to renewable energy on a statewide basis displacing fossil fuels including natural gas. Therefore, the Project would not have a cumulatively considerable impact related to natural gas consumption, and impacts would be less than significant.

Transportation Energy

Buildout of the Project, the cumulative projects, and additional growth forecasted to occur in the City could increase gasoline, diesel, and natural gas consumption during Project construction and operation, and may cumulatively increase the need for supplies. Table 6.17-4 provides a project by project summary of transportation fuel needs.

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
B-001	811,945	886,209	1,993,672	17,519,159	1,625
B-002	—	—	267,495	2,350,577	218
B-003	136,884	83,203	557,020	4,894,747	454
B-004	120,158	90,274	711,650	6,253,541	580
B-005	—	—	834,317	7,331,468	680
B-006	134,044	96,431	1,458,987	12,820,679	1,189
B-007	54,788	18,615	243,470	2,139,461	198
B-008	121,463	58,888	391,485	3,440,126	319
B-009	1,343,552	1,592,304	2,688,436	23,624,320	2,192
B-010	50,691	4,861	57,394	504,339	47
B-011	45,372	9,446	305,089	2,680,936	249
B-012	—	—	130,702	1,148,531	107
B-013	382,424	339,379	1,141,830	10,033,700	931
B-014	124,123	63,361	422,900	3,716,185	345
C-001	43,602	8,938	271,190	2,383,054	221
C-002	163,552	123,557	2,599,032	22,838,694	2,119

<sup>2</sup> California Gas and Electric Utilities, 2016 California Gas Report. <https://www.socalgas.com/regulatory/documents/cgr/2016-cgr.pdf>. Accessed May 2018.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
C-003	33,981	3,590	98,578	866,240	80
H-001	59,841	26,798	355,236	3,121,596	290
H-002	55,851	20,221	265,823	2,335,888	217
H-003	137,416	84,199	562,457	4,942,526	459
H-004	129,039	90,032	1,085,086	9,535,072	885
H-005	15,668	1,173	28,351	249,134	23
H-006	83,134	27,853	923,116	8,111,773	753
H-007	55,570	32,744	84,772	744,924	69
H-008	60,183	46,385	191,790	1,685,330	156
H-009	—	—	141,839	1,246,395	116
M-001	101,761	38,543	315,755	2,774,658	257
M-002	—	—	2,647,578	23,265,282	2,158
M-003	172,547	152,814	1,391,747	12,229,816	1,135
M-004	35,832	5,164	147,663	1,297,573	120
M-005	232,896	227,504	2,041,886	17,942,835	1,665
M-006	45,116	12,072	172,683	1,517,435	141
M-007	78,878	36,132	324,181	2,848,704	264
M-008	205,511	178,369	5,816,670	51,113,311	4,742
M-009	46,928	6,545	81,559	716,693	66
M-010	70,532	29,978	268,271	2,357,402	219
M-011	32,882	3,305	90,849	798,323	74
MV-001	51,273	12,703	412,887	3,628,200	337
MV-002	61,451	31,634	259,474	2,280,100	212
MV-003	143,133	119,796	1,062,934	9,340,413	867
MV-004	—	—	384,660	3,380,158	314
MV-005	36,448	5,596	157,779	1,386,461	129
MV-006	82,104	40,030	359,935	3,162,883	293
MV-007	36,444	1,929	18,728	164,574	15
MV-008	47,680	3,129	35,040	307,912	29
MV-009	32,920	868	6,646	58,397	5
MV-010	47,410	2,625	28,395	249,515	23
MV-011	36,176	1,549	14,499	127,412	12
MV-012	—	—	135,678	1,192,253	111
MV-013	15,979	2,032	17,640	155,011	14
MV-014	51,404	5,319	64,643	568,045	53
MV-015	50,266	3,424	38,061	334,457	31
MV-016	46,873	1,998	19,333	169,883	16
MV-017	50,691	4,861	57,998	509,648	47
MV-018	—	—	7,458	65,534	6
MV-019	—	—	32,914	289,230	27
MV-020	—	—	127,172	1,117,509	104
MV-021	34,602	5,021	135,678	1,192,253	111
MV-022	—	—	24,166	212,353	20
MV-023	60,143	37,050	195,351	1,716,621	159
MV-024	47,781	7,746	96,059	844,105	78
MV-025	50,727	4,177	48,936	430,016	40
MV-026	50,691	4,994	60,414	530,884	49
MV-027	34,085	5,571	25,297	222,296	21
MV-028	38,070	8,557	42,162	370,494	34
MV-029	51,067	12,781	166,139	1,459,930	135
MV-030	50,727	4,177	50,144	440,633	41
MV-031	47,412	2,996	32,020	281,368	26
MV-032	51,667	5,692	69,476	610,516	57
MV-033	47,412	2,996	32,624	286,677	27
MV-034	47,411	2,872	31,415	276,059	26

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
MV-035	36,176	1,549	15,104	132,721	12
MV-036	—	—	26,234	230,529	21
MV-037	—	—	525,539	4,618,116	428
MV-038	—	—	178,118	1,565,188	145
MV-039	—	—	656,655	5,770,280	535
MV-040	34,737	6,168	47,221	414,949	38
MV-041	108,981	76,567	695,873	6,114,908	567
MV-042	65,692	24,084	214,209	1,882,337	175
MV-043	—	—	180,695	1,587,833	147
MV-044	98,367	57,085	532,405	4,678,444	434
MV-045	34,906	4,164	118,131	1,038,058	96
MV-046	—	—	183,461	1,612,143	150
MV-047	35,907	1,179	9,666	84,941	8
MV-048	—	—	1,168,682	10,269,659	953
MV-049	—	—	1,228,159	10,792,302	1,001
MV-050	—	—	145,617	1,279,596	119
MV-051	—	—	315,736	2,774,495	257
MV-052	—	—	360,733	3,169,903	294
MV-053	—	—	599,891	5,271,472	489
MV-054	120,158	90,395	834,088	7,329,455	680
MV-056	35,907	1,179	9,666	84,941	8
MV-057	46,874	2,245	22,353	196,427	18
MV-058	—	—	4,833	42,471	4
MV-059	50,266	3,424	38,061	334,457	31
MV-060	50,987	4,665	55,581	488,413	45
MV-061	42,739	8,133	244,071	2,144,749	199
MV-062	58,776	24,816	328,050	2,882,698	267
MV-063	49,658	10,493	133,516	1,173,253	109
MV-064	50,986	4,427	52,560	461,869	43
MV-065	34,085	5,439	24,360	214,063	20
MV-066	53,112	23,199	117,585	1,033,266	96
MV-067	48,047	7,746	97,267	854,723	79
MV-068	43,801	12,032	67,341	591,750	55
MV-069	—	—	133,194	1,170,430	109
MV-070	52,840	22,315	112,900	992,100	92
MV-071	34,084	5,174	22,955	201,713	19
MV-072	30,418	2,729	11,243	98,798	9
MV-073	38,339	9,183	44,973	395,193	37
MV-074	48,543	17,378	44,754	393,270	36
MV-075	168,241	261,706	345,955	3,040,040	282
MV-076	51,807	12,950	422,559	3,713,191	345
MV-077	72,693	28,602	218,748	1,922,224	178
MV-078	—	—	213,413	1,875,341	174
MV-079	51,814	19,833	176,128	1,547,704	144
MV-080	31,956	2,299	60,069	527,846	49
MV-081	—	—	335,939	2,952,024	274
MV-082	—	—	239,956	2,108,589	196
MV-083	—	—	146,106	1,283,887	119
MV-084	—	—	41,032	360,563	33
MV-085	40,724	6,380	189,833	1,668,138	155
MV-086	—	—	42,894	376,927	35
MV-087	34,375	6,243	28,108	246,996	23
MV-088	15,044	1,456	5,622	49,399	5
MV-089	15,044	1,456	5,622	49,399	5
MV-090	15,041	597	9,912	87,101	8

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
MV-091	50,986	4,427	52,560	461,869	43
MV-093	—	—	52,468	461,059	43
MV-094	56,890	24,579	124,612	1,095,015	102
MV-095	42,451	7,868	237,292	2,085,172	193
MV-096	50,823	4,199	47,123	414,089	38
MV-097	49,390	10,247	129,287	1,136,091	105
MV-098	35,907	1,179	9,666	84,941	8
MV-099	38,339	9,183	44,973	395,193	37
MV-100	51,486	18,048	90,883	798,620	74
MV-101	15,041	597	12,204	107,237	10
MV-102	34,603	5,311	49,392	434,031	40
MV-103	42,935	10,820	75,515	663,582	62
MV-104	52,082	20,090	179,022	1,573,134	146
MV-105	15,044	1,456	5,622	49,399	5
MV-106	15,044	1,456	5,622	49,399	5
MV-107	29,796	725	5,437	47,780	4
MV-108	14,732	313	4,031	35,424	3
MV-109	147,517	99,569	667,578	5,866,264	544
MV-110	34,375	6,243	28,108	246,996	23
MV-111	30,107	1,872	7,495	65,866	6
MV-112	15,055	1,747	7,027	61,749	6
MV-113	47,191	6,919	86,997	764,472	71
MV-114	14,732	455	7,729	67,917	6
MV-115	14,732	313	14	119	0
MV-116	36,176	1,549	15,104	132,721	12
MV-117	32,267	3,304	30,576	268,686	25
MV-118	29,796	725	5,437	47,780	4
MV-119	46,873	2,121	21,145	185,809	17
MV-120	43,314	8,541	256,980	2,258,182	210
MV-121	14,732	455	5,900	51,843	5
MV-123	15,359	881	18,983	166,814	15
MV-124	40,724	6,380	189,833	1,668,138	155
MV-125	30,418	2,729	11,243	98,798	9
MV-126	50,003	11,043	141,974	1,247,576	116
MV-127	50,475	18,335	163,175	1,433,883	133
MV-129	113,312	82,271	648,447	5,698,151	529
MV-130	45,286	12,195	106,473	935,619	87
MV-131	107,750	78,093	719,869	6,325,767	587
MV-132	95,297	56,598	527,904	4,638,896	430
P-001	—	—	82,768	727,311	67
P-002	—	—	287,948	2,530,307	235
P-003	—	—	221,864	1,949,601	181
P-004	42,359	10,148	70,590	620,305	58
P-005	66,230	24,835	220,760	1,939,902	180
P-006	77,321	32,120	246,246	2,163,855	201
P-007	99,537	61,196	488,330	4,291,141	398
P-008	46,187	13,201	98,909	869,148	81
P-009	79,203	34,373	208,768	1,834,521	170
P-010	—	—	815,852	7,169,202	665
P-011	—	—	398,347	3,500,430	325
P-012	65,961	24,464	186,362	1,637,634	152
P-014	102,254	61,689	575,895	5,060,613	470
P-015	—	—	374,723	3,292,836	306
P-016	—	—	628,686	5,524,503	513
P-017	—	—	278,349	2,445,963	227

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
P-018	—	—	742,425	6,523,974	605
P-019	—	—	334,787	2,941,903	273
P-020	—	—	418,244	3,675,270	341
P-021	—	—	81,585	716,920	67
P-022	52,350	20,460	182,367	1,602,528	149
P-023	42,648	10,555	86,384	759,092	70
P-024	109,516	77,315	702,592	6,173,948	573
P-025	97,333	56,895	498,149	4,377,431	406
P-026	90,377	43,292	333,096	2,927,047	272
P-027	—	—	414,645	3,643,642	338
P-028	80,280	35,885	274,974	2,416,305	224
P-030	57,182	22,579	297,238	2,611,947	242
P-031	36,614	7,588	35,135	308,745	29
P-032	77,768	26,351	871,877	7,661,519	711
P-033	284,116	250,456	1,123,706	9,874,435	916
P-034	184,333	166,949	1,519,815	13,355,199	1,239
P-035	31,042	4,302	18,739	164,664	15
P-036	199,973	182,238	1,722,889	15,139,688	1,405
P-037	—	—	110,558	971,517	90
P-038	—	—	134,724	1,183,870	110
P-039	83,717	41,903	376,108	3,305,002	307
P-040	51,931	5,934	73,705	647,678	60
P-041	41,207	8,803	61,454	540,019	50
P-042	47,680	3,253	36,853	323,839	30
P-043	47,680	3,129	34,436	302,604	28
P-044	38,338	8,937	44,036	386,960	36
P-045	36,614	7,588	35,135	308,745	29
P-046	55,398	38,815	101,584	892,661	83
P-047	57,979	23,819	314,758	2,765,904	257
P-048	50,822	3,944	45,311	398,163	37
P-049	51,667	5,692	68,872	605,207	56
P-050	34,597	3,880	108,476	953,222	88
P-051	46,873	2,121	21,145	185,809	17
P-052	50,727	4,177	49,540	435,325	40
P-053	48,047	7,746	97,267	854,723	79
P-054	50,003	11,175	143,786	1,263,503	117
P-055	70,577	18,567	610,178	5,361,871	497
P-056	15,042	881	4,044	35,538	3
P-057	16,598	2,750	19,988	175,645	16
P-058	52,083	20,336	122,919	1,080,139	100
P-059	50,004	11,419	146,807	1,290,047	120
P-060	14,732	455	6,102	53,619	5
P-061	—	—	167,969	1,476,012	137
R-001	—	—	1,082,613	9,513,334	883
R-002	—	—	279,680	2,457,653	228
R-003	—	—	267,594	2,351,454	218
R-004	52,296	20,063	101,189	889,185	82
R-005	76,397	26,843	847,986	7,451,581	691
R-006	36,615	7,863	36,072	316,978	29
R-007	32,572	2,731	76,070	668,459	62
R-008	36,451	3,806	8,761	76,989	7
R-009	854,784	698,839	11,902,028	104,587,698	9,703
R-010	15,669	1,315	31,953	280,783	26
R-011	52,896	18,460	268,185	2,356,641	219
R-012	32,881	3,015	83,225	731,333	68

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
R-013	14,732	455	1,812	15,927	1
R-014	14,732	455	5,231	45,969	4
R-015	48,316	8,248	103,729	911,506	85
R-016	14,732	313	922	8,100	1
R-017	57,160	25,330	128,828	1,132,064	105
R-018	871,072	942,530	3,709,210	32,594,251	3,024
R-019	34,086	5,703	25,766	226,413	21
R-020	109,516	77,192	701,368	6,163,190	572
R-021	32,921	1,143	9,062	79,633	7
R-022	29,796	725	5,437	47,780	4
R-023	15,041	597	10,900	95,787	9
R-024	1,469,035	1,788,690	3,020,715	26,544,180	2,463
R-025	52,026	19,302	97,441	856,252	79
R-026	116,224	79,217	1,064,889	9,357,592	868
R-027	14,732	455	4,906	43,109	4
R-028	52,307	12,308	31,730	278,826	26
R-029	14,732	455	5,146	45,218	4
R-030	44,177	9,345	282,804	2,485,112	231
R-031	30,730	3,877	16,865	148,198	14
R-032	15,669	1,315	30,200	265,377	25
R-033	30,728	3,303	14,054	123,498	11
R-034	15,042	1,030	7,154	62,862	6
R-035	38,341	9,686	47,784	419,893	39
R-036	34,375	6,375	29,045	255,229	24
R-037	14,732	455	8,136	71,492	7
R-038	14,732	455	4,746	41,703	4
R-039	54,524	18,483	242,865	2,134,152	198
R-040	14,732	313	3,254	28,597	3
R-041	15,670	1,599	13,597	119,482	11
R-042	60,107	27,296	361,277	3,174,684	295
R-043	47,411	2,749	30,207	265,442	25
R-044	14,732	455	5,424	47,661	4
R-045	16,597	2,466	22,308	196,032	18
R-046	46,873	2,121	21,654	190,285	18
R-047	35,047	6,742	51,702	454,325	42
R-048	34,289	3,732	102,103	897,220	83
R-049	52,395	28,492	73,406	645,046	60
R-050	29,794	441	2,315	20,346	2
R-051	14,732	313	3,201	28,132	3
R-052	46,873	1,998	19,333	169,883	16
R-053	36,443	1,806	17,520	153,956	14
R-054	36,176	1,549	15,104	132,721	12
R-055	36,175	1,426	12,083	106,177	10
R-056	40,343	7,866	77,029	676,881	63
R-057	42,359	10,148	70,433	618,920	57
R-058	14,732	313	3,723	32,719	3
R-059	14,732	455	5,492	48,257	4
R-060	35,529	6,310	79,970	702,724	65
R-061	57,297	17,591	576,886	5,069,316	470
R-062	14,732	313	2,483	21,817	2
R-063	30,417	2,446	9,838	86,449	8
R-064	29,794	441	3,021	26,544	2
R-065	47,681	3,376	37,457	329,148	31
R-066	15,040	455	8,339	73,279	7
RC-001	232,273	169,005	755,783	6,641,354	616

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
RC-002	394,126	358,691	1,208,286	10,617,672	985
RC-003	831,089	916,704	2,061,336	18,113,748	1,681
RC-005	127,311	67,813	453,107	3,981,627	369
RC-006	75,918	32,116	472,355	4,150,763	385
RC-007	111,699	82,645	761,451	6,691,164	621
RC-009	100,314	62,171	401,338	3,526,710	327
RC-010	314,831	323,833	2,544,538	22,359,835	2,074
RC-011	85,061	43,415	390,649	3,432,783	318
RC-012	54,226	22,718	173,876	1,527,916	142
RC-013	57,446	22,701	300,259	2,638,491	245
RC-014	58,125	30,342	149,909	1,317,311	122
RC-015	47,191	6,919	85,788	753,855	70
RC-017	15,041	597	12,583	110,574	10
RC-018	32,921	1,143	9,062	79,633	7
RC-019	32,264	2,589	71,592	629,102	58
RC-020	14,732	313	3,797	33,363	3
RC-021	15,041	739	3,839	33,737	3
RC-022	46,927	6,424	79,143	695,458	65
RC-023	32,265	3,446	21,526	189,157	18
RC-024	43,224	11,228	78,307	688,113	64
RC-025	33,812	5,310	34,885	306,546	28
RC-026	14,732	313	1,208	10,618	1
RC-027	42,936	11,085	77,445	680,539	63
RC-028	14,732	455	7,593	66,726	6
RC-029	15,041	597	11,040	97,014	9
RC-030	104,845	64,722	604,234	5,309,638	493
RC-031	42,648	10,555	74,120	651,320	60
RC-032	125,718	65,841	438,608	3,854,215	358
RC-033	54,256	17,741	231,991	2,038,593	189
RC-034	55,586	19,855	260,990	2,293,417	213
RC-035	635,794	688,311	1,771,321	15,565,275	1,444
RC-036	56,649	21,461	282,739	2,484,535	231
RC-037	59,308	25,680	339,528	2,983,566	277
RC-038	123,845	94,836	875,246	7,691,120	714
RC-039	47,142	2,368	23,562	207,045	19
RD-001	—	—	49,540	435,325	40
RD-002	—	—	33,228	291,986	27
RD-003	50,958	5,240	62,227	546,810	51
RD-004	50,544	3,680	40,478	355,692	33
RD-005	—	—	240,245	2,111,128	196
RD-006	31,956	2,447	65,389	574,602	53
RD-007	36,757	6,028	173,217	1,522,128	141
RD-008	37,800	7,685	37,477	329,328	31
RD-009	31,956	2,299	59,393	521,913	48
RD-010	40,919	8,671	59,614	523,851	49
RD-011	32,572	2,731	75,208	660,880	61
RD-012	—	—	288,565	2,535,734	235
RD-013	—	—	486,152	4,272,001	396
RD-014	—	—	370,493	3,255,661	302
RD-015	—	—	203,003	1,783,866	166
RD-016	—	—	343,009	3,014,156	280
SB-001	—	—	294,824	2,590,730	240
SB-002	—	—	150,438	1,321,959	123
SB-003	—	—	284,858	2,503,161	232
SB-004	—	—	373,190	3,279,362	304

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
SB-005	—	—	135,335	1,189,244	110
SB-006	—	—	260,582	2,289,831	212
SB-007	46,873	2,121	20,541	180,500	17
SB-008	47,142	2,368	24,166	212,353	20
SJ-001	126,588	66,774	2,275,619	19,996,740	1,855
SJ-002	52,396	14,895	193,930	1,704,136	158
SJ-003	59,839	26,422	350,403	3,079,125	286
SJ-004	60,638	27,916	370,340	3,254,316	302
<b>Total Cum.</b>	<b>23,156,749</b>	<b>14,740,889</b>	<b>118,637,945</b>	<b>1,042,517,233</b>	<b>96,722</b>
<b>Net Project</b>	<b>1,553,812</b>	<b>54,103</b>	<b>45,345</b>	<b>30,327</b>	<b>821,523</b>
<b>Total</b>	<b>24,710,561</b>	<b>14,794,992</b>	<b>118,683,290</b>	<b>1,042,547,560</b>	<b>918,245</b>
County/SoCalGas	275,000,000	1,052,000,000	275,000,000	1,052,000,000	873,793,575
%County/SoCalGas	9%	1%	43%	99%	0.11%

Source: ESA, 2019

Buildout of the Project and cumulative projects in the region would be expected to increase overall VMT; however, the effect on transportation fuel demand would be minimized by future improvements to vehicle fuel economy pursuant to federal and state regulations. By 2025, vehicles are required to achieve 54.5 mpg (based on USEPA measurements), which is a 54 percent increase from the 2012-2016 standard of 35.5 mpg. As discussed in detail in Section 4.07, *Greenhouse Gas Emissions*, the Project would be consistent with the 2016 RTP/SCS for the region. Cumulative projects would need to demonstrate consistency with the goals in the 2016 RTP/SCS and incorporate project design features or mitigation measures as required under CEQA, which would also ensure cumulative projects contribute to transportation energy efficiency.

According to the USEIA’s International Energy Outlook 2016, the global supply of crude oil, other liquid hydrocarbons, and biofuels is expected to be adequate to meet the world’s demand for liquid fuels through 2040.<sup>3</sup> CARB’s analyses and the State’s 2017 Climate Change Scoping Plan show a 45 percent decrease in fossil fuel demand by 2030.<sup>4</sup> The State’s Mobile Source Strategy aims to displace fossil fuel reliant vehicles with 1.5 million zero emission vehicles (ZEVs) by 2025 and 4.2 million ZEVs by 2030.<sup>5</sup> Considering the State’s goals of displacing transportation fuels, overall fossil fuel use will decrease and the current refining capacity would be sufficient to support the demand of the Project and cumulative projects. The Project’s annual gas and diesel consumption from construction would represent approximately 0.57 percent of County diesel sales and 0.005 percent of County gasoline sales in 2018.<sup>6</sup> Cumulative construction consumption for diesel and gasoline would result in 25 million gallons of diesel and 15 million gallons of gasoline representing approximately 9 percent of county diesel and 1 percent of county gasoline respectively. The Project’s annual gas and diesel consumption from operational activities would represent approximately 0.02 percent of county diesel sales and 0.003 percent of county gasoline sales in 2018.<sup>7</sup> Cumulative construction operational consumption for diesel and gasoline would result in 119 million gallons of diesel and 1,043 million

<sup>3</sup> EIA, International Energy Outlook 2016, [https://www.eia.gov/outlooks/ieo/pdf/0484\(2016\).pdf](https://www.eia.gov/outlooks/ieo/pdf/0484(2016).pdf); Accessed April 2018.

<sup>4</sup> CARB, *California’s 2017 Climate Change Scoping Plan: The strategy for achieving California’s 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); Accessed May 2018.

<sup>5</sup> CARB, *California’s 2017 Climate Change Scoping Plan: The strategy for achieving California’s 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); Accessed May 2018.

<sup>6</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://www2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://www2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>7</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://www2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://www2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

gallons of gasoline representing approximately 43 percent of county diesel and 99 percent of county gasoline respectively. The Project's transportation fuel consumption from construction and operations consists of 0.14 percent of the total overall cumulative consumption of projects listed in Table 6.17-4 (total consumption of cumulative projects plus the proposed Project). Therefore, as the Project would incorporate land use characteristics consistent with state goals for reducing VMT and would represent a small fraction of transportation sales, the Project would not have a cumulatively considerable impact related to transportation energy, and impacts would be less than significant.

**Conclusion**

The cumulative condition related to the wasteful, inefficient, and unnecessary consumption of energy during construction or operation does not reflect a significant adverse cumulative impact. As detailed above, the Project's incremental contribution to the cumulative condition would not cause or contribute to a significant impact. Accordingly, the Project would not result in cumulative environmental impacts related to energy consumption, supply, energy standards and expansion of facilities, and the cumulative energy impacts would be less than significant.

**Significance Level Before Mitigation:** Less than significant impact.

**Mitigation Measures:** No mitigation measures required.

**Significant Level After Mitigation:** Less than significant impact.

**THIS PAGE INTENTIONALLY LEFT BLANK**

# World Logistics Center



Draft Recirculated Revised Sections of the  
Final Environmental Impact Report  
(Track Changes)

Moreno Valley, California

*State Clearinghouse No. 2012021045*



Prepared for:

City of Moreno Valley

December 2019

# World Logistics Center

Draft Recirculated Revised Sections of the  
Final Environmental Impact Report  
(Track Changes)

Moreno Valley, California

State Clearinghouse no. 2102021045

Prepared for  
City of Moreno Valley

December 2019



550 West C Street, Suite 750  
San Diego, CA 92101  
619.719.4200  
[www.esassoc.com](http://www.esassoc.com)

Bend	Oakland	San Francisco
Camarillo	Orlando	Santa Monica
Delray Beach	Pasadena	Sarasota
Destin	Petaluma	Seattle
Irvine	Portland	Sunrise
Los Angeles	Sacramento	Tampa
Miami	San Diego	

D120614

# Table of Contents

	<u>Page</u>
<b>2.0 INTRODUCTION AND PURPOSE .....</b>	<b>2-1</b>
2.1 Document Format.....	2-4
2.2 Process for Consideration of the RSFEIR and the Draft Recirculated RSFEIR.....	2-5
2.3 Incorporated Documents .....	2-6
2.4 Technical Reports.....	2-6
2.5 Public Review of the RSFEIR and Draft Recirculated RSFEIR .....	2-8
2.6 Mitigation Monitoring and Reporting Program .....	2-9
2.7 Potential Impacts of the Project Discussed in the RSFEIR and Draft Recirculated RSFEIR .....	2-9
2.8 Cumulative Impacts .....	2-10
<b>3.0 PROJECT DESCRIPTION .....</b>	<b>3-1</b>
<b>4.3 AIR QUALITY.....</b>	<b>4.3-1</b>
4.3.1 Existing Setting.....	4.3-2
4.3.2 Policies and Regulations .....	4.3-11
4.3.3 Methodology .....	4.3-21
4.3.4 Thresholds of Significance .....	4.3-37
4.3.5 Less than Significant Impacts.....	4.3-40
4.3.6 Significant Impacts .....	4.3-44
<b>4.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE, AND SUSTAINABILITY .....</b>	<b>4.7-1</b>
4.7.1 Existing Setting.....	4.7-1
4.7.2 Regulatory Setting .....	4.7-6
4.7.3 Methodology .....	4.7-16
4.7.4 Thresholds of Significance .....	4.7-18
4.7.5 Less than Significant Impacts.....	4.7-20
4.7.6 Significant Impacts .....	4.7-20
<b>4.17 ENERGY .....</b>	<b>4.17-1</b>
4.17.1 Existing Setting.....	4.17-2
4.17.2 Regulatory Setting .....	4.17-4
4.17.3 Methodology .....	4.17-13
4.17.4 Thresholds of Significance .....	4.17-19
4.17.5 Project Design Features .....	4.17-20
4.17.6 Mitigation Measures .....	4.17-25
4.17.7 Less than Significant Impacts.....	4.17-26
4.17.8 Significant Impacts .....	4.17-47
<b>6.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE AND SUSTAINABILITY .....</b>	<b>6.7-1</b>
<b>6.17 ENERGY .....</b>	<b>6.17-1</b>

## Appendices

- A. Air Quality/Greenhouse Gas/Health Risk Assessment Technical Report
- E. Energy

**List of Figures**

Figure 3-1	Specific Plan Land Uses.....	3-3
Figure 4.3-1	SCAQMD Monitoring Stations .....	4.3-4
Figure 4.3-2	Existing Sensitive Receptors .....	4.3-10
Figure 4.3-3	Incremental Project Cancer Risk – No Mitigation (Construction and Operation).....	4.3-96
Figure 4.3-4	Incremental Project Cancer Risk – No Mitigation (30 Year of Full Operation).....	4.3-97
Figure 4.3-5	Incremental Project Cancer Risk – With Mitigation (Construction and Operation).....	4.3-104
Figure 4.3-6	Incremental Project Cancer Risk – With Mitigation (30 Year of Full Operation).....	4.3-105
Figure 6.3-1	Air Quality Cumulative Projects Area .....	6.3-4
Figure 6.3-2	Localized Cumulative Projects Area.....	6.3-59
Figure 6.17-1	Energy Cumulative Projects Area .....	6.17-4

**List of Tables**

Table 3.1:	Estimated Construction Equipment and Phasing (2020–2035 2034) .....	3-4
Table 4.3-1:	Ambient Air Quality Standards .....	4.3-5
Table 4.3-2:	Attainment Status of Criteria Pollutants in the South Coast Air Basin .....	4.3-7
Table 4.3-3:	Ambient Air Quality Monitored in the Project Vicinity .....	4.3-8
Table 4.3-4:	Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California).....	4.3-17
Table 4.3-5:	Exposure Assumptions for Cancer Risk.....	4.3-30
Table 4.3-6:	Carbon Monoxide Concentrations at Intersections, 2025 .....	4.3-43
Table 4.3-7:	Carbon Monoxide Concentrations at Intersections, 2035 .....	4.3-43
Table 4.3-8:	Short-Term Regional Construction Emissions–Without Mitigation.....	4.3-48
Table 4.3-9:	Short-Term Regional 24-hour Concrete Pour Emissions–Without Mitigation .....	4.3-50
Table 4.3-10:	Mitigated Short-Term Regional Construction Emissions.....	4.3-54
Table 4.3-11:	Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation) .....	4.3-59
Table 4.3-12:	Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation) .....	4.3-60
Table 4.3-13:	Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (without Mitigation) .....	4.3-63
Table 4.3-14:	Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation).....	4.3-64
Table 4.3-15:	Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Within the Project Boundaries (without Mitigation) .....	4.3-65
Table 4.3-16:	Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Outside the Project Boundaries (without Mitigation).....	4.3-66
Table 4.3-17:	Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (without Mitigation) .....	4.3-69
Table 4.3-18:	Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (without Mitigation).....	4.3-70
Table 4.3-19:	Comparison of Local Project Air Quality Impacts Before and After Mitigation .....	4.3-74
Table 4.3-20:	Operational Regional Air Pollutant Emissions (Worst-Case Scenario).....	4.3-76
Table 4.3-21:	Operational Regional Air Pollutant Emissions (Detail, Unmitigated).....	4.3-78
Table 4.3-22:	Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated).....	4.3-80

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

Table 4.3-23:	Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated).....	4.3-82
Table 4.3-24:	Operational Regional Air Pollutant Emissions (Buildout Mitigated) .....	4.3-84
Table 4.3-25:	Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day) – Mitigated .....	4.3-86
Table 4.3-26:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation .....	4.3-91
Table 4.3-27:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation .....	4.3-93
Table 4.3-28:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation .....	4.3-101
Table 4.3-29:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation .....	4.3-103
Table 4.3-30:	Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Onsite Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation & Installation of MERV-13 Filters .....	4.3-103
Table 4.3-31:	Summary of Project-Related Air Quality Impacts .....	4.3-109
Table 4.7-1:	SCAG Assumptions for Moreno Valley .....	4.7-15
Table 4.7-2:	Construction Greenhouse Gas Emissions (without mitigation) .....	4.7-22
Table 4.7-3:	Annual Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout) .....	4.7-23
Table 4.7-4:	Project GHG Emissions at Buildout (Unmitigated) .....	4.7-25
Table 4.7-7:	GHG Reductions at Buildout (with Mitigation) .....	4.7-39
Table 4.7-9:	California and SCAQMD Electric Vehicle (EV) Penetration Estimates .....	4.7-46
Table 4.7-11:	Project Compliance with Federal/State Greenhouse Gas Reduction Strategies.....	4.7-52
Table 4.7-12:	Analysis of Additional Measures in the 2017 Scoping Plan Update .....	4.7-56
Table 4.7-13:	Consistency with City General Plan Air Quality Policies .....	4.7-56
Table 4.7-14:	Consistency with City Climate Action Strategy.....	4.7-57
Table 4.17-1:	EV Charging Station Requirements at WLC .....	4.7-17
Table 4.17-2:	WLC Project Construction Electricity Use .....	4.7-27
Table 4.17-3:	WLC Project Construction Fuel Usage.....	4.7-29
Table 4.17-4:	WLC Project Operational Electricity Usage.....	4.7-32
Table 4.17-5:	WLC Project Annual Peak Demand .....	4.7-34
Table 4.17-6:	WLC Project Operational Natural Gas Usage in Buildings .....	4.7-36
Table 4.17-7:	WLC Project Operational Fuel Usage .....	4.7-38
Table 4.17-8:	Scenario A: Low EV Penetration Charging Loads .....	4.7-40
Table 4.17-9:	Scenario B: Medium EV Penetration Charging Loads .....	4.7-40
Table 4.17-10:	Scenario C: High EV Penetration Charging Loads .....	4.7-41
Table 4.17-11:	Natural Gas Use from Transportation .....	4.7-43
Table 6.3-1:	Air Quality Cumulative Projects Summary .....	6.3-5
Table 6.3-3:	Cumulative Maximum Daily Construction Emissions (lbs/day) .....	6.3-41
Table 6.3-24:	Air Quality Cumulative Operation Emissions.....	6.3-55
Table 6.3-5:	Cumulative Localized Assessment of Construction Start year (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation) .....	6.3-61
Table 6.3-6:	Cumulative Localized Assessment of Construction Start Year (2020) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation) .....	6.3-61
Table 6.3-7:	Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Within the Project Boundaries (without mitigation) .....	6.3-62

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

---

Table 6.3-8: Cumulative Localized Assessment of Full Build Out (2035) Emissions  
Maximum Impacts Outside the Project Boundaries (without mitigation)..... 6.3-63

Table 6.7-1: Greenhouse Gas Emissions, Climate Change and Sustainability  
Cumulative Projects Summary ..... 6.7-24

Table 6.7-2: Cumulative Annual GHG Emissions..... 6.7-35

Table 6.17-1: Energy Cumulative Projects Summary..... 6.17-7

Table 6.17-2: Cumulative Electrical Consumption within MVU Service Area..... 6.17-15

Table 6.17-3: Cumulative Natural Gas Consumption ..... 6.17-17

Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)..... 6.17-20

**NOTE TO READERS: NOTE TO READERS:** Section 2.0, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 2.0 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of reference to a portion of Section 2.0 means that the corresponding portion of Section 2.0 in the FEIR prepared in 2015 remains unchanged or has been deleted.

This Draft Recirculated RSFEIR sets forth those portions of the RSFEIR circulated in 2018 that have been revised. Revisions to, and deletions from, the RSFEIR have been identified in a separate document (tracked changes), available for review at the City of Moreno Valley.

## **2.0 INTRODUCTION AND PURPOSE**

### **Background**

In August, 2015, the City Council of the City of Moreno Valley (City) certified a Final Programmatic Environmental Impact Report (“FEIR”), which analyzed the environmental impacts that would result from the construction and operation of the World Logistics Center (“WLC”), as having been prepared in compliance with the California Environmental Quality Act (“CEQA”). The City Council approved a General Plan Amendment (“GPA”), a Zone Change (“Zone Change”), the World Logistics Center Specific Plan (“WLC Specific Plan”), a financing and conveyancing Parcel Map (“Parcel Map 36457”), a Development Agreement (“Development Agreement”) and a request that 85 acres in an unincorporated portion of Riverside County be annexed into the City. In September, 2015, a number of lawsuits were filed challenging the City’s certification of the FEIR and the approvals granted for the construction and operation of the WLC.

In November, 2015, the City Council, in response to initiative petitions submitted to it for the GPA, the Zone Change, the WLC Specific Plan and the Development Agreement, vacated approvals for those entitlements granted in August, and then readopted the GPA, the Zone Change, the WLC Specific Plan and the Development Agreement. ~~The Tentative Parcel Map (36547) was not part of the Initiative adoption process and is not currently approved. The World Logistics Center Specific Plan is entitled for~~ entitles 40.6 million square feet of logistics and associated infrastructure land uses on the 2,610-acre WLC project site.

~~In a~~ In February, 2016, lawsuits were filed challenging the use of the initiative process to adopt the Development Agreement. The trial judge rejected the challenges. However, in August 2018, the Court of Appeal, Fourth Appellate District, Division One, reversed the trial court judgment, holding that the initiative process could not be used to adopt the Development Agreement, and directed the trial court to issue a writ of mandate ordering the City to vacate its November, 2015, approval of the Development Agreement. That writ was issued on June 12, 2019. The City Council acceded to the writ’s order on August 20, 2019, and vacated its November 2015, approval of the Development Agreement. Because the approval of the Development Agreement has been set aside, t~~The RSFEIR and this Draft Recirculated Revised Sections of the Final Environmental Impact Report (“Draft Recirculated RSFEIR”) will be considered by the City as part of the approval process for the Development Agreement.~~<sup>1</sup>

In the court ruling dated February, 8, 2018, the Honorable Sharon J. Waters, Judge of the Riverside County Superior Court, identified five deficiencies in the FEIR. The key findings from Judge Waters’ ruling are quoted below:

- **Energy Impacts:** “The FEIR must provide a comparison of feasible, cost-effective renewable energy technologies in the Energy Impacts analysis”.

<sup>1</sup> The RSFEIR was also treated as a draft to be circulated and commented on. However, several comments failed to recognize its draft nature. Accordingly, to avoid any misunderstanding, this document has been explicitly identified as a “draft” CEQA document

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

- **Biological Impacts:** “The FEIR should remove all references to and consideration of the 910 acres of SJWA and MSHCP lands as “buffer zone” or “CDFW Conservation Buffer Area” in the Biological Resources and Habitat Impacts analysis”.
- **Noise Impacts:** “The FEIR must provide an analysis of construction noise over ambient levels; provide adequate analysis on construction noise impacts on nearby homes; address the inadequacy of mitigation measures, which fail to include performance standards or ways to reduce construction noise”.
- **Agricultural Impacts:** “The FEIR and the resolution certifying the FEIR require clarification as to whether loss of locally important farmland will have a significant direct or cumulative impact on agriculture and, if significant, the FEIR must either explain how proposed mitigation will reduce the impact or why other mitigation is not feasible”.
- **Cumulative Impacts:** “The FEIR should include consideration of recently constructed and proposed large warehouse projects in the summary of projections method, and should analyze whether individually significant impacts may be cumulative considerable”.

~~In a writ of mandate issued on June 12, 2018, the Judge order the City to set aside its certification of the FEIR and its approval of the Parcel Map. The remaining approvals—the GPA, Zone Change, World Logistics Center Specific Plan, Annexation Request and Development Agreement granted in November, 2015—and those entitlements remain in effect.~~

~~This Revised Sections of the FEIR has been~~ The RSFEIR was prepared to respond to the Judge’s ruling and writ by correcting the five deficiencies identified in the ruling. With respect to cumulative impacts, the Judge’s ruling did not indicate the specific environmental topics to be evaluated, and thus, to ensure compliance with the ruling, ~~this Revised Sections of the FEIR includes~~ RSFEIR included an analysis of potential cumulative impacts for all environmental topics, even those ~~never raised~~ not referred to in the Superior Court proceedings Judge’s ruling. While such information may not be required to comply with the Judge’s ruling, it ~~is~~ was included here to account for the most conservative interpretation of the Judge’s ruling. The court will have the discretion to determine whether it was required to comply with the writ or not. ~~The Revised Sections of the FEIR evaluate~~ The RSFEIR evaluated the current environmental baseline conditions, impacts and any required additional or revised mitigation measures associated with the construction and operation of the World Logistics Center.

Using this interpretation of the Judge’s ruling for cumulative impacts, ~~this Revised Sections of the FEIR includes~~ the RSFEIR included a revised analysis of the WLC’s potential transportation impacts to incorporate the cumulative impacts of additional projects, although the adequacy of the FEIR’s section on Transportation and Traffic (Section 4.15) was upheld by Judge Waters. Although not required by the Judge’s ruling, this section ~~has~~ was also ~~been prepared~~ revised to reflect the latest trip generation rates found in the Institute of Transportation Engineers’ Trip Generation Manual (10<sup>th</sup> ed., 2017). The revised traffic analysis also ~~forms~~ formed the basis for revised analyses of air quality, greenhouse gases and traffic noise, even though those sections of the FEIR were upheld by the court (Sections 4.3, 4.7 and portions of 4.12). The reader should note that each section within Section 4.0 of the FEIR contained a subsection analyzing cumulative impacts. Those subsections are no longer applicable and have been replaced with a new Section 6.0 in the Revised Sections of the FEIR and a few sections within Section 6.0 have been updated in this Draft Recirculated RSFEIR.

~~The Revised Sections of the FEIR are being circulated to the public for review and comment. Written responses to those comments will then be prepared. A Revised FEIR, which will consist of this Revised Sections of the FEIR, the comments and responses and the portions of the FEIR that were found to be in compliance with CEQA after trial, will be considered by the City.~~

Because the The Judge found that substantial portions of the FEIR did comply with CEQA so that, only ~~this Revised Sections~~ portions of the FEIR ~~is being~~ RSFEIR had to be circulated for public review and comment. ~~This Revised Sections of the FEIR presents~~ The RSFEIR presented additional environmental analyses necessary to respond to the Judge’s ruling. Some portions of ~~this Revised Sections of the~~

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

FEIR adds the RSFEIR added to the FEIR, e.g., new Section 4.17 (Energy), or provides provided additional information on the same topic, e.g., Section 2.1 (Document Format). Elsewhere in this Revised Sections of the FEIRRSFEIR, individual sections have beenwere revised and replacereplaced the corresponding sections in the FEIR (Air Quality, Biological Resources, Greenhouse Gas Emissions/Climate Change). The Revised Sections of the FEIR RSFEIR also identify certain specific portions of the FEIR (Project Description) identified discretionary actions anticipated to be taken by the City that are no longer applicable to the CEQA analysis, which identifies. These discretionary actions were identified as the GPA, Zone Change, the World Logistics Center Specific Plan, and Annexation Request and the Development Agreement as a discretionary action anticipated to be taken by the City. For clarity, although the GPA, Zone Change, WLC Specific Plan, Annexation Request and Development Agreement because these actions were approved by the City in compliance the initiative process set forth in the California Elections Code, this Revised Sections of the FEIR. The RSFEIR in combination with the valid portions of the FEIR, servesserved to evaluate the environmental effects of the World Logistics Center project.

### **Current Proceedings**

After the RSFEIR was circulated in July of 2018, the City of Moreno Valley decided that new information which was considered significant, required revision and recirculation of portions of the RSFEIR pursuant to Section 15088.5 of the CEQA Guidelines. The sections of the RSFEIR affected by the new information in this Draft Recirculated RSFEIR are:

- Air Quality, including Human Health (Section 4.3 and Section 6.3)
- Greenhouse Gas Emissions (Section 4.7 and Section 6.7)
- Energy (Section 4.17 and Section 6.17)

The air quality, greenhouse gas and energy analyses set forth in the RSFEIR circulated in July of 2018 were based on the California Air Resources Board's EMFAC2014 model. Those analyses have been revised in light of the U.S. Environmental Protection Agency's approval of the use of the EMFAC2017 model on August 15, 2019, and are now set forth in this Draft Recirculated RSFEIR.

A recirculation of portions of the RSFEIR is appropriate because, in accordance with Section 15088.5 of the CEQA Guidelines, a lead agency should recirculate an EIR before certification when new substantive information is added to the EIR after the public notice is given of the availability of the draft EIR (in this case, the RSFEIR).

The RSFEIR was circulated to the public for review and comment in July, 2018. This Draft Recirculated RSFEIR will also be circulated to the public for review and comment. Responses to the comments that were previously received on the RSFEIR as well as the comments that are received on this Draft Recirculated RSFEIR will be prepared. A Final Revised FEIR, which will consist of (1) the comments and responses on the Draft Recirculated RSFEIR and the RSFEIR, (2) the Draft Recirculated RSFEIR, (3) the RSFEIR circulated in July 2018 and (4) the portions of the FEIR that were found to be in compliance with CEQA after trial, will be considered by the City.

The Judge found that substantial portions of the FEIR did comply with CEQA so that only portions of the FEIR had to circulated for public review and comment. The absence of any reference to a section of the FEIR in this Revised Sections of the FEIR the RSFEIR and this Draft Recirculated RSFEIR means that the corresponding section in the FEIR remains unchanged because the Judge found that it complied with CEQA. In addition, the absence of any reference to a section of the RSFEIR in this Draft Recirculated RSFEIR means that the corresponding section of the RSFEIR remains unchanged.

The reader should note that each section within Section 4.0 of the FEIR contained a subsection analyzing cumulative impacts. Those subsections are no longer applicable and have been replaced with a new Section 6.0.

Finally, the FEIR sometimes refers to Theodore Street. It has since been renamed World Logistics Center Parkway south of SR-60.

## **2.1 Document Format**

As noted above, the Judge's ruling identified five areas where the FEIR failed to comply with CEQA. The ruling requires required that the Revised Sections of revisions to the FEIR: (1) provide a comparison of feasible, cost-effective renewable energy technologies in the Energy Impacts analysis; (2) remove references to and consideration of the northernmost 910 acres of the San Jacinto Wildlife Area (SJWA) as a "buffer zone" or the "CDFW Conservation Buffer Area" in the Biological Resources analysis; (3) provide an analysis of construction noise over ambient levels, provide adequate analysis of construction noise impacts on nearby homes, and address inadequate mitigation measures, which fail to include performance standards or ways to reduce construction noise; (4) clarify as to whether loss of farmlands of local importance was significant and, if so, how it would be mitigated, if feasible; and (5) consider recently constructed and proposed large warehouse projects to determine whether they will result in cumulatively significant impacts.

~~This Revised Sections of the FEIR responds~~ This RSFEIR responded to each of the five areas as follows:

**(1) Renewable Energy:** A new section dealing with renewable energy technologies, Section 4.17, ~~has been~~ was prepared and ~~is was~~ included in ~~this Revised Sections of the FEIR~~ RSFEIR. In addition, a new Appendix E, World Logistics Center, Comparison of Renewable Energy Technologies, ~~has been~~ was prepared and ~~is was~~ included in ~~this Revised Sections of the FEIR~~ RSFEIR.

**(2) Biological Resources:** References to and consideration of the SJWA as a "buffer zone" or "CDFW Conservation Buffer Area" have been removed from Section 4.4, Biological Resources, and a revised version of that section ~~has been~~ was prepared. These terms have also been removed in all other relevant sections of the FEIR. Those sections, as revised, ~~have were~~ also been included in ~~these Revised Sections of the FEIR~~ RSFEIR.

**(3) Construction Noise:** Those portions of Section 4.12, Noise, dealing with construction noise and mitigation measures ~~have been~~ were revised and are included ~~herein~~ in the RSFEIR. In addition, a revised Appendix K, Noise Technical Report, ~~has been~~ was prepared and is included in the appendices.

**(4) Farmlands of Local Importance:** Those portions of Section 4.2, Agricultural and Forestry Resources, dealing with the loss of farmland of local importance ~~have been~~ were revised and are included ~~herein~~ in the RSFEIR.

**(5) Cumulative Impacts:** A new Section 6.0, Cumulative Impacts, ~~has been~~ was prepared and is included ~~herein~~ in the RSFEIR. Over 360 There are 359 recent past, present and reasonably foreseeable projects that could cumulatively contribute to the World Logistics Center's WLC's environmental impacts ~~have been~~ that were identified and considered. These are in addition to the contributions of projects reflected in various planning documents.

As mentioned, the ~~Revised Sections of the FEIR~~ RSFEIR also ~~includes~~ included revised analyses in Traffic and Circulation, and in Appendix F, Traffic Impact Analysis ("TIA"), Section 4.15, in Air Quality, Section 4.3, and in Appendix D, Air Quality/Health Risk/Greenhouse Gases, Noise, Section 4.12, and in Appendix C, Noise. It should also be noted that the methodologies used to determine the environmental impacts ~~have were~~ not been changed. As an example, the same general approach, LOS methodologies, and thresholds that were used in the 2014 TIA were repeated in the 2018 TIA; although the input data and study years were updated to reflect the best available current information.

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

As noted above, the U.S. Environmental Protection Agency's approval of the use of the California EMFAC2017 model on August 15, 2019, has resulted in revisions to portions of the RSFEIR. Because the RSFEIR utilized EMFAC2014 for the project and cumulative analyses for air quality, greenhouse gas, and energy evaluations, these portions of the RSFEIR are the subject of this Draft Recirculated RSFEIR.

### **2.2 Process for Revised Sections of the FEIR Consideration of the RSFEIR and the Draft Recirculated RSFEIR**

CEQA requires the Lead Agency to consider the information contained in an EIR prior to taking any discretionary action on a project. ~~This Revised Sections of the FEIR corrects~~ The RSFEIR and this Draft Recirculated RSFEIR correct deficiencies found by the court to exist in the FEIR and ~~provides~~ provide information to the ~~Lead Agency~~ City and other public agencies, ~~and~~ and the general public, ~~and decision-makers~~ regarding the potential environmental impacts from the construction and operation of the ~~World Logistics Center~~ WLC project. The purpose of the public review of an EIR is to evaluate the adequacy of the environmental analysis in terms of compliance with CEQA. Section 15151 of the *CEQA Guidelines* states the following regarding standards from which adequacy is judged:

“An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure.”

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the *CEQA Guidelines*, and provides the information needed to assess the environmental consequences of a proposed project. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts.

Under CEQA (~~PRC Section~~ Public Resources Code §21002.1(a)):

“The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the proposed project, and to indicate the manner in which those significant effects can be mitigated or avoided.”

~~This Revised Sections of the FEIR has been~~ The RSFEIR and this Draft Recirculated RSFEIR were prepared to correct deficiencies found by the court to exist in the FEIR by evaluating some of the potential environmental impacts associated with the construction and operation of the ~~World Logistics Center~~ WLC project which will include 40.6 million square feet of logistics warehouse facilities, as well as its associated infrastructure. ~~ESA (ESA) has prepared this Revised Sections of the FEIR under the direction of professional City planning staff. However, prior to certification of the Revised FEIR, the City must independently review the methodologies used, and conclusions reached in the Revised Sections of the FEIR. The City is undertaking an independent review of the Revised Sections of the FEIR by having City planning staff work with ESA on the document, and by employing a third-party consultant to independently review it as well. If certified by the City, the information included and the conclusions reached in the Revised Sections of the FEIR will therefore represent the City's independent judgment. Environmental Science Associates (“ESA”) prepared both the RSFEIR and this Draft Recirculated. However, prior to certification of the Revised Final FEIR, responses to comments received on both the RSFEIR as well as this Draft Recirculated RSFEIR will be prepared and included in a Response to Comments document that will be available for public review prior to any action taken by the City.~~

~~This Revised Sections of the FEIR has been~~ The RSFEIR and this Draft Recirculated RSFEIR were prepared utilizing information from City planning and environmental documents, applicant-provided

technical studies, and other publicly-available data. Additional mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts from the ~~World Logistics Center construction and operation of the WLC~~ project have been identified, where required. ~~This document~~ These documents have has been prepared in accordance with CEQA, California Public Resources Code §21000 *et seq.*; the *Guidelines for California Environmental Quality Act* (California Code of Regulations, Title 14, Chapter 3); and the rules, regulations, and procedures for implementing CEQA as adopted by the City. The objective of the ~~Revised Sections of the FEIR/RSFEIR and this Draft Recirculated RSFEIR~~ is to inform City decision-makers, representatives of other affected/responsible agencies, the public, and other interested parties of the potential environmental consequences that were not adequately dealt with in the FEIR that may be associated with the approval and implementation of the WLC project.

### **2.3 Incorporated Documents**

The CEQA Guidelines (§15150) permits the incorporation by reference of all or portions of other documents that are generally available to the public. Any document incorporated by reference is required to be made available to the public for inspection at a public place or public building and requires that the EIR state where the incorporated documents will be made available for public inspection. The following documents have been incorporated by reference:

*City of Moreno Valley General Plan, various elements*, adopted by City Council Resolution No. 2006-83, July 11, 2006, and last updated October 2006.

City of Moreno Valley General Plan Final Environmental Impact Report, certified July 2006.

City of Moreno Valley General Plan Land Use Map, last updated November, 2017.

City of Moreno Valley Zoning Atlas, last updated November 2017.

City of Moreno Valley Municipal Code (various chapters), last updated February 2012.

Moreno Highlands Specific Plan EIR, adopted 1992.

World Logistics Center Initiative, November 24, 2015

### **2.4 Technical Reports**

Various technical or project-related reports have been prepared to assess specific issues that may result from the construction and operation of the project. As relevant, information from the following documents and technical reports has been integrated into the ~~Revised Sections of the FEIR/RSFEIR~~ RSFEIR as appendices:

“The World Logistics Center Specific Plan” (Highland Fairview) original dated January 30, 2013, revised dated September 2014.

“An Agricultural Industry Analysis of the Inland Empire” (Andrew Chang & Co.), original dated March 2012, revised September 2014.

“Agricultural Resources Assessment for the WLCSP” (Parsons Brinckerhoff), original dated March 2012, revised December 2013.

“Agricultural Assessment for the WLCSP” (Cushman and Wakefield) new report dated December 20, 2013 (prepared for Final EIR in response to comments) and revised September 2014.

“Air Quality, Greenhouse Gas, and Health Risk Assessment for the WLCSP” (MBA), original dated January 2013, revised April 2015.

“Habitat Assessment, MSHCP Consistency Analysis, and JPR Review” (MBA), original dated December 20, 2012, revised September 2014.

## **Draft Recirculated Revised Sections of the Final Environmental Impact Report**

- "Delineation of Jurisdictional Waters and Wetlands" (MBA), original dated November 2012, revised September 2014.
- "Phase I and Phase II Cultural Resources Assessment" (MBA), original dated May 2012, revised September, 2014.
- "Preliminary Geotechnical Investigation" (Leighton), original dated March 23, 2012, revised September 2014.
- "Supplemental Geotech Assessment for Offsite Improvements Related to the WLCSP" (Leighton), original dated March 23, 2013, revised September 2014.
- "Phase 1 Environmental Site Assessments" (various dates, LOR Geotechnical) (not revised).
- "Draft Master Plan of Drainage Study" (CH2MHill) original dated November 2012, revised dated September 2014.
- "Preliminary Water Quality Management Plan" (CH2MHill) original dated November 2012, revised September 2014.
- "Noise Assessment for the WLCSP" (Mestre Greve Associates) original dated January 2013, revised September 2014.
- "Traffic Impact Assessment (TIA) for the WLCSP" (Parsons Brinckerhoff) original dated January 2013, revised September 2014.
- "NAIOP Assessment of Available High-Cube Trip Generation Rates" (Kunzman Associates), December 20, 2011.
- "Water Supply Assessment for the WLCSP" (Eastern Municipal Water District), March 21, 2012.
- "Highlands Water Budget" (CH2MHill), original dated December 2012, revised September 2014.
- "Water System Modeling Results" (CH2MHill), original dated December 2012, revised dated October 22, 2013.
- "Sewer and Reclaimed Wastewater Memorandum" (CH2MHill), original dated April 25, 2012, revised September 2014.
- "Dry Utilities – Technical Memorandum" (Utility Specialists), original dated December 20, 2012, revised September 2014.
- "Electrical System Forecast of Utility Infrastructure" (MVU Engineering), original dated December 2012, revised September 2014.
- "Fiscal and Economic Impact Study for the World Logistics Center" (David Taussig and Associates), original dated January 15, 2013, revised September 2014.
- Hydrology and Water Quality Memorandum (Woodard Curran), 2018
- Traffic Impact Assessment (WSP), 2018
- World Logistics Center Comparison of Renewable Energy Assessment Technologies (WSP), 2018
- World Logistics Center Transportation Energy Assessment Technical Study (ESA), 2018 and CALSTART, 2019
- Air Quality Assessment (ESA), 2018
- Noise and Vibration Technical Report Assessment (ESA), 2018

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

~~Greenhouse Gas Assessment (ESA), 2018~~

~~Health Risk Assessment (ESA), 2018~~

~~Biological Resources Assessment (ESA), 2018~~

~~Sensitive Species Surveys (ESA), 2018~~

Air Quality/GHG and Health Risk Assessment Technical Report (Draft Recirculated) (ESA), 2019

In addition to their inclusion in their entirety as appendices to the ~~Revised Sections of the FEIR~~RSFEIR or this Draft Recirculated RSFEIR, these documents are available for review at the following location:

### **Moreno Valley City Hall**

Community & ~~Economic~~ Development Department  
Planning Division  
14177 Frederick Street  
Post Office Box 88005  
Moreno Valley, California 92552  
Phone: (951) 413-3238  
Monday–Thursday 7:30 a.m.– 5:30 p.m.  
Friday 7:30 a.m. – 4:30 p.m.

## **2.5 Public Review of the Revised Sections of the FEIR~~RSFEIR and Draft Recirculated RSFEIR~~**

~~This Revised Sections of the FEIR~~The RSFEIR was, and this Draft Recirculated RSFEIR will be, distributed to responsible and trustee agencies, other affected agencies, and interested parties. Additionally, in accordance with Public Resources Code Section 21092(b)(3), the RSFEIR was and this document Draft Recirculated RSFEIR will be provided to all parties who previously requested copies. The Notice of Completion (“NOC”) and Notice of Availability (“NOA”) of the EIR ~~is being~~ RSFEIR was, and this Draft Recirculated RSFEIR will be, distributed for a 45-day public review period. During the RSFEIR public review period, the Revised Sections of the FEIR RSFEIR and the revised technical appendices were made available for review. During the Draft Recirculated RSFEIR public review period, this Draft Recirculated RSFEIR and the revised technical appendices will be made available for review. Written Comments should be addressed to:

Albert Armijo, Interim Planning Manager  
14177 Frederick Street  
Post Office Box 88005  
Moreno Valley, California 92552  
Phone: (951) 413-3206  
Email: alberta@moval.org

After the public review period, written Written responses to comments on the ~~Revised Sections of the FEIR~~ RSFEIR and this Draft Recirculated RSFEIR will be prepared after the close of the public review period for this Draft Recirculated RSFEIR. These responses will be available for review for a minimum of 10 days prior to the public hearings before the City, at which time the certification of the Final Revised FEIR will be considered. The Final Revised FEIR ~~(, which includes will consist of [1] the Revised Sections of the FEIR, the public comments and responses to on the Draft Recirculated RSFEIR and the RSFEIR, [2] the Revised Sections of Draft Recirculated RSFEIR, [3] the FEIR~~RSFEIR circulated in July 2018, and [4] the portions of the FEIR found to comply with CEQA) will be included as part of the environmental record for consideration by the City decision-makers. The City will respond as

---

## **Draft Recirculated Revised Sections of the Final Environmental Impact Report**

---

appropriate to comments made at public hearings on the WLC Project ~~and Revised Sections of the FEIR,~~ the RSFEIR, and the Draft Recirculated RSFEIR.

### **2.6 Mitigation Monitoring and Reporting Program**

The Mitigation Monitoring and Reporting Program (MMRP) will be revised to comply with the requirements of State law (Public Resources Code Section 21081.6) and the court's ruling and writ. When mitigation measures are required to avoid or reduce the severity of significant impacts, State law requires the adoption of an MMRP. The monitoring program is intended to ensure compliance during implementation of the program.

### **2.7 Potential Impacts of the Project Discussed in the Revised Sections of the ~~FEIR~~RSFEIR and Draft Recirculated RSFEIR**

~~The Revised Sections of the FEIR focuses~~ The RSFEIR focused on the areas of concern identified by the court ruling and writ.

The following seven environmental topics ~~are~~were addressed in the project impacts section (Section 4.0) of ~~these Revised Sections of the FEIR~~the RSFEIR:

- Agriculture and Forestry Resources (loss of farmland of local importance)
- Biological Resources
- Energy
- Noise
- Traffic
- Air Quality
- Greenhouse Gas Emissions

The following seventeen environmental topics ~~are~~were addressed in the cumulative impact sections (Section 6.0) of the ~~Revised Sections of the FEIR~~RSFEIR:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality, including Human Health
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology, and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population, Housing, and Employment
- Public Services and Facilities
- Transportation and Traffic
- Utilities and Service Systems
- Energy

This Draft Recirculated RSFEIR includes only those sections of the RSFEIR that were revised. The following three environmental topics in the project impacts section (Section 4.0) and in the cumulative impacts sections (Section 6.0) are addressed in this Draft Recirculated RSFEIR.

- Air Quality, including Human Health (Section 4.3 and Section 6.3)
- Greenhouse Gas Emissions (Section 4.7 and Section 6.7)
- Energy (Section 4.17 and Section 6.17)

**2.8 Cumulative Impacts**

Cumulative impacts are discussed in Section 6.0 of ~~these Revised Sections of Final EIR of the RSFEIR~~, and this Draft Recirculated RSFEIR includes revised cumulative impacts sections for the three environmental topics identified above.

~~**NOTE TO READERS:** The project as originally proposed to the City, and as described in the FEIR, included both the World Logistics Center and a General Plan Amendment and a rezoning of land south of the World Logistics Center site to reflect their open space nature. The General Plan Amendment and rezoning have since been accomplished through the initiative process. **NOTE TO READERS:** Section 3.0, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 3.0 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of The description of the World Logistics Center has not changed. It should be noted that Theodore Street has been renamed World Logistics Center Parkway, south of SR-60.~~

~~The Revised Sections of the Final EIR (FEIR) sets forth those portions of Section 3.0 that have been revised. Revisions to, and deletions from, the FEIR have been identified in a separate document, available for review at the City of Moreno Valley. The absence of any reference to a portion of Section 3.0 means that the corresponding portion of Section 3.0 in the FEIR prepared in 2015 remains unchanged or has been deleted. However, where appropriate, unrevised portions of the FEIR have been included for ease of understanding.~~

The project as originally proposed to the City, and as described and evaluated in the Final Environmental Impact Report certified by the City Council in August, 2015 (2015 FEIR), included both the World Logistics Center (WLC) project and a General Plan Amendment and a rezoning of land (not part of the WLC project) south of the World Logistics Center site to reflect its open space nature. The General Plan Amendment and rezoning have since been adopted through the initiative process. The description of the World Logistics Center has not changed.

In July 2018, the Revised Sections of the Final EIR (RSFEIR) document was prepared and circulated for public review and comment in response to the Superior Court’s direction to correct certain identified deficiencies in the 2015 FEIR. The RSFEIR public comment period closed September 7, 2018, and over 350 comment letters were received. The air quality, greenhouse gas and energy analyses set forth in the RSFEIR circulated in July 2018 were based on the California Air Resources Board’s EMFAC2014 model. Those analyses have been revised in light of the U.S. Environmental Protection Agency’s approval of the use of the EMFAC2017 model on August 15, 2019, and are now set forth in this Draft Recirculated Revised Sections of the Final EIR (Draft Recirculated RSFEIR).

It should be noted that Theodore Street south of SR-60 has been renamed World Logistics Center Parkway.

Responses to comments received on both the RSFEIR as well as this Draft Recirculated RSFEIR will be prepared and included in a Response to Comments document that will be available for public review prior to any action taken by the City.

### **3.0 PROJECT DESCRIPTION**

The World Logistics Center (WLC) project is located on 2,610 acres in the Rancho Belago area at the eastern end of Moreno Valley, south of SR-60, east of Redlands Boulevard, west of Gilman Springs Road and north of the San Jacinto Wildlife Area. The site currently has a General Plan designation of Business Park/Light Industrial and zoning designations of WLCSP-LD (World Logistics Center Specific Plan – Logistics Development) and WLCSP-LL (World Logistics Center Specific Plan – Light Logistics). The site is subject to the adopted World Logistics Center Specific Plan (WLC Specific Plan) which authorizes the construction and operation of 40,600,000 square feet of logistics facilities and associated infrastructure. The land use plan in the Specific Plan is shown in Figure 3-8 and is also shown in this section in Figure 3-1.

All of the The land use entitlements for the World Logistics Center WLC Project that are in place – include the General Plan and zoning designations, the WLC Specific Plan, and a request for annexation of 85 acres of unincorporated land in Riverside County into the City and a development agreement – having been adopted in November, 2015, through the initiative process. The discretionary approvals

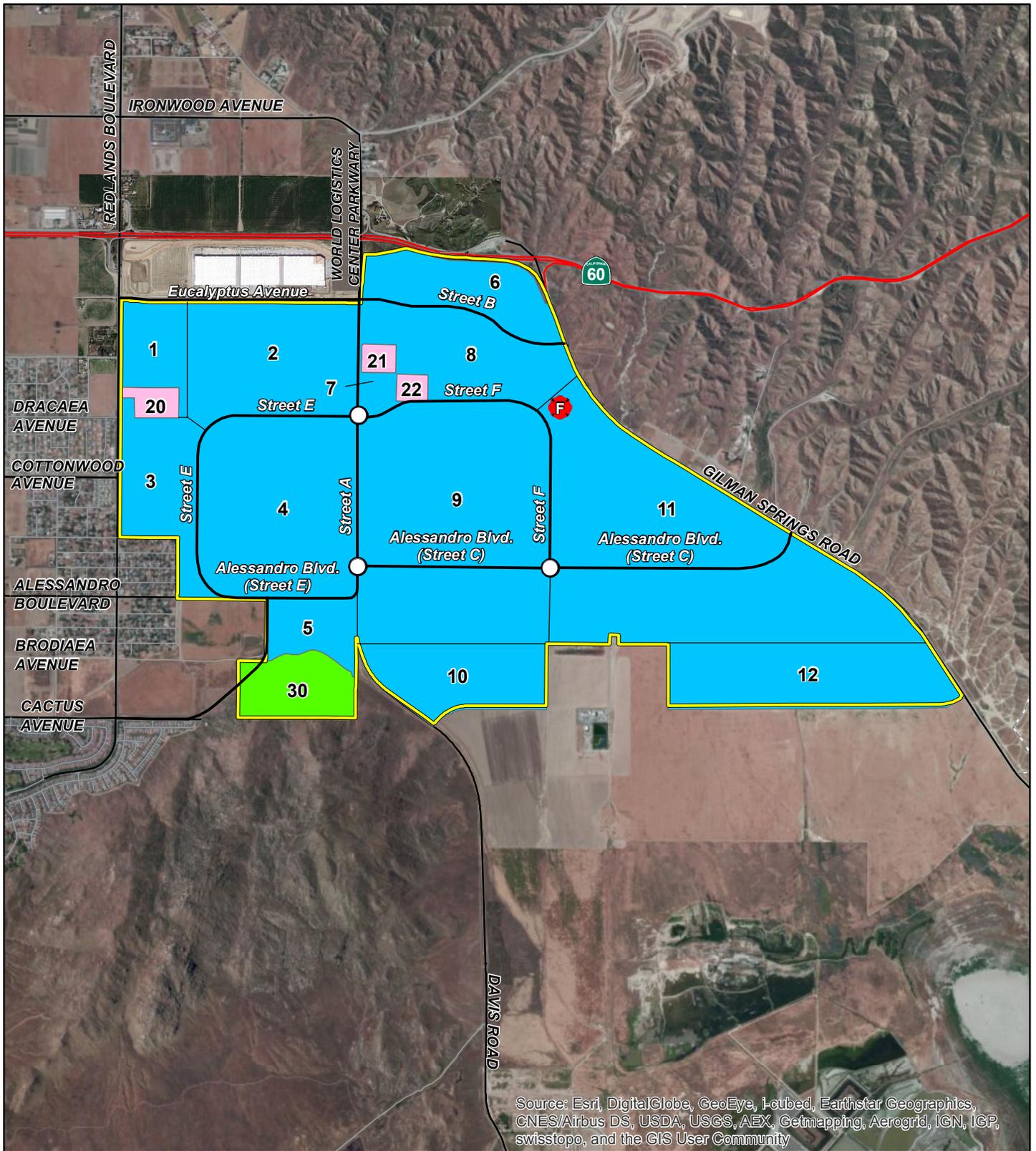
that will be considered by the City as part of the approval process consist of a development agreement and Parcel Map 36457.

### **3.3.13 Phasing**

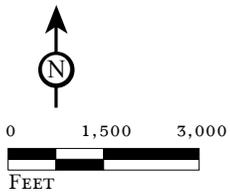
Development and occupancy of the WLC project is planned over a period of fifteen years, from 2020 through 2035. ~~Under this projected development schedule, the project will absorb an average of approximately 2.7 million square feet of new development each year from 2020 to 2035, with, although the actual development phasing and square footage buildout will be based on future market conditions.~~ Section 8.0 of the WLC Specific Plan, Project Phasing, suggests that development will likely occur in two large phases, starting in the western portion of the site south of Eucalyptus Avenue. This phasing concept is based on beginning construction where infrastructure presently exists and expanding southerly and easterly. It is anticipated that construction of Phase 1 would be completed by 2024 and occupied by 2025 and would contain approximately 50% of development or approximately 20,300,000 square feet of logistics warehouse uses. ~~Construction of Phase 2 anticipates full development build-out is anticipated to be completed by 2034 and by 2035.~~ Figure 3.19 in the 2015 FEIR shows the proposed phasing plan.

As stated in the WLC Specific Plan, project phasing predictions are conceptual. The actual amount and timing of development and occupancy will be dependent upon numerous factors, many of which are outside the control of the City or the developer, including interest by building users, private developers and local, regional, and national economic conditions. These and other factors acting together will ultimately determine the location and rate at which development within the project area occurs.

The framework for development of the ~~area~~WLC project will be in accordance with the adopted WLC Specific Plan, which identifies the type and intensity of land uses permitted within the project site. It is anticipated that development of the project would occur over time, as the result of the construction of multiple separate independent projects of varying sizes and configurations. Each of these future projects would be required to be consistent with the General Plan and zoning and would comply with all applicable regulations of the WLC Specific Plan. The estimated construction timing in Table 3.E in the 2015 FEIR provides an estimate of was revised in the rate at which the project area could be built out, consistent with the Specific Plan, and estimated levels of construction projected to occur during each phase of development. ~~Table 3.E in the FEIR also~~RSFEIR as Table 3.1. This Draft Recirculated RSFEIR includes the approximate amount of equipment anticipated to be used during revisions to the estimated construction of the project. ~~Project equipment and phasing is summarized as shown in Table 3.1-, below.~~



LSA



- Project Boundary
- Light Logistics
- Logistics Development
- Open Space
- F Fire Station Site
- 1** Planning Area Number

Figure 3.1

World Logistics Center Specific Plan Project  
Environmental Impact Report

Specific Plan Land Uses

SOURCE: ESRI World Imagery, 2010; Bing Maps, 2010; Google Maps, 2011.

**Table 3.1: Estimated Construction Equipment and Phasing (2020–2035 2034)**

Activity/Equipment	#	Duration (months)	Phase 1–		Phase 2–	
			Start	End	Start	End
<b>Mass Grading/Excavation</b>						
Dozers (D8R, D9, D10)	4- <del>210-</del> <u>14</u>	96156	The equipment will be used from January 1 to December 31 during the following years: 2020, <u>2021</u> , 2022, <u>2024</u> <u>2023</u> , and <u>2026</u> <u>2024</u>		For the years 2027 to 2029 equipment will be used from October 1 to March 31 of the following year.	For the years 2032, 2033, and 2035 <u>The</u> equipment will be used from January 1 to June 30. <u>December 31</u> during the following years: <u>2025, 2026, 2027, 2028, 2029, 2030, 2031, and 2032</u>
Scraper (651E)	6- <del>300-</del> <u>20</u>					
Compactor (824C, 834)	2- <del>60-</del> <u>4</u>					
Motor Grader (140G)	1- <del>30-</del> <u>2</u>					
Service/Support Truck	7- <del>270-</del> <u>2</u>					
Other Dozers (D6M, 550)	2- <del>91-</del> <u>5</u>					
Other <sup>1</sup>	8- <del>180-</del> <u>30</u>					
<b>Finish Grading</b>						
Dozer (D6M, 550)	3- <del>91-</del> <u>6</u>	32180	Equipment <u>The equipment</u> will be used <del>two months out</del> of from January 1 to December 31 during the following years 2020, <u>2021</u> , 2022, <u>2024</u> <u>2023</u> , and <u>2026</u> <u>2024</u>		Equipment <u>The equipment</u> will be used <del>two months out</del> of from January 1 to December 31 during the following years: <u>2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2023, and 2035</u> <u>2033, 2034</u>	
Backhoe (420D)	1- <del>30-</del> <u>2</u>					
Water Truck	1- <del>30-</del> <u>2</u>					
Service/Support Truck	1- <del>30-</del> <u>2</u>					
<b>Building</b>						
Backhoe (590, 420)	65-10	186180	July 1, 2020 December 31, 2026 <u>The</u> equipment will be used from January 1 to December 31 during the following years: <u>2020, 2021, 2022, 2023, and 2024</u>		January 1, 2027 December 31, 2035 <u>The</u> equipment will be used from January 1 to December 31 during the following years: <u>2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034</u>	
Concrete Truck	368- <del>48</del>					
Excavators (9060, 270, 240, mini)	166- <del>18</del>					
Material Delivery Trucks	113- <del>15</del>					
Forklift (420 and 544D)	102-4					
Case and Skip Loaders <sup>2</sup>	2810- <del>32</del>					
Service/Support Truck	2412- <del>27</del>					
Other <sup>3</sup>	127- <del>14</del>					
<b>Utilities</b>						
Excavators <sup>4</sup>	2615- <del>30</del>	186180	July 1, 2020 December 31, 2026 <u>The</u> equipment will be used from January 1 to December 31 during the following years:		January 1, 2027 December 31, 2035 <u>The</u> equipment will be used from January 1 to December 31 during the following years:	
Loaders	4-8					
Water Truck	171-8					
Backhoe (420)	1-2					

**Table 3.1: Estimated Construction Equipment and Phasing (2020–2035 2034)**

Activity/Equipment	#	Duration (months)	Phase 1–		Phase 2–	
			Start	End	Start	End
Service/Support Trucks	<del>188</del> <u>20</u>		<u>2020, 2021, 2022, 2023, and 2024</u>		<u>2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034</u>	
Delivery Trucks	<u>5-10</u>					
Concrete Trucks	<u>4-8</u>					
Other <sup>5</sup>	<u>43-8</u>					
<b>Interchange</b>						
Dozer (D9, D10)	1	<u>1824</u>	<u>January 1, 2025 The equipment will be used from January 1 to December 31 during the following years: 2023 and 2024</u>		<u>– September 30, 2026--</u>	
PW Scraper (623)	1					
Excavator (324)	1					
Backhoe (430)	1					
Crane	1					
Concrete Truck	4					
Service/Support Truck	4					
Drill Rig	1					
Dump Truck	5					
RT Wheel Loader (950)	1					
Concrete Screed Mach.	1					
Skip Loader (414)	1					
Dozer (D5, D6)	1					
Motor Grader (14M)	1					
<b>Curbing</b>						
Curb Machine/Screed	<u>0-2</u>	<u>62180</u>	<u>July 1, 2020<sup>1</sup> December 31, 2026 The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024</u>		<u>January 1, 2027 December 31, 2035 The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034</u>	
Skip Loader (210)	<u>40-2</u>					
Concrete Truck	<u>63-8</u>					
Service/Support Truck	<u>42-6</u>					
<b>Paving</b>						
Roller/Paving/Blade/Scraper	<u>104-8</u>	<u>32180</u>	<u>January 1, 2020<sup>2</sup> December 31, 2026 The equipment will be used from January 1 to December 31 during the following years: 2020, 2021, 2022, 2023, and 2024</u>		<u>January 1, 2027 December 31, 2035 The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034</u>	
Skip Loader	<u>2-4</u>					
Bottom Dump Truck	<u>1-4</u>					
Delivery Truck	<u>2-7</u>					
Service/Support Truck	<u>3-6</u>					
<b>Landscaping</b>						
Loader (310G, 210LE, 544J)	<u>3-6</u>	<u>186180</u>	<u>January 1, 2020 December 31, 2026 The equipment will be used from January 1 to December 31 during the following years:</u>		<u>January 1, 2027 December 31, 2035 The equipment will be used from January 1 to December 31 during the following years: 2025, 2026, 2027, 2028,</u>	
Water Truck	<u>1-2</u>					
Excavator (mini) /Lift (544D)/ Steer (S190R)	<u>3-6</u>					
Trencher (RT-45)	<u>1-2</u>					

<sup>1</sup> Two months a year

<sup>2</sup> Four weeks a year

**Table 3.1: Estimated Construction Equipment and Phasing (2020–2035 ~~2034~~)**

Activity/Equipment	#	Duration (months)	Phase 1–		Phase 2–	
			Start	End	Start	End
Service/Support Truck	<del>145</del> <u>10</u>		<u>2020, 2021, 2022, 2023,</u> <u>and 2024</u>		<u>2029, 2030, 2031, 2032,</u> <u>2033, 2034</u>	
Source: Highland Fairview 1. Includes: Water Puller, 420D Backhoe, water trucks, support trucks 2. Includes: 414, 721, cat skip loader, 310G, 210LE, 544J 3. Includes: boom pump/truck, water truck, trencher, skid steer, water truck 4. Includes: 65,000 lbs to 175,000 lbs, 250G, and cat mini 5. Includes: dump truck, crane, fork lift						

**NOTE TO READERS:** This portion of the Section 4.3, below, of this Draft Recirculated Revised Sections of the FEIR replaces portions of Section 4.3 of the FEIR, except for subsections 4.3.1, 4.3.1.1 and 4.3.1.2 which remain unchanged... The cumulative portion of Section 4.3 has been deleted from the FEIR to allow for its reanalysis to include the impacts expected from other past, present and reasonably foreseeable future projects. The revised cumulative analysis can be found in Section 6.3 of this of the Revised Sections of the FEIR, circulated in July 2018 ("RSFEIR"). The absence of reference to a portion of Section 4.3 means that the corresponding portion of Section 4.3 in the FEIR prepared in 2015 remains unchanged or has been deleted.

## **4.3 AIR QUALITY**

Although not required by the Judge's ruling, portions of the Traffic and Circulation analysis have been revised to: (1) Show the effect of using the trip generation rates shown in the most recent edition of the Institute of Traffic Engineer's Trip Generation Manual; and (2) Show the effect of the inclusion of the over 360 projects that cumulatively contribute to traffic impacts. As a result, Section 4.3 Air Quality, Section 6.3 Air Quality Cumulative, along with Appendix A, Air Quality, Greenhouse Gas, and Health Risk Assessment Report, have also been revised to show the effect of incorporating the applicable data from the revised traffic analysis.

This section analyzes the World Logistics Center project's potential air quality impacts and provides a discussion of the World Logistics Center project, the physical setting of the project area, and the air quality regulatory framework. The air quality analyses evaluate potential air quality impacts by examining the short-term construction as well as long-term operational impacts associated with the project and by evaluating the effectiveness of the identified mitigation measures. Modeled air quality levels are based upon vehicle data, project trip generation, and vehicle miles traveled assumptions included in the project's *Traffic Impact Analysis (TIA)* and peak turn volumes generated for the World Logistics Center project combined with emission factors from the California Air Resources Board (CARB). The evaluation was prepared in accordance with appropriate standards, utilizing procedures and methodologies as recommended by the South Coast Air Quality Management District (SCAQMD), the California Office of Environmental Health Hazards Assessment (OEHHA), and CARB. Air quality data posted by the SCAQMD, CARB, and the EPA web sites are included to document the local air quality environment and are incorporated herein by reference.

Compared to the Revised Sections of the FEIR (2018), construction emissions analyzed herein assume later a more average approach to construction years phasing and therefore newer, more efficient equipment, duration and the completion of Phase 1 by December 31, 2013 and the completion of Phase 2 by December 31, 2034. This results in reduced greater consistency with the assumed Project buildout and occupancy schedule with Phase 1 operational in 2025 and Phase 2 operational in 2035. On-road mobile emissions for both construction emissions and operations reflect updated emissions factors using EMFAC2017. The. As reflected in the TIA, use of the most recent edition of the Institute of Traffic Engineer's Trip General Manual results in fewer average daily trips than previously analyzed in the FEIR. A lower trip rate coupled with a lower regional vehicle miles traveled assumption analyzed in the TIA and the later operational year assumption results in reduced mobile emissions when compared to those in the FEIR. Additionally, the later operational year EMFAC2017 results in the inclusion of a greater number of electric natural gas heavy-duty trucks. Additionally, an early operational year (2035) has been assumed for full Project buildout as opposed to 2040 in the Revised Sections of the FEIR (2018), resulting in less efficient vehicles in the operational assumptions. Due to these factors, the construction and operational analyses contained herein entirely replace the analyses included in the FEIR and no further comparison is required.

The analysis contained in this section is based on the following technical studies prepared for the World Logistics Center project:

- *Air Quality, Greenhouse Gas, and Health Risk Assessment Report (ESA Environmental Science Associates, dated June 2018/November 2019)* contained in Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR; and

- Traffic Impact Analysis Report, The World Logistics Center, (WSP USA, Inc., dated June 2018) contained in Appendix L of this Revised Sections of the FEIR.
- Additional Information Regarding Potential Health Effects of Air Quality Impacts (Ramboll, dated November 2019) contained in Appendix A.2 of this Draft Recirculated Revised Sections of the FEIR.

On September 29, 2019, the United States Environmental Protection Agency (US EPA) and the National Highway Traffic Safety Administration (NHTSA) published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program.” (84 Fed. Reg. 51,310 (Sept. 27, 2019)). The Part One Rule revokes California’s authority to set its own greenhouse gas emissions standards and set zero-emission vehicles mandates in California.

Generally, after the SAFE Rule Part One becomes effective on November 26, 2019, EMFAC2014 and EMFAC2017 will not accurately estimate future transportation emissions until they are updated with new assumptions reflecting the SAFE Rule Part One in off-model adjustment factors provided by CARB. CARB has prepared off-model adjustment factors for both the EMFAC2014 and EMFAC2017 models to account for the impact of the SAFE Vehicle Rule Part One. These adjustments provided in the form of multipliers can be applied to emissions outputs from EMFAC model to account for the impact of this rule for gasoline light duty vehicles.

Since a vast majority of the project emissions are from non-gasoline heavy duty vehicles, the change in total project emissions for NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> is less than 1 percent and for CO less than 2.5 percent. As a result, the off-model adjustment factors will not substantially increase any of the significant impacts (or create a new impact).

### **4.3.1 Existing Setting**

#### **4.3.1.1 Regional Air Quality Improvements**

The American Lung Association website (lung.org) includes data collected from State air quality monitors that are used to compile an annual *State of the Air* report. These reports have been published over the last 13 years. The latest *State of the Air Report* compiled for the Basin was in 2017 (American Lung Association, 2017). As noted in this report, air quality in the Basin has significantly improved in terms of both pollution levels and high pollution days over the past three decades. Riverside County’s average number of unhealthy ozone days dropped from 203 days per year in the initial 2000 State of the Air report to 122 in the 2017 report and San Bernardino County’s number of unhealthy ozone days dropped from 230 in 2000 to 142 in 2017. Both Counties has seen dramatic reduction in particle pollution since the initial State of the Air report (2000). While the 2017 *State of the Air Report* shows a slight uptick in the number of days of unhealthy particle pollution for both counties since the 2016 report, it is important to note that pollution levels measured in this latter report were affected by fluctuations in weather conditions.

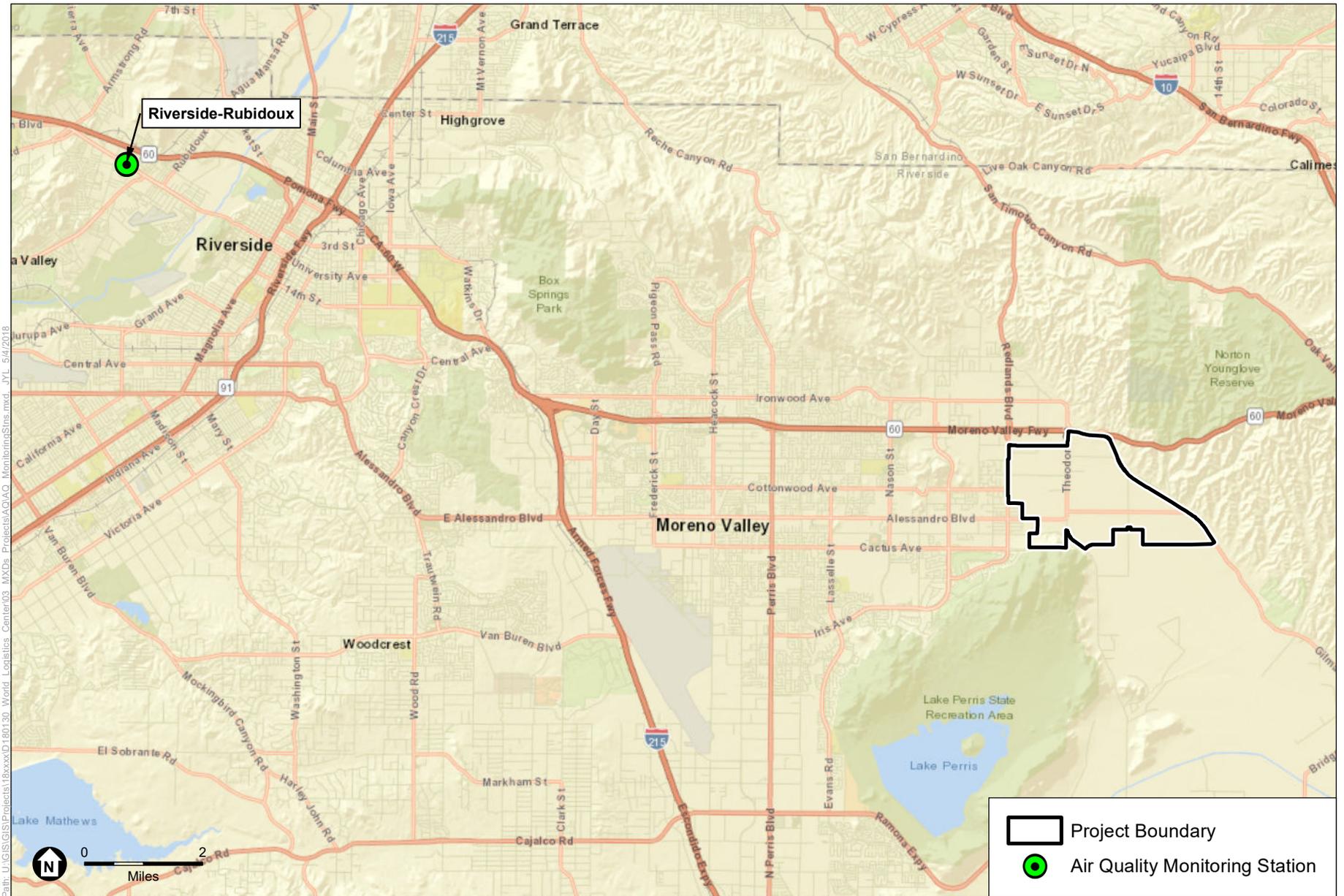
The 2016 Air Quality Management Plan (SCAQMD, 2017) outlines a comprehensive control strategy that meets the requirement for expeditious progress towards an attainment date for the five National Ambient Air Quality Standards (NAAQS) being analyzed. As stated in the 2016 AQMP, “The ozone and PM levels continue to trend downward as the economy and population increase, demonstrating that it is possible to maintain a healthy economy while improving public health through air quality improvements” (SCAQMD, 2017). NO<sub>x</sub>, VOC, PM, NH<sub>3</sub>, have been decreasing in the Basin since 2000 and are projected to continue to decrease through 2035 (CARB, 2013). These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NO<sub>x</sub> and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO<sub>x</sub> emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy. The number of days exceeding the ozone national 8-hour standard has decreased between 1992 and 2011. During the 1992 time period, nearly all of the South Coast Air Basin had more than 50 exceedance days, with more than 100 days in nearly one-third of the Basin. This is equivalent

to more than three months during a year with ozone concentrations above the level of the standard. Much of this area currently meets the national standard, including about two-thirds of Orange County and one-third of Los Angeles County, where the majority of the Basin population lives and works (CARB, 2013).

The reduction in air pollution levels experienced in the Basin is attributable to multiple factors. First, Federal and State regulatory strategies requiring the use of cleaner fuels and use of emissions control technology in the transportation and energy production industries have proven to greatly reduce the amount of tailpipe emission (vehicles) and point source (power plants) pollutants (e.g., NO<sub>x</sub> and ROG). Second, the SCAQMD's rules and regulatory programs have proven to be instrumental in improving the air quality in the Basin. As an example, the SCAQMD has adopted multiple rules regarding fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) and construction emissions that have resulted in reduced emission levels. Third, the SCAQMD's creation of the 1993 CEQA review handbook has resulted in lead agencies throughout the air basin employing uniform CEQA analyses and methodologies. The use of uniform CEQA review has allowed the SCAQMD and lead agencies that rely on the 1993 SCAQMD Air Quality Handbook to perform CEQA analysis to better track progress and to employ uniform mitigation and design feature strategies. Fourth, the use of the SCAQMD thresholds of significance to determine a project's direct and cumulative impact has allowed the SCAQMD to make tremendous progress toward achieving air quality attainment. The discussion above (pertaining to the air quality improvements achieved over the past 20 years) demonstrates that the SCAQMD's rules and procedures, including the uniform utilization of the thresholds of significance recommended in the SCAQMD *CEQA Air Quality Handbook* are contributing toward the achievement of improved air quality in the Basin.

#### **4.3.1.2 Local Air Quality**

The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station most representative of the project site is the Riverside-Rubidoux station. This station monitors CO, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Some monitoring data for SO<sub>2</sub> has been omitted as attainment is regularly met for this pollutant within the Basin. This station characterizes the air quality representative of the ambient air quality in the project area. The ambient air quality data in Table 4.3-3 identify that CO and NO<sub>2</sub> levels are consistently below the relevant State and Federal standards in the project vicinity. O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> levels all exceed State and/or Federal standards regularly. Figure 4.3-1 identifies the location of the monitoring station relative to the World Logistics Center project site.



Path: U:\GIS\GIS\Projects\18xxxx\180130\_World\_Logistics\_Center\03\_MXDs\Projects\AQ\Monitoring\Sims.mxd\_JYL\_5/4/2018

SOURCE: ESRI

World Logistics Center

**Figure 4.3.1**  
Air Quality Monitoring Station



Table 4.3-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>			Footnotes
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>	
Ozone (O <sub>3</sub> ) <sup>8</sup>	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry	<p><sup>1</sup> California standards for ozone; carbon monoxide (except 8-hour Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub> and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.</p> <p><sup>2</sup> National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal policies.</p> <p><sup>3</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.</p> <p><sup>4</sup> Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.</p> <p><sup>5</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.</p> <p><sup>6</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p><sup>7</sup> Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.</p> <p><sup>8</sup> On October 1, 2015, the natural eight-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.</p> <p><sup>9</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.</p> <p><sup>10</sup> To attain the 1-hour national standard, the 3-year average of the 98<sup>th</sup> percentile of the daily maximum concentrations at each site must not exceed 0.100 ppm. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.</p> <p><sup>11</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99<sup>th</sup> percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm).</p> <p><sup>12</sup> The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.</p> <p><sup>13</sup> The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.</p> <p>°C = degrees Celsius                      EPA = United States Environmental Protection Agency                      µg/m<sup>3</sup> = micrograms per cubic meter      mg/m<sup>3</sup> = milligrams per cubic meter                      ppm = parts per million      ppb = parts per billion</p>
	8-Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )			
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>9</sup>	24-Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		—			
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>9</sup>	24-Hour	No Separate State Standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)	
	1-Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )			
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—			
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>10</sup>	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	53 ppb (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence	
	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )		100 ppb (188 µg/m <sup>3</sup> )	None		
Sulfur Dioxide (SO <sub>2</sub> ) <sup>11</sup>	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas) <sup>11</sup>	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)	
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (for certain areas) <sup>11</sup>	—		
	3-Hour	—		—	0.5 ppm (1300 µg/m <sup>3</sup> )		
	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )		75 ppb (196 µg/m <sup>3</sup> )	—		
Lead <sup>12, 13</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption	
	Calendar Quarter	—		1.5 µg/m <sup>3</sup> (for certain areas) <sup>12</sup>	Same as Primary Standard		
	Rolling 3-Month Average <sup>11</sup>	—		0.15 µg/m <sup>3</sup>			
Visibility-Reducing Particles <sup>14</sup>	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.	Beta Attenuation and Transmittance through Filter Tape	<b>No Federal Standards</b>			
Sulfates	24-Hour	25 µg/m <sup>3</sup>	Ion Chromatography				
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence				
Vinyl Chloride <sup>12</sup>	24-Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography				

Source: CARB, 2016a

THIS PAGE INTENTIONALLY LEFT BLANK

**Table 4.3-2: Attainment Status of Criteria Pollutants in the South Coast Air Basin**

<b>Pollutant</b>	<b>State</b>	<b>Federal</b>
O <sub>3</sub> 1-hour	Nonattainment	N/A
O <sub>3</sub> 8-hour	Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Nonattainment	Maintenance – serious (San Bernardino County is in nonattainment)
PM <sub>2.5</sub>	Nonattainment	Moderate Nonattainment
CO	Attainment	Serious Maintenance
NO <sub>2</sub>	Attainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Pb	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Unclassified designation: a pollutant that is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment designation: a pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment: a pollutant is designated nonattainment if there was at least one violation at any site in the area during a 3-year period.

Source: CARB, 2017a. USEPA, 2018a

**4.3.1.3 Sensitive Land Uses in the Project Vicinity**

Sensitive receptors include residences, schools, medical offices, convalescent facilities, and similar uses where people sensitive to air pollutants may be located (i.e., the ill, elderly, pregnant women, and children). There are currently six occupied single-family homes and associated ranch/farm buildings in various locations on the World Logistics Center project site. These residences are existing on-site sensitive receptors. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, west of Redlands Boulevard, and scattered residences along Gilman Springs Road north of Alessandro Boulevard. Nearby sensitive land uses are depicted in Figure 4.3-2.

**4.3.1.4 Existing Project Area Emissions**

The project area is largely vacant undeveloped marginal agricultural land, with six occupied single-family homes and associated ranch/farm buildings in various locations on the property. Much of the site is currently used for dry farming. San Diego Gas & Electric (SDG&E) operates a natural gas compressor plant, known as the Moreno Compressor Station, on 19 acres south of the site. The Southern California Gas Company (SCGC) also operates a metering and pipe cleaning station on two separate parcels (totaling 1.5 acres) south of the site south of Alessandro Boulevard along existing Virginia Street. Existing air quality conditions at the project site reflect ambient<sup>1</sup> monitored conditions as presented in Table 4.3-3.

<sup>1</sup> Ambient: of or related to the immediate surroundings of something; in this context it means “in the air”

**Table 4.3-3: Ambient Air Quality Monitored in the Project Vicinity**

Pollutant	Standard	2014	2015	2016	2017
<b>Carbon Monoxide (CO)</b>					
Maximum 1-hr concentration (ppm)		2.4	2.5	1.6	2.4
Number of days exceeded:	State: > 20 ppm	0	0	0	0
	Federal: > 35 ppm	0	0	0	0
Maximum 8-hr concentration (ppm)		1.9	1.7	1.3	1.8
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0	0
	Federal: ≥ 9 ppm	0	0	0	0
<b>Ozone (O<sub>3</sub>)</b>					
Maximum 1-hr concentration (ppm)		0.141	0.132	0.142	0.145
Number of days exceeded:	State: > 0.09 ppm	29	31	33	ND
	Federal: > 0.075 ppm	41	39	47	84
Maximum 8-hr concentration (ppm)		0.105	0.106	0.105	0.118
Number of days exceeded:	State: > 0.070 ppm	69	59	71	ND
	Federal: > 0.075 ppm	41	39	47	84
<b>Coarse Particulates (PM<sub>10</sub>)</b>					
Maximum 24-hr concentration (µg/m <sup>3</sup> )		100	69	84	92
Number of days exceeded:	State: > 50 µg/m <sup>3</sup>	125	92	ND	ND
	Federal: > 150 µg/m <sup>3</sup>	0	0	0	0
Annual arithmetic mean concentration (µg/m <sup>3</sup> )		44.8	40.0	ND	ND
Exceeded for the year	State: > 20 µg/m <sup>3</sup>	Yes	Yes	ND	ND
<b>Fine Particulates (PM<sub>2.5</sub>)</b>					
Maximum 24-hr concentration (µg/m <sup>3</sup> )		50.6	61.1	60.8	50.3
Number of days exceeded:	Federal: > 35 µg/m <sup>3</sup>	ND	10	5	ND
	State: > 12 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
Annual arithmetic mean (µg/m <sup>3</sup> )		16.8	15.3	12.6	12.2
Exceeded for the year	State: > 12 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
	Federal: > 12.0 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Maximum 1-hr concentration (ppm)		0.0600	0.057	0.073	0.063
Number of days exceeded:	State: > 0.18 ppm	0	0	0	0
	Federal: > 0.053 ppm	No	No	ND	ND
Annual arithmetic mean concentration (ppm)		0.015	0.0144	0.015	0.015
Exceeded for the year	State: > 0.030 ppm	No	No	ND	ND
	Federal: > 0.053 ppm	No	No	ND	ND
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Maximum 24-hr concentration (ppm)		1.3	1.0	1.2	1.2
Number of days exceeded:	State: > 0.04 ppm	ND	ND	ND	ND
	Federal: > 0.030 ppm	No	No	No	No
Annual arithmetic average concentration (ppm)		0.26	0.27	0.23	0.29
Exceeded for the year:	State: > 0.030 ppm	No	No	No	No
	Federal: > 0.030 ppm	No	No	No	No

µg/m<sup>3</sup> = micrograms per cubic meter  
Agency

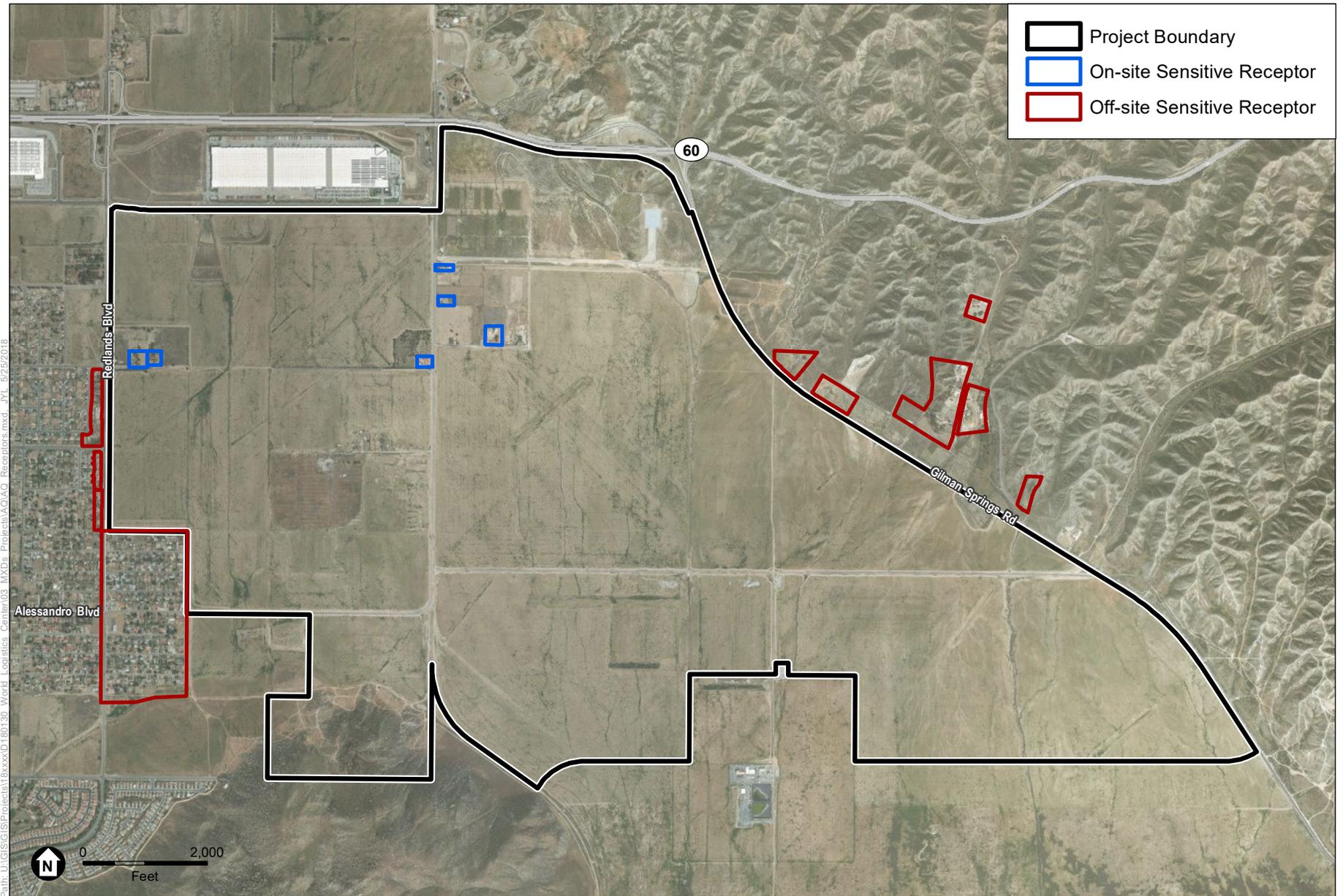
EPA = United States Environmental Protection

ID = Insufficient data  
ppm = parts per million

ND = No data

Source: CARB, 2018 for the SCAQMD Riverside-Rubidoux air monitoring station.

**Figure 4.3-1 — SCAQMD Monitoring Stations**



SOURCE: ESRI 2016; County of Riverside 2017

World Logistics Center

**Figure 4.3.2**  
Existing Sensitive Receptors

## **4.3.2 Policies and Regulations**

### **4.3.2.1 Federal Regulations**

**Clean Air Act.** Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Effective June 2, 2010, the EPA revised the primary standard for SO<sub>2</sub> by establishing a new 1-hour standard at a level of 75 ppb. The EPA revoked the two existing primary standards of 140 ppb evaluated over 24 hours and 30 ppb evaluated over an entire year as they would not provide additional public health protection given a 1-hour standard at 75 ppb. To attain this standard, the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Effective December 14, 2012, the national annual PM<sub>2.5</sub> standard was lowered from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup> but the existing 24-hour and annual secondary standards were retained.

On October 1, 2015, the national eight-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm, respectively.

### **4.3.2.2 Regional Regulations**

**Regional Air Quality Management Plan (AQMP).** The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP, which has a 20-year horizon for the Basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the Federal and/or California ambient air quality standards. The SCAQMD and SCAG must update the AQMP every three years.

**2012 AQMP.** The 2012 AQMP was adopted December 7, 2012 (SCAQMD, 2012b). The purpose of the 2012 AQMP for the Basin was to set forth a program that would lead the Basin into compliance with the Federal 24-hour PM<sub>2.5</sub> air quality standard, and to provide an update of the Basin’s projections in meeting the Federal 8-hour ozone standards. The AQMP was adopted by the SCAQMD Board; therefore, it was submitted to the EPA as the State Implementation Plan (SIP). Specifically, the AQMP served as the official SIP submittal for the Federal 2006 24-hour PM<sub>2.5</sub> standard. In addition, the AQMP updated specific elements of the previously approved 8-hour ozone SIP: (1) an updated emissions inventory, and (2) new control measures and commitments for emissions reductions to help fulfill the Section 182(e)(5) portion of the 8-hour ozone SIP.

The 2012 AQMP states, “The remarkable historical improvement in air quality since the 1970’s is the direct result of Southern California’s comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs.”

The 2012 AQMP proposed Basin-wide PM<sub>2.5</sub> measures that would be implemented by the 2014 attainment date, episodic control measures to achieve air quality improvements (would only apply during high PM<sub>2.5</sub> days), Section 182(e)(5) implementation measures (to maintain progress toward meeting the 2023 8-hour ozone national standard), and transportation control measures. Most of the control measures focused on incentives, outreach, and education.

Proposed PM<sub>2.5</sub> reduction measures in the 2012 AQMP included the following:

- Further NO<sub>x</sub> reductions from the SCAQMD's Regional Clean Air Incentives Market (RECLAIM) program. The RECLAIM program was adopted by the SCAQMD in October 1993 and set an emissions cap and declining balance for many of the largest facilities emitting NO<sub>x</sub> and SO<sub>x</sub> in the South Coast Air Basin. RECLAIM includes over 350 participants in its NO<sub>x</sub> market and about 40 participants in its SO<sub>x</sub> market. RECLAIM has the longest history and practical experience of any locally designed and implemented air emissions cap and trade program. RECLAIM allows participating facilities to trade air pollution while meeting clean air goals.
- Further reductions from residential wood-burning devices.
- Further reductions from open burning.
- Emission reductions from under-fired char broilers.
- Further ammonia reductions from livestock waste.
- Backstop measures for indirect sources of emissions from ports and port-related sources.
- Further criteria pollutant reductions from education, outreach, and incentives.

There were multiple VOC and NO<sub>x</sub> reductions in the 2012 AQMP to attempt to reduce ozone formation, including further VOC reductions from architectural coatings, miscellaneous coatings, adhesives, solvents, lubricants, and mold release products.

The 2012 AQMP also contained proposed mobile source implementation measures for the deployment of zero and near-zero emission on-road heavy-duty vehicles, locomotives, and cargo handling equipment. There were measures for the deployment of cleaner commercial harbor craft, cleaner ocean-going marine vessels, cleaner off-road equipment, and cleaner aircraft engines.

The 2012 AQMP proposed the following mobile source implementation measures:

- On-road mobile sources:
  - Accelerated penetration of partial zero-emission and zero-emission vehicles. This measure proposed to continue incentives for the purchase of zero-emission vehicles and hybrid vehicles with a portion of their operation in an all-electric range mode. The state Clean Vehicle Rebate Pilot program was proposed to continue from 2015 to 2023 with a proposed funding for up to \$5,000 per vehicle. The measure seeks to provide funding assistance for up to 1,000 zero-emission or partial-zero emission vehicles per year.
  - Accelerated penetration of partial zero-emission and zero-emission light-heavy and medium-heavy duty vehicles through funding assistance for purchasing the vehicles. The objective of the proposed action was to accelerate the introduction of advanced hybrid and zero-emission technologies for Class 4 through 6 heavy-duty vehicles. The state is currently implementing a Hybrid Vehicle Incentives Project program to promote zero-emission and hybrid heavy-duty vehicles. The proposed measure aims to continue the program from 2015 to 2023 to deploy up to 1,000 zero- and partial-zero emission vehicles per year with up to \$25,000 funding assistance per vehicle. Zero-emission vehicles and hybrid vehicles with a portion of their operation in an all-electric range mode would be given the highest priority.
  - Accelerated retirement of older light-, medium-, and heavy-duty vehicles through funding incentives.
  - Further emission reductions from heavy-duty vehicles serving near-dock rail yards. This proposed control measure called for a requirement that any cargo container moved between the ports of Los Angeles and Long Beach to the nearby rail yards be with zero-emission technologies. The measure would be fully implemented by 2020 through the deployment of zero-emission trucks or any alternative zero-emission container movement system such as a

fixed guideway system. The measure called for the CARB to either adopt a new regulation or amend an existing regulation to require such deployment by 2020.

- Off-road mobile sources:
  - Extension of the Surplus Off-Road Opt-In for NO<sub>x</sub> (SOON) provision for construction/industrial equipment, which provides funding to repower or replace older Tier 0 and Tier 1 equipment.
  - Further emission reductions from freight and passenger locomotives called for an accelerated use of Tier 4 locomotives in the Basin.
  - Further emission reductions from ocean-going marine vessels while at berth.
  - Emission reductions from ocean-going marine vessels.

The 2012 AQMP also relied upon the SCAG regional transportation strategy, which is in its adopted 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and 2011 Federal Transportation Improvement Program (FTIP), which contains the following sections:

1. Linking regional transportation planning to air quality planning and making sure that the regional transportation plan supports the goals and objectives of the AQMP/SIP.
2. Regional transportation strategy and transportation control measures: The RTP/SCS contains improvements to the regional multimodal transportation system including the following: active transportation (non-motorized transportation, e.g., biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground access; highways; arterials; and operations and maintenance.
3. Reasonably available control measure analysis.

**2016 AQMP.** On March 3, 2017, SCAQMD approved the Final 2016 Air Quality Management Plan (2016 AQMP) that demonstrates attainment of the 1-hr and 8-hr ozone NAAQS as well as the latest 24-hr and annual PM<sub>2.5</sub> standards. Currently, the 2016 AQMP is being reviewed by the U.S. EPA and CARB. Until the approval of the EPA and CARB, the current regional air quality plan is the Final 2012 Air Quality Management Plan (AQMP) adopted by the SCAQMD on December 7, 2012. The Final 2016 AQMP includes the integrated strategies and measures needed to meet the NAAQS.

The 2016 AQMP seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, greenhouse gases, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts on the health of our nearly 17 million residents, including those in disproportionately impacted and environmental justice communities that are concentrated along our transportation corridors and goods movement facilities, is to reduce emissions from mobile sources, the principal contributor to our air quality challenges. For that reason, the SCAQMD worked closely with CARB and the U.S. EPA who have primary responsibility for these sources. The Plan recognized the critical importance of working with other agencies to develop new regulations, as well as secure funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy. These “win-win” scenarios will be key to implementation of this Plan with broad support from a wide range of stakeholders. The 2016 AQMP also includes transportation control measures (TCMs) developed by SCAG from the 2016 RTP/SCS.

The RTP/SCS and FTIP were developed in consultation with federal, state and local transportation and air quality planning agencies and other stakeholders. The four County Transportation Commissions (CTCs) in the South Coast Air Basin, namely Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, Orange County Transportation Authority and the San Bernardino Associated Governments, were actively involved in the development of the regional transportation measures. In the South Coast Air Basin, TCMs include the following three main categories of transportation improvement projects and programs that have funding programmed for right-of-way and/or construction in the first two years of the 2015 FTIP:

- Transit, Intermodal Transfer, and Active Transportation Measures;
- High Occupancy Vehicle (HOV) Lanes, High Occupancy Toll (HOT) Lanes, and their pricing alternatives; and
- Information-based Transportation Strategies.

### **South Coast Air Quality Management District Proposed Indirect Sources Rules for Warehouses.**

In order to obtain the 80 ppb and 75 ppb 8-hour ozone standards by the 2023 and 2031 attainment dates, respectively, and in support of the 2016 AQMP, the SCAQMD is formulating Facility Based Mobile Sources Rules to reduce NO<sub>x</sub> emissions from indirect sources (e.g., mobile sources generated by, or attracted to facilities). This proposed rule or set of rules would reduce emissions associated with emissions sources operating in and out of warehouse and distribution centers, consistent with Control Measures MOB 03 from the 2016 AQMP, and is anticipated to be brought before the Board for consideration in the second quarter of 2020 (SCAQMD, 2019a).<sup>2</sup> The SCAQMD is looking at a variety of options which could include voluntary reduction strategies, as well as, regulations to limit emissions. The voluntary emission reduction strategies for warehouses and distribution centers could include: (1) development of a SCAQMD administered CEQA air quality mitigation fund, for warehouse projects to opt into, which would be used to reduce project emissions by funding financial incentives for fleet owners to purchase cleaner trucks; (2) development of updated guidance for warehouse siting and operations; (3) development of the necessary fueling/charging infrastructure by working with utilities and regulatory agencies; and (4) development of “green delivery options” which could involve a small, voluntary, opt-in surcharge for consumers when purchasing goods online with the funds generated used towards reducing truck fleet emissions (SCAQMD, 2018).<sup>3</sup> A regulatory approach is being proposed as well, since the recommended voluntary measures would only result in limited emissions reductions. The proposed Warehouse Indirect Source Rule is aimed at reducing trucking emissions and could provide several compliance options that facilities could choose including: (1) requirements for warehouses to ensure that construction fleets and truck fleets that serve their facility during operations are cleaner than required by CARB regulations (verified through a voluntary fleet certification program); (2) facility emission caps that would require warehouses to directly control the emissions associated with trucks visiting the facility; (3) mitigation fees if the facilities emissions exceed cap levels set in the Indirect Source Rule, (4) crediting options for other activities like installation of charging/fueling infrastructure for cleaner trucks and transportation refrigeration units, conversion of cargo handling equipment to zero emission technologies, etc.; (5) requiring facilities to utilize zero emission trucks and build the infrastructure to support them; and (6) a points based system for the warehouse Indirect Source Rule (SCAQMD, 2019a, SCAQMD, 2019b,<sup>4</sup> SJVAPCD, 2017<sup>5</sup>). This

---

<sup>2</sup> South Coast Air Quality Management District, 2019a. General Board Meeting November 1, 2019 Agenda No. 1. Attached Minutes of the October 4 2019 Meeting. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-nov1-001.pdf?sfvrsn=6> Accessed November 6, 2015.

<sup>3</sup> South Coast Air Quality Management District, 2018. Board Meeting, March 2, 2018. Agenda No. 32. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-mar2-032.pdf?sfvrsn=7>. Accessed November 3, 2019.

<sup>4</sup> South Coast Air Quality Management District General Board Meeting March 1, 2019 Agenda No. 25. Mobile Source Committee Meeting February 15, 2019. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-mar1-025.pdf?sfvrsn=6>. Accessed November 6, 2019.

<sup>5</sup> San Joaquin Valley Air Pollution Control District, 2017. Rule 9510 Indirect Source Review (ISR) (Adopted December 15, 2005, Amended December 21, 2017, but not in effect until March 21, 2018). Available online: <http://www.valleyair.org/rules/currnrules/r9510-a.pdf>. Accessed November 6, 2015.

proposed rule would further reduce air quality emissions, beyond those calculated in this analysis, as future operations of the WLC would be subject to this rule once it is proposed and approved.

**Diesel Regulations.** The Ports of Long Beach and Los Angeles and the CARB have adopted regulations aimed at reducing the amount of diesel particulate. These programs are the Ports of Los Angeles and Long Beach “Clean Truck Program” (POLA, 2018), the CARB Drayage Truck Regulation (CARB, 2017b), and the CARB statewide On-road Truck and Bus Regulation (CARB, 2017c). Each of these regulatory programs will require an accelerated introduction of “clean trucks” into the statewide truck fleet that will result in substantially lower diesel emissions during the 2008 to 2020 timeframe. Additionally, the Ports of Long Beach and Los Angeles updated the Clean Air Action Plan in 2017, providing new strategies and emission targets supporting zero-emissions and freight efficiency targets (POLA and POLB, 2017).

**Toxic Air Contaminants.** A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality (death) or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. Hazardous Air Pollutants (HAPs) and TACs are used interchangeably in this discussion. HAPs are regulated by the EPA under the Federal Clean Air Act. TAC is the term used under the California Clean Air Act to regulate the same hazardous pollutants. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for periods of several years. Many of these contaminants originate from human activities, such as fuel combustion and solvent use.

In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants carbon dioxide, nitrogen dioxide, particulate matter, and ozone for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards. For this reason, thresholds for TAC impacts for regulatory purposes and for CEQA thresholds have been set based on the increase in risk of cancer of a specific amount at sensitive receptors located near the source of TAC emissions.

The California Almanac of Emissions and Air Quality presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. These TACs are as follows: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM).

TAC measurements, available at the SCAQMD Riverside Rubidoux monitoring station (14 miles northwest of the project site) can be used to characterize the “background” health risks from regional TAC emission sources. Table 4.3-4 provides this summary of TAC levels in the project area and health risk information. This table lists the air concentration levels and associated health cancer risks for eight of the nine TACs reported by the CARB in its Almanac as measured at the Riverside-Rubidoux air monitoring station. Note that since diesel PM cannot be measured directly, the table does not provide estimates of either measured diesel PM or the cancer risk associated with diesel PM.

Past studies have indicated that diesel PM poses the greatest health risk among the TACs listed in Table 4.3-4. The principal concern regarding exposures to diesel PM lies in its small size and thus its ability to penetrate deep into lung tissues when inhaled. Diesel exhaust has been found to cause health effects from short-term or acute exposures and from long-term chronic exposures, such as repeated occupational exposures. The type and severity of health effects depends upon several factors including the amount of chemical you are exposed to and the length of time you are exposed. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Long-term (chronic) exposure to diesel exhaust is likely to occur when a person works in a field where diesel is used regularly or experiences repeated exposure to diesel fumes over a long period of time. Human health studies demonstrate a correlation between exposure to diesel exhaust and increased lung cancer rates in occupational settings. Experimental animal inhalation studies of chronic exposure to diesel exhaust have shown that a range of doses causes varying levels of inflammation and cellular changes in the lungs. Human and laboratory studies have also provided considerable evidence that diesel exhaust is a likely carcinogen.

Several occupational and ambient studies have documented the health effects due to exposure to diesel PM. The California Office of Environmental Health Hazards Assessment (OEHHA), in its role in assessing risk from environmental factors reviews such studies and makes recommendations on the way environmental risk should be evaluated through programs like the AB2588 Hot Spot Program. In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, 1950's era railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. However, all of these studies were based on exposure to exhaust from traditional diesel engines and prior to the advent of highly efficient emissions controls like the diesel particulate filter. Based on these studies, CARB identified diesel exhaust a toxic air contaminant in 1998.

In 2014, the SCAQMD released the fourth iteration of the Multiple Air Toxics Exposure Study (MATES-IV). The MATES-IV is a follow up to the previous MATES studies and included an updated toxics air emission inventory, new air toxics air dispersion modeling, and enhanced air toxics monitoring. A key conclusion reached in the MATES-IV study was that the population weighted cancer risk in the Basin decreased by 57 percent from the MATES-III period in 2005 to the MATES-IV period in 2012 indicating that overall, cancer risks are declining in the Basin as a result of the implementation of emission controls principally on large diesel trucks. The MATES-IV study also concluded that diesel PM contributed 68 percent to the total cancer risk in the Basin with benzene and 1,3 Butadiene also making important contributions to cancer risk.

**Table 4.3-4: Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
Acetaldehyde	Mean	1.48	1.44	1.08	<p>Acetaldehyde is a carcinogen that also causes chronic non-cancer toxicity in the respiratory system. Symptoms of chronic intoxication of acetaldehyde in humans resemble those of alcoholism.</p> <p>The primary acute effect of inhalation exposure to acetaldehyde is irritation of the eyes, skin, and respiratory tract in humans. At higher exposure levels, erythema, coughing, pulmonary edema, and necrosis may also occur. Acute inhalation of acetaldehyde resulted in a depressed respiratory rate and elevated blood pressure in experimental animals.</p>
	Health Risk	22	21	16	
Benzene	Mean	ID	0.27	0.271	<p>Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.</p> <p>Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.</p> <p>Chronic inhalation of certain levels of benzene causes disorders in the blood in humans. Benzene specifically affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.</p>
	Health Risk	ID	85	70	
Chromium Hex	Mean	0.083	0.045	ID	<p>In California, hexavalent chromium has been identified as a carcinogen. There is epidemiological evidence that exposure to inhaled hexavalent chromium may result in lung cancer. The principal acute effects are renal toxicity, gastrointestinal hemorrhage, and intravascular hemolysis.</p> <p>The respiratory tract is the major target organ for chromium (VI) following inhalation exposure in humans. Other effects noted from acute inhalation exposure to very high concentrations of chromium (VI) include gastrointestinal and neurological effects, while dermal exposure causes skin burns in humans. Chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, with perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness reported. Chronic human exposure to high levels of chromium (VI) by inhalation or oral exposure may produce effects on the liver, kidneys, gastrointestinal and immune systems, and possibly the blood.</p>
	Health Risk	34	19	ID	

**Table 4.3-4: Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
Para-Dichlorobenzene	Mean	ID	ID	ID	In California, para-dichlorobenzene has been identified as a carcinogen. Acute exposure to 1,4-dichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans (e.g., cerebellar ataxia, dysarthria, weakness in limbs, and hyporeflexia).
	Health Risk	ID	ID	ID	
Formaldehyde	Mean	3.52	3.64	3.35	The major toxic effects caused by acute formaldehyde exposure via inhalation are eye, nose, and throat irritation and effects on the nasal cavity. Other effects seen from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic exposure to formaldehyde by inhalation in humans has been associated with respiratory symptoms and eye, nose, and throat irritation. Animal studies have reported effects on the nasal respiratory epithelium and lesions in the respiratory system from chronic inhalation exposure to formaldehyde. Occupational studies have noted statistically significant associations between exposure to formaldehyde and increased incidence of lung and nasopharyngeal cancer. This evidence is considered "limited" rather than "sufficient" due to possible exposure to other agents that may have contributed to the excess cancers. EPA considers formaldehyde to be a probable human carcinogen (cancer-causing agent) and has ranked it in EPA's Group B1. In California, formaldehyde has been identified as a carcinogen.
	Health Risk	70	76	70	
Methylene Chloride	Mean	ID	48.2	12.3	Case studies of methylene chloride poisoning during paint-stripping operations have demonstrated that inhalation exposure to extremely high levels can be fatal to humans. Acute inhalation exposure to high levels of methylene chloride in humans has resulted in effects on the central nervous system, including decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Methylene chloride also irritates the nose and throat at high concentrations. The major effects from chronic inhalation exposure to methylene chloride in humans are effects on the central nervous system, such as headaches, dizziness, nausea, and memory loss. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. EPA considers methylene chloride to be a probable human carcinogen and has ranked it in EPA's Group B2. California considers methylene chloride to be carcinogenic.
	Health Risk	ID	477	122	
Perchloroethylene	Mean	ID	0.018	0.013	In California, perchloroethylene has been identified as a carcinogen. Perchloroethylene vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity, as well as kidney dysfunction and neurological disorders.
	Health Risk	ID	2	2	
Diesel PM	Mean	No Monitoring Data Available			In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provided strong evidence that long-term occupational exposure to diesel exhaust
	Health Risk				

**Table 4.3-4: Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
					<p>increases the risk of lung cancer. Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. This research was based on studies prior to the advent of modern diesel engines with high efficiency emissions controls.</p> <p>Note: Since then the Health Effects Institute study clearly demonstrates that the application of new emissions control technology to diesel engines has virtually eliminated the health impacts of diesel exhaust.</p>

ID = Insufficient data

A = Concentrations for Hexavalent Chromium are expressed as  $\mu\text{g}/\text{m}^3$ , and concentrations for Diesel PM are expressed as  $\mu\text{g}/\text{m}^3$ . Concentrations for all other TACs are expressed as ppb.

B = Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available

Source: CARB, 2018 for the SCAQMD Riverside-Rubidoux air monitoring station.

In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust has been a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM<sub>10</sub> database, ambient PM<sub>10</sub> monitoring data, and the results from several studies to estimate concentrations of diesel PM. Within the Basin, in addition to diesel PM, there are emissions of benzene, formaldehyde, acetaldehyde, naphthalene, ethylbenzene, acrolein, toluene, hexane, propylene, and xylene from a variety of sources located within the Basin that contribute to health risks.

In January 2015, a major new study evaluated the health impacts of “new technology diesel exhaust” (NTDE). Beginning in 2001, USEPA and CARB began issuing a series of regulations that require new diesel-powered vehicles and equipment to use the latest emissions control technology. This technology relies on two components. The first is a diesel particulate filter, which is capable of reducing particulate matter emissions by over 90%percent (required for new engines beginning in 2007). The second technology is selective catalytic reduction, which reduces emissions of nitrogen oxides by over 90%percent (required for new engines beginning in 2010). Diesel emissions from engines equipped with this technology is referred to as New Technology Diesel Exhaust (NTDE). As a result of the advances in emission control technology, USEPA, CARB, and other government and industry stakeholders commissioned a series of studies called the Advanced Collaborative Emissions Study (ACES). ACES has been guided by an ACES Steering Committee consisting of representatives of the Health Effects Institute (HEI) and the Coordinating Research Council (CRC: a nonprofit organization that directs engineering and environmental studies on the interaction between automotive or other mobility equipment and petroleum products), along with the U.S. Department of Energy, U.S. EPA, engine manufacturers, the petroleum industry, CARB, emission control manufacturers, the National Resources Defense Council, and others. The HEI, funded in part by USEPA, was selected to oversee Phase 3 of ACES.

Phase 3 of ACES evaluated whether emissions from new technology diesel engines cause cancer or other health effects. Specifically, it evaluated the health impacts of a 2007-compliant engine equipped with a diesel particulate filter. HEI found chronic exposure to NTDE did not induce tumors or pre-cancerous changes in the lung and did not increase tumors that were considered to be related to NTDE in any other tissue in laboratory rats. The study also confirmed that the concentrations of particulate matter and toxic air pollutants emitted from NTDE are more than 90%percent lower than emissions from traditional older diesel engine. Rats are the most sensitive laboratory animal species for evaluation of older technology diesel engines (pre-model year 2007), because of their sensitivity to high concentrations of particles (present in older technology diesel engines), compared with other species (including humans).

The HEI study clearly demonstrates that the application of new emissions control technology to diesel engines have virtually eliminated the health impacts of diesel exhaust (McDonald et al, 2015).

**Conservative Nature of Health Risk Assessments.** Moreover, the current methodological protocols required by the SCAQMD and CARB when studying the health risk posed by diesel PM assume the following (CAPCOA, 2009): (1) 24-hour constant exposure; (2) 350 days a year; (3) for a continuous period lasting 30 years. These are overly conservative assumptions that are not replicated in reality. Most people are indoors for 18–20 hours a day (at their place of employment or home) and most people

do not live in the same location for a 30-year period. In fact, less than 10 percent of the population has a continuous residency at the same location of greater than 30 years (American Community Survey, 2011). Thus, the health risk assessments prepared pursuant to the current protocols overestimate the risk of cancer associated with diesel PM exposure.

**Alternate Views on Diesel PM Risk.** Some researchers, such as Dr. James E. Enstrom (Enstrom, 2008), believe that the risk from diesel PM is exaggerated. Enstrom calls into question some of the basic research on the declaration of diesel exhaust as a toxic air contaminant. In particular, the article states the following:

*There is substantial new epidemiologic evidence relevant to the health effects of diesel exhaust that was not considered when the 1998 toxic air contaminant declaration was made. For instance, the 2007 paper by Francine Laden et al. measured death rates during 1985–2000 among 54,000 members of the unionized U.S. trucking industry. ... This cohort, which included 36,000 diesel truck drivers, had death rates from all causes and all cancer that were substantially below the rates among US males. Furthermore, unlike earlier evidence that was used in the TAC declaration, this cohort did not have a substantially elevated lung cancer death rate.*

Dr. Enstrom also indicates that the premature mortality calculation in the report, “Quantification of the Health Impacts and Economic Valuation of Air Pollution from Ports and Goods Movement in California,” is exaggerated. Dr. Enstrom’s analysis “found no relationship between PM<sub>2.5</sub> and mortality in elderly Californians during 1983–2002.”

#### **4.3.3 Methodology**

The *Air Quality, Greenhouse Gas, and Health Risk Assessment Report* for this revised section of the FEIR (ESA Associates, ~~2018~~2019) evaluated the air quality impacts associated with the development of the World Logistics Center project including the following:

- Determined the short-term construction air quality and health risk impacts on both on-site and off-site sensitive receptors based on SCAQMD and OEHHA assessment methodologies and significance thresholds;
- Determined the long-term air quality and health risk impacts, including vehicular traffic, on both on-site and off-site sensitive uses based on SCAQMD and OEHHA assessment methodologies and significance thresholds; and
- Determined the required mitigation measures to reduce short-term and long-term on-site air quality and health risk impacts from all sources.

An Air Quality, Greenhouse Gas, and Health Risk Assessment Report was prepared by ESA Associates (ESA Associates, ~~2018~~2019) in ~~June 2018~~November 2019, included as Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR, which estimated the impacts associated with the interim and horizon opening years. The methodology used in the analysis is discussed below.

##### **4.3.3.1 Construction**

Construction-related emissions are expected from various activities associated with the construction of the project such as rough grading, infrastructure construction, asphalt paving, building construction, architectural coatings, and construction workers commuting. Construction emissions for construction worker vehicles traveling to and from the project site, in addition to vendor trips (construction materials delivered to the project site) and haul trips (dump trucks and concrete trucks) were also accounted for in the analysis. Localized air quality in the project area would be affected by both heavy-duty construction equipment usage on site as well as local traffic due to the equipment delivery and construction worker commuting. The anticipated construction equipment and construction schedule are

identified in Appendix A.1. The SCAQMD CEQA methodology (SCAQMD, 1993) was used to analyze the criteria pollutant emissions from these activities.

A summary of the construction assumptions that has been revised since the 2018 Revised Sections of the FEIR is included below. For a detailed description of all construction assumptions, please refer to Appendix A.1.

- Version of CalEEMod On-road Construction Emissions. The construction emissions were estimated utilizing the latest current version of CalEEMod (version 2016.3.2), which uses mobile source emissions from EMFAC2014. Due to the recent approval of EMFAC2017 by the EPA, on-road construction emission were calculated separate from CalEEMod using EMFAC2017 emission factors.
- Construction Period. Construction was assumed to occur over 165 years from the year 2020 to 2035.<sup>6</sup> The assumed construction schedule has been adjusted to assume the completion of Phase 1 construction in December 2024 and the completion of Phase 2 construction in December 2034 to better align with the TIA's assumption that Phase 1 would be operational by the year 2024 and that the Project would be operational by the horizon year.<sup>7</sup> Although buildout of the project would depend on market conditions, the project could be built out and operational as early as 2035. Therefore, to provide a conservative air quality analysis, construction was assumed to be completed over a 165-year period that provides for phase overlap and the use of less efficient construction equipment.
- ~~Building Phasing. Building construction activity was subdivided into the following sub-phases: building concrete; building wet utilities; building electrical; and building landscaping to accurately describe construction activities.~~
- Mass Grading Duration. Each planning area was assumed to be graded separately over a total of approximately 58 months 13 years to reflect a realistic grading plan.
- ~~On-Site On-road Vehicle Emissions. On site travel and idling emissions from concrete trucks, haul trucks, service/support trucks, and delivery trucks were included in this analysis.~~
- ~~Equipment for Grading. The construction equipment and haul truck deliveries for the mass excavation and fine grading phases vary per planning area (since there are varying sizes of each planning area).~~
- ~~Onsite Equipment Fleet for Non-Grading Phases. The peak number of equipment was based on the size of each planning area and duration of construction.~~
- ~~Onsite Equipment Hours per Day. The analysis assumed that the onsite equipment would be in the on position for 10 hours per day as a project design feature. This is a conservative scenario as the CalEEMod default assumes construction equipment would be on for 6 to 8 hours per day. This was used to calculate maximum daily emissions which are required for the regional analysis, because project emissions can occur on any day of the week.~~

~~Concrete pouring would likely occur during nighttime hours due to limitations high temperatures pose for concrete work during the day. On-site equipment used during concrete pouring would involve daytime prep with actual concrete pouring occurring during the nighttime hours. On average, the total hours of operation for each piece of equipment during the concrete phase~~

---

<sup>6</sup> ~~Full build out of the Project is expected to take 15 to 20 years, dependent on market forces. The TIA analyzes full project buildout in 2040, which is worst case for traffic analysis purposes as it accounts for greater regional growth in non-project traffic. However, for purposes of a conservative construction impact analysis, the fifteen-year buildout (ending in 2035) is analyzed. An accelerated construction schedule occurring in earlier years would account for greater overlap of construction activity and the use of dirtier construction equipment (i.e. subject to less stringent emission standards).~~

<sup>7</sup> ~~The TIA analyzes full project buildout in 2040, which is the worst case for traffic analysis purposes as it accounts for greater regional growth in non-project traffic. However, for purposes of a conservative air quality analysis, it is assumed that full project operations would occur as early as 2035, resulting in the use of higher mobile emissions factors (dirtier engines).~~

~~would be approximately 10 hours. Therefore, the analysis assumes a realistic average use of construction equipment by assuming that the maximum equipment would be used for five days per week occurring for 10 hours per day (including the concrete pouring phase). In this way, an annual average and daily emission inventories were estimated.~~

- ~~• *Tier 4 Equipment.* The analysis assumed that for the mitigated emissions, all equipment over 50 horsepower would be Tier 4 as required by a revised mitigation measure.~~

#### **4.3.3.2 Operation**

Air quality in the project area would be affected by long-term air emissions from stationary sources and mobile sources related to the World Logistics Center project once it commences operations. The stationary source emissions would come from ~~consumption of natural gas and~~ emergency generators while mobile source emissions would come from vehicular emissions from automobiles and trucks traveling to, from, and within the project site and from on-site forklifts and yard trucks.

A key piece of information required to estimate the project's operational emissions deals with an estimate of the number of trips and types of vehicles (i.e., cars and trucks) generated by the project during a peak hour and on a daily basis. To determine mobile source emissions associated with the project, the trip generation rates were derived from the *Traffic Impact Analysis Report* (TIA) for the project prepared by WSP USA.

Working jointly with the National Association of Industrial and Office Properties (NAIOP), the SCAQMD conducted a trip generation study for high-cube warehouses, the predominant form of land use for the project, *High-Cube Warehouse Vehicle Trip Generation Analysis* (ITE, 2016). The study replaces the earlier, smaller studies that produced conflicting results and created uncertainty regarding the amount of traffic generated by the newer, more automated type of high-cube warehouse proposed for the project. The results of the study for high-cube warehouse trip generation has been incorporated into the 10<sup>th</sup> edition of the Institute of Traffic Engineers (ITE) *Trip Generation Manual*. The trip generation rates included in this study for high-cube warehouse uses and trip rates from the 10<sup>th</sup> edition of the ITE *Trip Generation Manual* have been used for other proposed land uses.

For purposes of the TIA and worst case traffic growth assumptions, project operations were analyzed based on two buildout years: 2025 Phase 1 buildout year and 2040~~35~~ full buildout year. Forecasted trip generation and vehicle miles traveled (VMT) contained in the TIA were used to estimate the project's motor vehicle emissions for the Phase 1 and full buildout scenarios. The traffic model provided estimates of project traffic volumes segregated by vehicle class as passenger cars, light heavy duty trucks, medium heavy duty trucks, and heavy-heavy duty trucks. The TIA provides VMT attributable to the project based on the net effect the project has on regional travel as well as project VMT without consideration of a net effect. The net effect includes consideration that creation of a job center (the project) would redistribute existing regional travel and result in shorter employee trips. Freeway and non-freeway VMT and speed data, as provided by WSP, were utilized to determine the appropriate emission factors to apply to project trips from the EMFAC2014~~17~~ model. In calculating the operational traffic emissions, the VMT per speed was based on daily speed data provided by WSP. Emissions factors vary by speed bin. Therefore, accounting for variations in speed attributable to slow downs occurring during peak hours provides a realistic representation of project mobile emissions.

Mobile emissions utilized EMFAC2014~~17~~'s projected vehicle fuel mix for Phase 1 buildout year 2025 and project buildout year 2040~~35~~. ~~EMFAC2014 does not include population assumptions for electric or natural gas fueled trucks.~~ Section 6.17, *Energy*, of this EIR addresses the potential penetration of electric trucks and potential use in association with the project. Although the State has set targets for zero-emission vehicles, it would be speculative to assume that the High Penetration scenario discussed in Section 6.17 would be practicable or feasible by 2025 or by 2040~~35~~. The Low, Medium, and High Penetration scenarios discussed in Section 6.17 are possible; however, as a worst-case analysis, the air quality analysis included herein ~~did not take factors in any potential emissions reductions provided by electric or~~ and natural gas-fueled trucks based on EMFAC2017 projections.

Emission factors for the year 2018~~20~~ were used for the “worst-case” scenario. Interim year 2025 (Phase 1 buildout) of the project used emission factors from the year 2025, and horizon year 2035 (Phase 2 buildout) of the project used emission factors for the year 2040~~35~~. For years 2021 through 2024 and years 2026 through 2034, emissions factors and the Project’s net effect on VMT were interpolated and scaled using data from 2025 and 2035 in order to provide an estimate of emissions and potential overlap of construction and operational emissions. For the mitigated scenario, the emission factors were modified to reflect the mitigation measure that requires the use of model year 2010 or newer trucks for all heavy-duty diesel trucks associated with the project. Note that emissions from the existing on-site residence and fugitive dust that would be removed were not included in this analysis as a worst-case scenario.

### 4.3.3.3 Localized Construction/Operation

SCAQMD has developed the Localized Significance Threshold (LST) methodology that can be used to determine whether or not a project may generate significant adverse localized air quality impacts that substantially affect sensitive receptors. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State AAQS and are developed based on the ambient concentrations of that pollutant for each source receptor area identified by the SCAQMD. SCAQMD’s current guidelines, *Final Localized Significance Threshold Methodology* (SCAQMD, 2003) and subsequent additions, were adhered to in the assessment of local air quality impacts from the World Logistics Center project. The local emissions of concern from construction and operational activities as defined by the SCAQMD are NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> combustion emissions from construction equipment and fugitive PM<sub>10</sub> dust from construction site preparation activities. A summary of assumptions for the localized assessment is included below. For detailed assumptions, refer to Appendix A.1.

- *Construction Schedule.* Construction was assumed to occur over 16~~5~~ years from the year 2020 to 2040~~34~~.<sup>8</sup> Although buildout of the project would depend on market conditions, the project could be built out and operational as early as 2035. Therefore, to provide a conservative air quality analysis, construction was assumed to be completed over a 16~~5~~-year period that provides for activity overlap and the use of older construction equipment.
- *Emission Source Configuration.* The analysis represented the off-road construction exhaust emission sources~~s~~ as a series of contiguous volume sources, which is consistent with the SCAQMD methodology for LST assessments.
- *Operational Truck Idling.* Each truck was assumed to idle for 5 minutes per day consistent with the California Air Resources Board’s Air Toxic Control Measure that limits such idling to 5 minutes and requirements specified in the World Logistics Center Specific Plan. Although project mitigation limits idling to 3 minutes per day per truck, this reduction in emissions has not been accounted for to provide a worst-case analysis.

The localized significance threshold analysis evaluated ~~three~~four conditions:

- ~~Project Phase 1 (2018): this condition assumed that Phase 1 of the project is fully built out in 2018.~~
- ~~Project Phase 1 and Phase 2 Full Build Out (2018~~20~~):~~ this condition assumes that Phase 1 and Phase 2 of the project are fully built out in 2018~~20~~ as a worst-case scenario.

---

<sup>8</sup> ~~Full build out of the Project is expected to take 15 to 20 years, dependent on market forces. The TIA analyzes full project buildout in 2040, which is worst case for traffic analysis purposes as it accounts for greater regional growth in non-project traffic. However, for purposes of a conservative construction impact analysis, the fifteen-year buildout (ending in 2035) is analyzed. An accelerated construction schedule occurring in earlier years would account for greater overlap of construction activity and the use of dirtier construction equipment (i.e. subject to less stringent emission standards)~~

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

- 2022, the year when the Project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur near the existing residences west of the project boundary along Merwin Street.
- 2025. The earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the Project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase 1 operations would occur (approximately 57 percent of entire project floor space); and
- 2035 when Phase 1 and Phase 2 of the Project are fully operational.
- ~~Proposed Development Schedule: this condition examined the proposed development schedule of the two-phased project. Three analysis years were examined under this condition for potential localized air quality impacts:
  - ~~2025, the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase 1 operations would occur (approximately 57 percent of entire project floor space);~~
  - ~~2032, the year when the project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur adjacent to the existing residences along Gilman Springs Road (eastern portion of site); and~~
  - ~~2040<sup>9</sup> when the Phase 1 and Phase 2 of the project are fully operational.~~~~

~~Project Phase 1 (2018) represents an interim step during which Phase 1 of the project (approximately 57 percent of the total size of the project) is completely built out in 2018. This analysis simply looked at the situation of what would happen if Phase 1 of the project were built in its entirety with no reductions in motor vehicle emissions that would occur in the future as a result of emission control programs that have already been adopted. This assessment also provided consistency with the TIA and noise reports which examine the Project Phase 1 (2018) condition. The project impact results were compared to the existing air quality levels in 2018 and only consider the project's operational emissions and not construction emissions.~~

~~Project Phase 1 and 2 Full Build Out 2018 represents a worst-The Project Full Build Out (2020) scenario represents the existing plus project scenario assuming that the project were to be built out and operational by 2020. This scenario does not include construction emissions as it is meant to show the operational impact the Project would have on the existing environment. This would be considered a worst case scenario since the project could not be physically built out in its entirety in a single year and does not reflect the fact that the project would be developed over a time period of 165 years depending on market demands for warehouse space. This assumption also does not account for the fact that emissions from mobile sources, prior to mitigation, particularly from heavy duty diesel trucks are expected to decline significantly over time as emissions control technologies continue to improve. This assessment also provided consistency with the TIA and noise reports which examines the full Project Phase 1 and Phase 2 (2018) Build Out under existing conditions. The project impact results were added to the existing background concentrations and then compared to the localized threshold for the appropriate pollutant. Background concentration data was obtained from the SCAQMD's Rubidoux monitoring station for years 2016-2018, the most recent data available. Background concentrations of~~

<sup>9</sup> ~~In some circumstances, references are made to the year 2035. The year 2035 is the year the construction schedule assumes full completion of project construction. Assuming earlier construction years would result in a more conservative analysis because the use of less efficient construction equipment is assumed. However, detailed traffic volumes were provided by the project traffic consultant for the long-term planning year 2040. For purposes of this assessment, the project buildout year is referred to as year 2040 to remain consistent with the TIA.~~

CO and NO<sub>2</sub> for State standards were derived as the highest existing air quality levels in measured data over the most recent 3 years of meteorological data 2016-2018, and This analysis only considers the project's operational emissions and not construction emissions.

The Project Development condition represents 2022, 2025, and 2035 conditions represent the project development including the localized impacts during construction and operation over the time period of 2020 to 2035/2040. These results were compared to the existing air quality levels in 2018.

#### 4.3.3.4 Health Risk Assessment

A Health Risk Assessment (HRA) is a guide that helps to determine whether current or future exposures to a chemical or substance in the environment could affect the health of a population. In general, risk depends on the following factors:

- How much of a chemical is present in an environmental medium (e.g., air);
- How much contact (exposure) a person has with the contaminated environmental medium; and
- The inherent toxicity of the chemical.

This HRA builds and expands upon the methodology described above in the localized air quality assessment by examining the regional effects of the project's potential health risk impacts. The HRA methodology applies a risk characterization model to the results from the air dispersion model to estimate potential health risks at each sensitive receptor location. However, unlike the localized assessment of the criteria pollutants (e.g., carbon monoxide, oxides of nitrogen, and particulate matter), which looks at impacts from exposure times of one hour to a year within a specific year, the HRA examines the impacts over an exposure time period from one hour to an extended exposure time period of many years.

#### Health Risk Impacts Assessed

The health risk assessment estimated the incremental health impacts attributable to the project's construction and operations for the following condition:

- Proposed Project Development condition which examines the effect of project-related construction and operational traffic emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the final full build out in 2035. This condition forms the basis for quantifying the incremental impacts from the project.

A multi-pollutant health risk assessment was conducted for the Proposed Project. The health risk assessment evaluated toxic emissions from a variety of sources. These included exhaust emissions of particulate matter (PM) and total organic gases (TOG) from diesel and gasoline combustion, as well as toxics associated with fugitive PM from tire wear and brake wear of mobile sources. Annual average emissions and impacts were calculated for each year starting from 2020 when construction of the Project would commence. Specifically, annual average concentrations of toxics were estimated from the construction emissions for each year of construction from 2020 to 2034 according to the construction schedule and equipment usage projected for each year of construction. Proposed Project Development examines project impacts resulting from the proposed construction and operation of the project from the commencement of construction in 2020 for a 30-year duration for sensitive/residential receptors, 25-year for worker receptors, and 9-year exposure time periods for school-site student receptors. Annual average emissions and impacts during operation were estimated for the Phase 1 build out year and the final full build out year, years for which detailed traffic information was available from the TIA. The annual average operational emissions were then scaled among operational years between 2021 and 2035 based on the Phase 1 build out year and final full build out year's emissions, using scaling factors that reflecting changes in EMFAC-based emission factors from 2025 or 2035 and

the project occupancy schedule for each specific year. See Appendix A.1 for detail on the scaling factor development and how the in-between years' emissions were calculated.

The assessment of health impacts is a continuing evolution of science and regulation. Since December 2014, three major scientific and regulatory activities have come forward that will affect how such assessments are performed and what such impacts mean to society as described below.

~~On December 30, 2014, the ARB released its update to the Emissions Factor Model, EMFAC2014, which is used to estimate emissions from motor vehicles in California. The EFAC2014 model represents the ARB's current understanding of motor vehicle technologies and regulatory implementation of rules aimed at reducing air emissions from motor vehicles. Of significance in this regard are the new projections of air emissions from heavy duty diesel engines. Based on the results of the EMFAC2014 model, emissions of diesel particulate matter range from 50 to 80 percent lower than previously estimated using the previous version of the EMFAC model, EMFAC2011. Since heavy duty trucks constitute nearly all of the project's diesel PM emissions, the incorporation of the emission information from the EMFAC2014 model is important in estimating the amount of diesel PM and in assessing the project's health risk impacts resulting from these emissions~~

On January 27, 2015, the HEI, a joint private-government partnership, released a major peer-reviewed scientific report entitled *Effects of Lifetime Exposure to Inhaled New-Technology Diesel Exhaust in Rats* (McDonald et al, 2015). This is the first study to conduct a comprehensive evaluation of lifetime inhalation exposure to emissions from heavy-duty 2007-compliant engines (referred to as "new technology diesel exhaust," or NTDE). The study evaluated the long-term effects of multiple concentrations of inhaled NTDE, which has greatly reduced particle emissions compared with "traditional-technology diesel exhaust" (TDE) in male and female rats on more than 100 different biologic endpoints, including tumor development, and compared the results with biologic effects seen in earlier studies in rats after exposure to TDE. Lifetime inhalation exposure of rats exposed to one of three levels of NTDE from a 2007-compliant engine, for 16 hours per day, 5 days a week, with use of a strenuous operating cycle that more accurately reflected the real-world operation of a modern engine than cycles used in previous studies, did not induce tumors or pre-cancerous changes in the lung and did not increase tumors that were considered to be related to NTDE. The importance of this study is that diesel PM emissions from new technology diesel engines does not cause any increase in the risk of lung cancer or other significant adverse health effects in study animals that, in fact are more sensitive to toxics exposures than humans. While this study focused on heavy duty truck emissions, the new clean diesel technology has the potential for impacting all sectors, including passenger cars, agriculture, construction, maritime and transportation. Previous studies directed at studying the effects of diesel PM on health were based on exposure studies that date 15 to 20 years ago when diesel emissions were significantly higher than the NTDE. It is also important to highlight that the U.S. Environmental Protection Agency (EPA), the California Air Resources Board, the U.S. Department of Energy (DOE) and the U.S. Federal Highway Administration are sponsors and/or reviewers of this study in conjunction with the manufacturers of emissions control equipment.

On March 6, 2015, the OEHHA adopted a new guidance for estimating health risks from toxic air contaminants that incorporated the importance of early-in-life sensitivities of young children to exposures to toxics air contaminants and recommends a lifetime exposure duration of 30-years. Within the context of this assessment, this new assessment guidance is referred to as the "Current OEHHA Guidance". The new guidance updates earlier guidance recommended by OEHHA and SCAQMD referred to in this assessment as the "Former OEHHA Guidance", which was used in the 2015 Draft EIR. The "Former OEHHA Guidance" is based on a lifetime exposure of 70 years and does not incorporate early-in-life age sensitivity factors. The importance of the "Current OEHHA Guidance" is that the guidance produces much more conservative estimates of cancer risks from toxic air contaminant exposures than the "Former OEHHA Guidance".

On December 22, 2017, the ARB released its update to the Emissions Factor Model, EMFAC2017, which is used to estimate emissions from motor vehicles in California. The EMFAC2017 model represents the ARB's current understanding of motor vehicle technologies and regulatory

implementation of rules aimed at reducing air emissions from motor vehicles. Based on the results of the EMFAC2017 model, heavy duty trucks have a higher PM deterioration and idling emission rate than previously estimated using the previous version of the EMFAC model, EMFAC2014. Since heavy duty trucks constitute nearly all of the project's diesel PM emissions, the incorporation of the emission information from the EMFAC2017 model is important in estimating the amount of diesel PM and in assessing the project's health risk impacts resulting from these emissions

The HRA has been conducted to allow decision makers to see the cancer-related impacts of the World Logistics Center project with the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study. The following information summarizes the main assumptions utilized in preparation of the HRA. For more detailed discussion of assumptions and methodology, refer to Appendix A.1.

*Traffic Volumes.* The HRA used the construction and operational emission values as described above in the air quality study. Note that with respect to the operational emissions, since the project may change the traffic distribution in the region, net trips and associated net emissions on each project-impacted roadway segment was calculated using the difference between the trip rates for the 2018 (baseline year) with-project scenario and without-project scenario. The TIA studied three with-project and without-project scenarios, based on existing (year-2018), interim year 2025 (Phase 1 buildout), and horizon year 2040 (full project buildout); the HRA analysis is based on the 2018 existing year traffic scenario because it has the highest certainty with regard to pre-project conditions than the 2025 interim year and 2040 horizon year traffic scenarios (i.e., the pre-project traffic conditions for those future year traffic scenarios are speculative in nature). To be conservative, for segments that have net negative trips (i.e., where the project causes reduction in trip rates on some roadway segments due to traffic redistribution in the region), the HRA used a zero emission value instead of taking credit for the trip rate reductions.

*Vehicle Speeds.* In calculating the operational traffic emissions, the VMT per speed was based on daily speed data provided by the traffic consultant (WSP). Speed data accounts for variations in speed attributable to slow downs occurring during peak hours.

*Organic Gas Emissions.* The assessment of acute non-cancer hazards examined the impacts of the toxic components of the project's organic gas and PM emissions from construction equipment during project construction, and total organic gas and PM emissions from gasoline and diesel vehicles during project operation.

*Calculated Cancer Population Burden.* The health risk assessment included the computation of cancer population burden attributed to the project's diesel PM emissions.

*Maximum Exposure Duration for Sensitive/Residential Receptors.* The HRA used the SCAQMD recommended intake rate percentiles - RMP using the Derived Method, which applies to multi-pathway risk assessments in which two dominant exposure pathways use the high-end point-estimates of exposure. Furthermore, since cancer risk calculation is based on 30-year exposure duration, the HRA assumed exposure starts at the beginning of construction (Construction + Operation HRA). The revised HRA also analyzed the 30-year exposure scenario that assumed exposure starts at the beginning of full project operation (Operational HRA). The Operational HRA assumed that a receptor starts exposure at the beginning of the full project operational year of 2040<sup>35</sup> and exposure lasts for 30 years until 2069<sup>64</sup>. The Operational HRA also conservatively used the 2040<sup>35</sup> emission rate for each of the 30 years of exposure.

*Maximum Exposure Duration for Worker Receptors.* The cancer risk impacts are presented in accordance with "Current OEHHA Guidance", which assumes an exposure duration of 25 years for worker receptors, which is based on labor statistics showing 95 percent of workers stay in the same job for 25 years or less.

*School Receptors.* The assessment of cancer risks at local school receptors was included based on “Current OEHHA Guidance”.

The HRA methodology applied a risk characterization model to the results from an air dispersion model to estimate potential health risks at each sensitive receptor location. Because of the pervasive nature of diesel particulate matter (diesel PM) in contributing to estimated health risks in California, the focus of this assessment was on estimating the health risks from diesel PM. While the project activities may result in the emission of other TACs (e.g., Total Organic Gases (TOG) from diesel and gasoline-powered vehicles), diesel PM from the project was found to contribute approximately 98 percent of the total cancer risk from project operations (see the *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, Appendix A.1 of the Draft Recirculated Revised Sections of the FEIR). Reactive Organic Gases (ROG) and PM exhaust, brake wear and tire wear emissions from construction equipment and TOG and PM emissions from diesel and gasoline vehicles of project operation were, however, included in the assessment of acute non-cancer hazards.

The health risk calculation methodology in this HRA is consistent with *SCAQMD Health Risk Assessment Guidance* (SCAQMD, 2016) and the “Current OEHHA Guidance” set forth in the 2015 OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. The estimation of cancer risk involves the specification of several parameters including the concentration level of the toxic air contaminant (for purposes of this assessment diesel PM<sub>10</sub> exhaust), the rate of inhalation of the toxic, the exposure frequency (number of days per year), the exposure duration in years, the time period over which the exposure takes place, what is termed a slope factor that represents an upper bound on the increased cancer risk from a lifetime exposure to a toxic by ingestion or inhalation and early-in-life age sensitivity factors. The values of these parameters depend on the type of receptor, i.e., sensitive/residential, worker, and student as discussed below.

*Cancer Risk Exposure Assumptions.* The principal focus of this HRA was on the potential health impacts to sensitive/residential receptors located within and surrounding the project site. Sensitive receptors include hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Residences are also considered sensitive receptors. An important parameter necessary to estimate cancer risk is the duration of exposure of an individual to toxic air contaminants. An assessment of population mobility can assist in determining the length of time a residential receptor is exposed in a particular location. For example, the duration of exposure to a source of toxic air contaminants will be directly related to the period of time residents live near the source of the emissions.

Table 4.3-5 summarizes the primary exposure assumptions used in this HRA to calculate individual cancer risk by receptor type, which is based on the SCAQMD HRA Guidance and the “Current OEHHA Guidance”.

**Table 4.3-5: Exposure Assumptions for Cancer Risk**

Type of Guidance	Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate (L/kg-day)
		Hours/day	Days/year				
Current OEHHA Guidance	Sensitive/Residential:						
	3rd Trimester	24	350	0.25	10	100	361
	0-2 years	24	350	2	10	100	1,090
	2-16 years	24	350	14	3	100	572
	Older than 16 years	24	350	13.75	1	73	261
	Student	8	180	9	3	NA	631
	Worker	8	250	25	1	NA	230

Time at home factor is 1 if there is a school receptor within the 1 in a million (or greater) cancer risk isopleth, which was the case for this project's unmitigated scenario for the Construction + Operation HRA.  
 (L/kg-day) = liters per kilogram body weight per day; NA = not applicable.  
 The daily breathing rates shown are RMP using the Derived Method for residential as recommended by the SCAQMD and the 95th percentile rate for other receptors as recommended by the OEHHA.  
 Source: OEHHA, 2015; SCAQMD, 2016.

The underlying factors used in the analysis exemplify the conservative nature of utilizing the exposure scenarios and the underlying assumptions:

- The residential cancer risk calculation assumed that each resident will be exposed to diesel particulate matter (diesel PM) and organic gases for 24 hours a day for 350 days a year at the location of his or her home throughout the entire 30-year residential exposure period.
- The worker and student cancer risk calculations assumed that workers or students are exposed to diesel PM for 8 hours a day, next to, but outside of the buildings in which they work or study.
- The atmospheric dispersion model and traffic model that were used to estimate risks generally provide impact estimates that are over-estimated based on the use of conservative model assumptions.

**Table 4.3-5: Exposure Assumptions for Cancer Risk**

Type of Guidance	Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate (L/kg-day)
		Hours/day	Days/year				
Current OEHHA Guidance	Sensitive/Residential:						
	3rd Trimester	24	350	0.25	10	85	364
	0-2 years	24	350	2	10	85	1090
	2-16 years	24	350	14	3	72	572
	Older than 16 years	24	350	14	1	73	261
	Student	8	180	9	3	NA	640
	Worker	8	250	25	1	NA	230

Time at home factor is 1 if there is a school receptor within the 1 in a million (or greater) cancer risk isopleth, which was the case for this project's unmitigated scenario for the Construction + Operation HRA.  
 (L/kg-day) = liters per kilogram body weight per day; NA = not applicable.  
 The daily breathing rates shown are RMP using the Derived Method for residential as recommended by the SCAQMD and the 95th percentile rate for other receptors as recommended by the OEHHA.  
 Source: OEHHA, 2015; SCAQMD, 2016.

*Other Factors that Influence Health Risk Estimates: Conservative Trip Estimates.* It should also be noted that the TIA used a conservative estimate of the number of truck trips after the project begins operation. The number of truck trips is important because diesel PM emissions are directly related to both the number of trucks and the vehicle miles traveled. As mentioned above, the TIA in the Revised Sections of the FEIR uses the traffic generation rate for high-cube warehouses from the 10<sup>th</sup> edition of

the Institute of Traffic Engineers' (ITE) Trip Generation Manual which is based on the *High-Cube Warehouse Vehicle Trip Generation Analysis* prepared jointly by SCAQMD and National Association of Industrial and Office Properties (NAOIP).

**Cancer Burden.** Whereas cancer risk represents the probability that an individual will develop cancer, cancer burden multiplies the cancer risk by the exposed population to estimate the number of individuals that would be expected to contract cancer from the project. The exposed population is defined as the number of persons within a facility's zone of impact, which is typically the area exposed to an incremental cancer risk of one in a million from the project. Consistent with this definition, cancer burden was calculated by first identifying all population census tracts<sup>10</sup> located within the project's zone of impact, multiplying the estimated incremental project cancer risk impact in the census tract by the population of the census tract and then summing all of products of population times estimated cancer risk in the zone of impact. Note that each census tract contributes to the cancer burden in proportion to its population and risk. For example, if a census tract has a relatively high estimated cancer risk, but no people living there, it will not contribute to the estimation of the cancer burden. In accordance with "Current OEHHA Guidance", the cancer burden was calculated assuming a 30-year exposure duration along with the appropriate exposure frequency, daily breathing rates, age sensitivity factors, and time at home factors appropriate to each age group (OEHHA, 2015). A cancer burden greater than 0.5 is considered a significant cancer burden.

**Non-cancer Hazards.** Separate from cancer risk impacts, exposures to TACs such as diesel PM can also cause chronic (long-term) and acute (short-term) related non-cancer illnesses such as reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system, birth defects, or other adverse environmental effects. Risk characterization for non-cancer health risks from TACs is expressed as a HI. The HI is a ratio of the predicted concentration of a project's emissions to a concentration considered acceptable to public health professionals, termed the Reference Exposure Level (REL). This is a separate and distinct analysis from the analysis conducted for cancer risk. A significant risk is defined by the SCAQMD as an HI of 1 or greater. ~~The~~ For example, the California OEHHA has assigned a chronic non-cancer REL of 5 µg/m<sup>3</sup> for diesel PM (OEHHA, 2015). Diesel PM has effects on the respiratory system, which accounts for essentially all of its potential chronic non-cancer hazards. ~~Therefore, the only HI calculated was for the respiratory system.~~

Exposures to TACs can also have short-term or acute non-cancer effects, typically dealing with exposures over an hour or so. OEHHA has not defined a REL for diesel PM appropriate for estimating acute non-cancer hazards from diesel PM. Therefore, to estimate the potential acute non-cancer impacts from the project, it was necessary to examine the various individual chemical components (or chemical species) that comprise the emissions from both diesel vehicles and gasoline vehicles. For this purpose, use was made of emission source profiles that provide estimates of the various chemical components that comprise the exhaust from diesel and gasoline vehicles. From this information, an estimate was made of the maximum one-hour average concentration levels of the project's various chemical species from which an acute non-cancer HI can be determined.

~~**Morbidity and Mortality.** Respirable particulate matter is a public health concern as it is known to impact both the respiratory and cardiovascular systems. Respirable particulate matter deposition in the lungs and penetration into the bloodstream (for the smallest particles) triggers a range of inflammation responses and exacerbates health problems such as asthma and chronic bronchitis. Individuals susceptible to higher health risks from exposure to airborne particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) include children, the elderly, smokers, and people of all ages with low pulmonary/ cardiovascular function. The CARB reviewed and summarized the toxic health effects (i.e., mortality and morbidity) of PM exposure and presented a health effect model attempting to quantify these impacts based on concentration~~

<sup>10</sup> A census tract is a geographic region defined for the purpose of taking a census. Usually these regions coincide with the limits of cities, towns, or other administrative areas. Each tract has a unique numeric code and averages about 4,000 inhabitants. The census tract centroid is the geographic center of the tract based on a weighted distribution of the population within the tract using the census blocks that comprise the tract. A census block is the smallest geographic unit used to tabulate population and each tract can be comprised of several blocks.

response functions (C-R functions) (CARB, 2008a). This CARB model has been used, for example, to estimate the number of cases of disease and premature deaths linked to PM and ozone exposure from ports and goods movement in California.

The CARB model has also been used to quantitatively assess project-specific incremental levels of public mortality and morbidity, however, such calculations are subject to significant uncertainty. Sources of uncertainty include emission estimates, population exposure estimates, concentration-response functions, baseline rates of mortality and morbidity that are entered into C-R functions, and occurrence of additional not quantified adverse health effects. It should be noted that the nature of PM as a complex mixture of various pollutants, as well as the confounding health effects of pollutants such as sulfur dioxide, NO<sub>2</sub>, CO, and O<sub>3</sub> that tend to co-occur with PM in ambient air, greatly increase the complexity of deriving accurate PM concentration response functions. Health risk estimates derived in the presence of significant uncertainty tend to rely on very conservative assumptions that may greatly overestimate the potential adverse health effects. Risk assessment has various uncertainties in the methodology and is therefore deliberately designed so that risks are not under predicted. For estimates mortality and morbidity impacts, the following C-R function is used:

$$\Delta Y = -Y_0 [\exp(-\beta \Delta PM) - 1] * \text{population}$$

Where:

- $\Delta Y$ : changes in the incidence of a health risk endpoint (in this case changes in mortality or morbidity) corresponding to a particular change in DPM.
- $Y_0$ : baseline occurrence of the health risk endpoint rate per person for the South Coast Air Basin.
- $\beta$ : the coefficient based on the relative risk that is associated with a particular concentration and varies from one study to another.
- $\Delta PM$ : change in DPM concentration estimated by the project's air dispersion modelling ( $\mu\text{g}/\text{m}^3$ ).
- Population = population of the impacted census tracts and population subgroup exposed to the change in DPM.

To use a C-R function from an epidemiological study to estimate changes in the incidence of a health endpoint corresponding to a particular change in PM in a location, it is important to use appropriate values of parameters for the C-R function, which are the measure of PM, the type of population, and the characterization of the health endpoint should be the same as or as close as possible to those used in the study that estimated the C-R function.

The form of the C-R function was used to predict the effect of changes in ambient PM concentrations on health effects such as premature deaths, cardiac and respiratory hospitalizations, asthma and other lower respiratory symptoms, etc. The parametric values for the variables  $Y_0$  and  $\beta$  are provided in Table 4.3-6 along with the averaging time for the estimate of the health risk endpoint.

**Table 4.3-6: Parameter Values**

Health Risk Endpoint	Averaging Time	Affected Population	Baseline Occurrence ( $Y_0$ )	Relative Incidence ( $\beta$ )	Health Risk Endpoint
Long Term Mortality	Annual	Ages 30 years and older	0.001768	0.005827	Long Term Mortality
Chronic Illness: Chronic Bronchitis	Annual	Ages 27 years and older	0.00378	0.0132	Chronic Illness: Chronic Bronchitis

**Table 4.3-6: Parameter Values**

Health Risk Endpoint	Averaging Time	Affected Population	Baseline Occurrence (Y <sub>0</sub> )	Relative Incidence (β)	Health Risk Endpoint
Hospitalization: Chronic Obstruction Pulmonary Disease	Daily	Ages 65 years and older	0.0000259	0.00288	Hospitalization: Chronic Obstruction Pulmonary Disease
Hospitalization: Pneumonia	Daily	Ages 65 years and older	0.0000516	0.00207	Hospitalization: Pneumonia
Hospitalization: Cardiovascular	Daily	Ages 65 years and older	0.000158	0.00119	Hospitalization: Cardiovascular
Hospitalization: Asthma	Daily	Ages 0 to 64 years old	0.0000263	0.00205	Hospitalization: Asthma
Emergency Room Visits for Asthma	Daily	Ages 0 to 64 years old	0.0000448	0.00367	Emergency Room Visits for Asthma

Source: CARB, 2002.

The basic procedure for determining exposures is based on the methods published by the CARB in its development of the technical support to consider amendments to the ambient air quality standards for particulate matter and sulfates (CARB, 2002). Within this assessment, the following information is required to make the relevant health risk endpoint estimates in addition to the C-R function shown in the above equation and the parametric information shown in Table 4.3-6:

- Air pollutant concentrations (represented as the incremental diesel PM impacts from the population affected.)

The incremental air pollutant concentrations of DPM resulting from the project were determined using the USEPA AERMOD air dispersion model and associated emission estimates of DPM. The dispersion model predicted annual estimates of DPM at locations surrounding the project corresponding to the location of population census tracts from the US Census Bureau. To provide estimates of 24-hour DPM, the annual average DPM concentration values calculated by the air dispersion model were multiplied by a factor of 6 which corresponds to the ratio of 24-hour average to annual average air concentrations recommended by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015). The breakdown of the total population by age group for use in the concentration-response functions was accomplished using the 2010 US Census for California age breakdown as shown in Table 4.3-7. This population breakdown was assumed to apply to all census tract receptors to determine the affected population in each census tract.

**Table 4.3-7: California Age Breakdown in 2010**

Age	Percent of Total Population
<5	7.3%
5-9	8.0%
10-14	7.6%
15-19	7.2%
20-24	7.0%
25-34	15.5%
35-44	16.2%
45-54	12.8%
55 to 59	4.3%
60 to 64	3.4%

**Table 4.3-7: California Age Breakdown in 2010**

Age	Percent of Total Population
65-74	5.6%
75-84	3.8%
>=85	1.6%

Source: USCB, 2014.

~~Despite a number of uncertainties in the analysis methodology, the expected increase in mortality and morbidity was calculated for the project's toxic air emissions.~~

**Geographic Scope of the Health Risk Assessment.** The HRA is characterized by two important differences from the localized significance threshold assessment for criteria pollutants. According to the SCAQMD localized significance threshold assessment methodology, the assessment of localized impacts addresses only those emissions that are generated “onsite”, that is for the purposes of this project, emissions generated from within or along the boundaries of the Specific Plan. However, for the HRA, both the universe of the project’s emission sources and air dispersion model receptors were expanded to assess the off-site impact of the project’s emissions of toxics. Besides onsite emission sources and receptors, the HRA included a receptor grid that extends up to 5 kilometers (km) from the project boundary and the roadway network that extends 10 km from the project boundary (e.g., including 18 miles on SR-60. This study area reasonably captured the most extensive emissions from project-generated vehicles on the roadway network, since all trips to and from the project would travel on the roadway segments and freeway segments (SR-60) nearest the project site regardless of origin or destination. Since project activity is highest onsite, the project’s emissions and associated health impact decreases with distance from the project site. Thus, the selected study area was capable of capturing the project’s maximum impact. If the maximum risk from the study area is less than significant, project health risk impacts will be less than significant for receptors further away.

The generation of emissions from traffic traveling along the various arterial and freeway mainline roadway segments requires information on traffic volumes, length of segment, and emission factors. The emission factors, in turn, depend on vehicle type, speed, calendar year, and fuel type. Estimates of peak hour vehicle volumes and types (passenger cars, light heavy duty trucks, medium heavy duty trucks, and heavy-heavy duty trucks) were provided by the traffic consultant for each roadway segment analyzed. The TIA also provided daily vehicle volumes for freeway segments, but not for non-freeway segments. For use in the cancer risk and chronic non-cancer hazard calculations, the daily vehicle volumes for non-freeway segments were assumed to be 10 times that of the peak hour vehicle volumes. The physical length and width of each roadway segment were estimated using the segment location as provided by the traffic consultant and aerial photographs available from Google Earth. Vehicle speeds for each roadway segment and vehicle type were based on the speed groups provided by the traffic consultant.

The health risk analysis examined the following condition:

- Project Development condition which examined the effect of project-related construction and operational traffic diesel PM and gasoline emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the final full build out in 2035.<sup>44</sup> This condition forms the basis for quantifying the incremental impacts from the project.

<sup>44</sup>—In some circumstances, references are made to the year 2035. The year 2035 is the year the conservative construction schedule assumes full completion of project construction. However, detailed traffic volumes were provided by the project

Although diesel PM contributes the most to cancer risk, a multipollutant health risk assessment was performed. The analysis also included health risk impacts from the emissions of diesel reactive organic gases (ROG), gasoline PM, gasoline ROG exhaust, gasoline ROG evaporative sources, and PM from break wear and tire wear from all vehicles. The toxic compounds from each of these emission categories was determined from CARB speciation profiles.<sup>12</sup>

Annual average diesel PM emissions and impacts were calculated for each year starting from 2020 based on the assumption that diesel exhaust and other TACs can cause cancer. Specifically, annual average diesel PM concentrations were estimated from the diesel PM construction emissions for each year of construction from 2020 to 2035<sup>4</sup> according to the construction schedule and equipment usage projected for each year of construction. Project Development examines project impacts resulting from the proposed construction and operation of the project from the commencement of construction in 2020 for a 30-year duration for sensitive/residential receptors, 25-year for worker receptors, and 9-year exposure time periods for school-site student receptors. Annual average diesel PM emissions and impacts during operation were estimated for the Phase 1 build out year and the final full build out year, years for which detailed traffic information was available from the TIA. The annual average operational diesel PM health risk impacts were then calculated using interpolated among operational emission factors and net effect on VMT for years between 20202021 through 2024 and 2026 through 2034 based on data for years 2025 and 2035.

During years when both construction and operations occur simultaneously (2021 to 2035<sup>4</sup>), the annual diesel PM concentrations at the sensitive receptors from construction were added to the annual diesel PM concentrations from operations to provide a total impact assessment of all diesel PM TAC emissions from the project during each year. The resulting total annual average diesel PM concentrations calculated each year for the exposure time period (individual annual averages) multiplied by the requisite daily breathing rates, age sensitivity factors, and time-at-home factors for each year of exposure. The HRA assumed that a fetus in the 3rd trimester (within the mother's womb) commences its lifetime exposure with exposure starting in year 2020 (construction start year) for construction only emissions, years 2021 through 2034 for construction + operations, and in year 2040<sup>35</sup> for full operations. The HRA is being provided to allow decision makers to see the cancer-related impacts of the World Logistics Center project in the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study. The mitigation conditions require that all diesel trucks accessing the project during operation be model year 2010 or newer and that all on-site equipment be Tier 4.

#### **4.3.3.5 Additional Information Regarding Health Effects of Air Quality Emissions**

In response to the December 2018 decision by the California Supreme Court in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 ("Friant Ranch"), this Draft Recirculated Revised Sections of the FEIR includes an analysis to estimate the potential health effects from criteria air pollutants emissions and their precursors. As explained in Section 4.3.6.1 and in Appendix A.2, these results involve a degree of uncertainty based on a combination of the uncertainty associated with the emissions quantification, the change in concentration resulting from the photochemical grid model (PGM) and the application of concentration-response (C-R) functions, as obtained from epidemiological studies, among other factors. Nonetheless, these results provide information sufficient to be included in this CEQA document and to be reviewed by the public and the decision-makers in their consideration of air quality.

Project emissions evaluated include NO<sub>x</sub>, SO<sub>2</sub>, CO, respirable (PM<sub>10</sub>) and fine (PM<sub>2.5</sub>) primary particulate matter (PM), and VOCs. NO<sub>x</sub> and VOCs [also known as reactive organic gases, or ROG, which are virtually the same as VOC with some slight differences]<sup>13</sup> are not criteria air pollutants but, in

traffic consultant for the long-term planning year 2040. Similar to the Phase 1 buildout year, and for purposes of this assessment, the project buildout year is referred to as year 2040 to remain consistent with the TIA.

<sup>12</sup> <https://ww3.arb.ca.gov/ei/speciate/speciate.htm>

<sup>13</sup> Reactive organic gas (ROG) emissions are quantified and modeled as VOCs in this assessment. ROG means total organic gases minus the California Air Resources Board's (ARB's) "exempt" compounds (e.g., methane, ethane, CFCs, etc.). ROG

the presence of sunlight, they form ozone and contribute to the formation of secondary PM<sub>2.5</sub> and thus are analyzed here. As a conservative measure, SO<sub>2</sub> and CO are evaluated due to their small contribution to the formation of secondary PM<sub>2.5</sub> and ozone. The health effects from ozone and PM<sub>2.5</sub> are examined for this Project because the USEPA has determined that these criteria pollutants would have the greatest effect on human health. The emissions of other criteria and precursor pollutants, including VOC, NO<sub>x</sub>, CO and SO<sub>2</sub>, are analyzed in their contribution in the formation of ozone and secondary PM<sub>2.5</sub>. USEPA's default health effect functions for PM use fine particulate matter (PM<sub>2.5</sub>) as the causal PM agent, so the health effects of PM<sub>10</sub> are represented using PM<sub>2.5</sub> as a surrogate.

The USEPA's air quality modeling guidelines (Appendix W<sup>14</sup>) and ozone and PM<sub>2.5</sub> modeling guidance<sup>15</sup> recommend using a PGM to estimate ozone and secondary PM<sub>2.5</sub> concentrations. The USEPA's modeling guidance does not recommend specific PGMs but provides procedures for determining an appropriate PGM on a case-by-case basis. Both the modeling guidelines and guidance note that the Comprehensive Air Quality Model with extensions (CAMx)<sup>16</sup> and the Community Multiscale Air Quality (CMAQ<sup>17</sup>) PGMs have been used extensively in the past and would be acceptable PGMs. As such, the USEPA has prepared a memorandum<sup>18</sup> documenting the suitability for using CAMx and CMAQ for ozone and secondary PM<sub>2.5</sub> modeling of single-sources or group of sources.

To estimate the potential outcome of the Project's emissions on ambient air concentrations, the Project's unmitigated and mitigated emissions were added to the CAMx 4-km annual PGM modeling database.<sup>19</sup> For this analysis, both unmitigated and mitigated Project emissions were evaluated. In both cases, total emissions modeled reflect the maximum combined (operational + construction) emissions by pollutant. These maxima may occur in different years for different pollutants, though each pollutant's maximum year is conservatively analyzed collectively in a single year assessment. Full operational emissions (at Project buildout) were modeled for all pollutants, and the balance of emissions were allocated to construction sources, with the distribution of emissions types representative of the maximum construction years. This allows for analysis of the worst-case emissions scenario over a single construction or operational year. Full operational emissions (at Project buildout) are expected to have the greatest contribution to health effects due to the proximity of the mobile source emissions to dense population centers, and thus were modeled in full. Additional construction emissions were evaluated to conservatively represent a potential year where construction and operation may coincide, though in reality the situation of full operations plus construction is hypothetical, and conservative for the purposes of this analysis.

For use in PGMs, each Project emissions source must be spatially distributed across the modeling grid cells so that they can be incorporated into the gridded emission inventory. Operational emissions include area sources (architectural coatings, VOCs in consumer products, and landscaping equipment), emergency generators, off-road equipment, and emissions associated with motor vehicle use. Construction emissions include off-road equipment, paving, architectural coatings, fugitive dust, and emissions associated with hauling, vendor, and worker activity. Operational area sources and off-road equipment emissions were evenly distributed within the Project site. Emergency generator emissions were evenly distributed across all emergency generator point source locations. The operational mobile source category includes both passenger vehicles and trucks. The operational mobile sources are also spatially distributed in both the site's grid cells, as well as the grid cells for the local and regional

---

is similar, but not identical, to USEPA's term "VOC", which is based on USEPA's exempt list, which is slightly different from ARB's list.

<sup>14</sup> [https://www3.epa.gov/ttn/scram/appendix\\_w/2016/AppendixW\\_2017.pdf](https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf).

<sup>15</sup> [https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling\\_Guidance-2018.pdf](https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf).

<sup>16</sup> <http://www.camx.com/>.

<sup>17</sup> <https://www.epa.gov/cmaq>.

<sup>18</sup> [https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical\\_Grid\\_Model\\_Clarification\\_Memo.pdf](https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical_Grid_Model_Clarification_Memo.pdf).

<sup>19</sup> SCAQMD performed Weather Research and Forecasting (WRF) meteorological modeling for the 4-km domain and 2012 calendar year that has been processed by WRF-CAMx to generate CAMx 2012 4-km meteorological inputs for the domain. The CMAQ 2012 emissions have been converted to the format used by CAMx using the CMAQ2CAMx processor.

roadways with Project travel. Non-road construction emissions (off-road equipment, paving, architectural coating, and fugitive dust) were allocated to specific plots within the Project area. On-road mobile construction emissions were spatially distributed to the Project site and nearby roadways. Annual emission estimates from the Project were spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modeling using the Sparse Matrix Operator Kernel Emissions (SMOKE) emissions modelling system supported by the USEPA. The emissions inventories, spatial allocation, and SMOKE inputs and outputs are shown in Appendix A.2 of this Draft Recirculated RSFEIR.

The SCAQMD's Southern California 2016 Air Quality Management Plan (AQMP)<sup>20</sup> modeling database was used for this Project. The Southern California 4-km CAMx modeling database is based on a 2012 base meteorological year and includes future year emission scenarios. The 2031 future year projections were used for this analysis, as that is the nearest future year to full operational buildout with base emissions available as of the date of this report. The Project's emissions were tagged for treatment by the source apportionment tools in CAMx to obtain the incremental ozone and PM<sub>2.5</sub> concentration changes due to the Project's emissions. More details and inputs for the PGM modeling are included in Appendix A.2 of this Draft Recirculated RSFEIR.

Following completion of the CAMx source apportionment modeling, Ramboll used the USEPA's Benefits Mapping and Analysis Program (BenMAP)<sup>21, 22</sup> to estimate the potential health effects of the Project's contribution to ozone and PM<sub>2.5</sub> concentration. BenMAP uses the concentration estimates produced by CAMx, along with population and health effect concentration-response (C-R) functions, to estimate various health effects of the concentration increases. BenMAP has a wide history of applications by the USEPA and others, including for local-scale analysis<sup>23</sup> as needed for assessing the health effects of a project's emissions. The USEPA default BenMAP health effects C-R functions that are typically used in national rulemaking, such as the health effects assessment<sup>24</sup> for the 2012 PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS), were used in this assessment. The health effects that we used for PM<sub>2.5</sub> include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory) and hospital admissions (respiratory). Details on the BenMAP inputs and outputs and definitions for the health effects are shown in Appendix A.2 of this Draft Recirculated RSFEIR.

#### **4.3.4 Thresholds of Significance**

Based on Appendix G of the *CEQA Guidelines*, air quality impacts would occur if the World Logistics Center project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); and/or
- Expose sensitive receptors to substantial pollutant concentrations.

In addition to the Federal and State AAQS, there are daily emissions thresholds for construction and operation of a project in the Basin. The Basin is administered by the SCAQMD, and guidelines and

<sup>20</sup> <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>.

<sup>21</sup> <https://www.epa.gov/benmap/how-benmap-ce-estimates-health-and-economic-effects-air-pollution>.

<sup>22</sup> [https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce\\_user\\_manual\\_march\\_2015.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf).

<sup>23</sup> <https://www.epa.gov/benmap/benmap-ce-applications-articles-and-presentations#local>.

<sup>24</sup> [https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM\\_RA\\_FINAL\\_June\\_2010.pdf](https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf).

emissions thresholds established by the SCAQMD in its *CEQA Air Quality Handbook* (SCAQMD, 1993) and subsequent additions to the Handbook were used in this analysis. It should be noted that the emissions thresholds were established based on the attainment status of the air basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution related to air quality and health risks.

### 4.3.4.1 Thresholds for Construction Emissions

The following CEQA significance thresholds for regional construction emissions have been established by the SCAQMD for the Basin:

- 75 pounds per day of VOC, also known as reactive organic compounds (ROC).
- 100 pounds per day of NO<sub>x</sub>.
- 550 pounds per day of CO.
- 150 pounds per day of PM<sub>10</sub>.
- 150 pounds per day of SO<sub>x</sub>.
- 55 pounds per day of PM<sub>2.5</sub>.

Projects in the Basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under CEQA.

### 4.3.4.2 Thresholds for Operational Emissions

Projects with regional operation-related emissions that exceed any of the regional emission thresholds listed below are considered significant under the SCAQMD guidelines.

- 55 pounds per day of VOC, also known as ROC.
- 55 pounds per day of NO<sub>x</sub>.
- 550 pounds per day of CO.
- 150 pounds per day of PM<sub>10</sub>.
- 150 pounds per day of SO<sub>x</sub>.
- 55 pounds per day of PM<sub>2.5</sub>.

### 4.3.4.3 Air Pollutant Standards for CO with Localized Effects

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards (previously referenced Table 4.3-1). If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase one-hour CO concentrations by 1.0 ppm or more or eight-hour CO concentrations by 0.45 ppm or more. The Basin meets State and Federal attainment standards for CO; therefore, the project would have a significant CO impact if project emissions result in an exceedance of State or Federal one-hour or eight-hour standard. The following emission concentration standards for CO, based on the SCAQMD *CEQA Air Quality Handbook* (1993), apply to the project:

- California State one-hour CO standard of 20.0 ppm.

- California State eight-hour CO standard of 9.0 ppm.

#### **4.3.4.4 Localized Significance Thresholds**

The SCAQMD published its *Final Localized Significance Threshold Methodology* in June 2003 (SCAQMD, 2003), revised July 2008 and *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM<sub>2.5</sub> Significance Thresholds* (SCAQMD, 2006), recommending that all air quality analyses include a localized assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. LSTs represent the maximum emissions from a project site that are not expected to result in an exceedance of Federal or State AAQS. LSTs are based on the ambient concentrations of that pollutant within the Source Receptor Area (SRA) where a project is located and the distance to the nearest sensitive receptor. The project site is located in the northern portions of SRAs 24 (Moreno Valley) and 28 (San Jacinto).

In the case of CO and NO<sub>2</sub>, if ambient levels are below the air standards for these pollutants, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM<sub>10</sub> and PM<sub>2.5</sub>, both of which are nonattainment pollutants in the Basin. For these latter two pollutants, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403 and 1301. The Rule 403 threshold of 10.4 µg/m<sup>3</sup> applies to construction emissions (and may apply to operational emissions at aggregate handling facilities). The Rule 1301 threshold of 2.5 µg/m<sup>3</sup> applies to non-aggregate handling operational activities.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. There are currently six occupied single-family homes and associated ranch/farm buildings in various locations on the World Logistics Center project site. These residences are existing on-site sensitive receptors. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, and west of Redlands Boulevard, and scattered residences along Gilman Springs Road.

Following the SCAQMD LST methodology, for sites larger than 5 acres, air dispersion modeling needs to be conducted. Because the project site greatly exceeds 5 acres, the localized significance for project air pollutant emissions was determined by performing dispersion modeling to determine if the pollutant concentrations would exceed relevant significance thresholds established by the SCAQMD.

The following LSTs were applied to the construction and operation of the project:

- 0.18 ppm (State 1-hour); 0.100 ppm (Federal 1-hour); and 0.03 ppm (Annual) of NO<sub>2</sub> for construction or operations.
- 20 ppm (1-hour) and 9.0 ppm (8-hour) of CO for construction or operation.
- 10.4 µg/m<sup>3</sup> (24-hour) and 1 µg/m<sup>3</sup> of PM<sub>10</sub> (Annual) for construction.
- 2.5 µg/m<sup>3</sup> (24-hour) and 1.0 ppm (Annual) of PM<sub>10</sub> for operations.
- 10.4 µg/m<sup>3</sup> (24-hour) of PM<sub>2.5</sub> for construction.
- 2.5 µg/m<sup>3</sup> (24-hour) of PM<sub>2.5</sub> for operation.

Note that when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operation apply in determining emission significance

#### **4.3.4.5 Health Risk Significance Thresholds**

For pollutants without defined significance standards or air contaminants not covered by the standard criteria cited above, the definition of substantial pollutant concentrations varies. For toxic air contaminants (TAC), "substantial" is taken to mean that the individual cancer risk exceeds a threshold considered to be a prudent risk management level.

The SCAQMD has defined several health risk significance thresholds that it recommends to Lead Agencies in assessing a project's health risk impacts. The City of Moreno Valley has not adopted its own set of thresholds. Therefore, the following SCAQMD thresholds were adopted for the project.

- **Maximum Individual Cancer Risk (MICR) and Cancer Burden.** MICR is the estimated increase in lifetime probability of the maximally exposed individual contracting cancer as a result of exposure to TACs over the applicable exposure period. Cancer burden multiplies the cancer risk by the exposed population to estimate the number of individuals that would be expected to contract cancer from the project.

A significant impact would occur for:

- (A) An increased MICR greater than 10 in 1 million at any receptor location; or
- (B) A cancer burden greater than 0.5

- **Chronic Hazard Index (HI).** This is the ratio of the estimated long-term level of exposure to a TAC for a potential maximally exposed individual to its chronic reference exposure level. A reference exposure level is the exposure level below which an adverse health effect will not occur as determined by health professionals. The chronic HI calculations include multi-pathway consideration, when applicable.

A significant impact would occur if the increase in total chronic HI for any target organ system due to exposure to total TAC emissions from the project exceeds 1.0 at any receptor location.

- **Acute Hazard Index (HI).** This is the ratio of the estimated maximum one-hour concentration of a TAC for a potential maximally exposed individual to its acute reference exposure level, the exposure level below which an adverse health effect will not occur as determined by health professionals (see Section 4.3.2.3).

A significant impact would occur if the increase in total acute HI for any target organ system due to exposure to total TAC emissions from the project exceeds 1.0 at any receptor location.

#### **4.3.5 Less than Significant Impacts**

The following impact was determined to be less than significant (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

**4.3.5.12 Long-Term Microscale (CO Hot Spot) Emissions**

**Impact 4.3.5.12:** The World Logistics Center project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation for CO.

<b>Threshold</b>	Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?  For CO, the applicable thresholds are: <ul style="list-style-type: none"><li>• California State one-hour CO standard of 20.0 ppm; and</li><li>• California State eight-hour CO standard of 9.0 ppm.</li></ul>
------------------	---

Vehicular trips associated with the development of the World Logistics Center project could contribute to congestion at intersections and along roadway segments in the project vicinity resulting in potential local CO “hot spot” impacts. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle travel speeds and idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, schoolchildren, etc.). High CO concentrations are typically associated with roadways or intersections operating at unacceptable levels of service or with very high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project’s effect on local CO levels.

Carbon monoxide (CO) “hot spot” thresholds ensure that emissions of CO associated with traffic impacts from a project in combination with CO emissions from existing and forecast regional traffic do not exceed State or Federal standards for CO at any traffic intersection affected by the project. Project concentrations may be considered significant if a CO hot spot intersection analysis determines that project-generated CO concentrations cause a localized violation of the State CO 1-hour standard of 20 ppm, State CO 8-hour standard of 9 ppm, Federal CO 1-hour standard of 35 ppm, or Federal CO 8-hour standard of 9 ppm.

A CO hot spot is a localized concentration of CO that is above the State or Federal 1-hour or 8-hour CO ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at project-impacted intersections where the concentrations would be the greatest.

This analysis follows guidelines recommended by the CO Protocol (University of California, Davis, 1997) and the SCAQMD. According to the CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis. The LOS for intersections is determined in the TIA (refer to Section 4.15 of this Revised FEIR, Traffic and Circulation). The SCAQMD recommends that a local CO hot spot analysis be conducted if the intersection meets one of the following criteria: (1) the intersection is at LOS D or worse and where the project increases the volume to capacity ratio by 2 percent, or (2) the project decreases LOS at an intersection from C to D. A decrease in LOS, i.e., from C to D, means that there is more traffic and more delay at the intersection.

For this project analysis, the intersections with the highest traffic volumes and the LOS E or F before mitigation were identified for 2025 using information from the table in the TIA “Intersection LOS under 2025 Plus Phase 1 Conditions.” The intersections with the greatest LOS before mitigation were also identified for 2040 buildout using information from the table in the TIA “Intersection LOS under 2040 Plus Build-out Conditions.”

The CO concentrations were estimated using the CALINE4 model using 2025 and 2040<sup>35</sup> emission factors. The emission factors are for “all” vehicle classes and are not adjusted for a project-specific fleet to provide a worst-case scenario. In addition, the emission factors do not take into account the project mitigation reductions from requiring that all diesel trucks are model year 2010 or newer.

Table 4.3-8<sup>6</sup> shows estimated CO concentrations at year 2025 plus project traffic conditions. The estimated CO concentrations at year 2040<sup>buildout</sup> are shown in Table 4.3-9<sup>7</sup>. As shown in the tables, the estimated 1-hour and 8-hour average CO concentrations from project-generated and cumulative traffic plus the background concentrations are below the State and Federal standards. No CO hot spots are anticipated because of traffic-generated emissions by the project in combination with other anticipated development in the area. Therefore, the mobile emissions of CO from the project are not anticipated to contribute substantially to an existing or projected air quality violation of CO. Therefore, according to this criterion, air pollutant emissions during operation would result in a less than significant impact. No mitigation is required.

**Table 4.3-8: Carbon Monoxide Concentrations at Intersections, 2025**

Intersection	Peak Hour	CO Concentration (ppm)		Significant Impact?
		1 Hour	8 Hour	
Alessandro Boulevard and Chicago Avenue	PM	5.2	3.5	No
Alessandro Boulevard and Canyon Crest Drive	PM	4.8	3.2	No
Alessandro Boulevard and Mission Grove Parkway	PM	4.3	2.9	No
Arlington Avenue and Victoria Avenue	PM	4.3	2.9	No
Alessandro Boulevard and Sycamore Canyon Boulevard	AM	4.3	2.9	No

— ppm = parts per million

— A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-9: Carbon Monoxide Concentrations at Intersections, 2040**

Intersection	Peak Hour	CO Concentration (ppm)		Significant Impact?
		1 Hour	8 Hour	
Alessandro Boulevard and Chicago Avenue	PM	4.5	3.0	No
Alessandro Boulevard and Canyon Crest Drive	PM	4.6	3.1	No
Alessandro Boulevard and Sycamore Canyon Boulevard	PM	4.2	2.8	No
Ramona Expressway and Sanderson Avenue	PM	4.7	3.1	No
Alessandro Boulevard and Mission Grove Parkway	PM	4.2	2.8	No

— ppm = parts per million

— A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-6: Carbon Monoxide Concentrations at Intersections, 2025**

<u>Intersection</u>	<u>Peak Hour</u>	<u>CO Concentration (ppm)</u>		<u>Significant Impact?</u>
		<u>1 Hour</u>	<u>8 Hour</u>	
<u>Alessandro Boulevard and Chicago Avenue</u>	<u>PM</u>	<u>2.0</u>	<u>1.3</u>	<u>No</u>
<u>Alessandro Boulevard and Canyon Crest Drive</u>	<u>PM</u>	<u>1.6</u>	<u>1.1</u>	<u>No</u>
<u>Alessandro Boulevard and Mission Grove Parkway</u>	<u>PM</u>	<u>1.4</u>	<u>0.9</u>	<u>No</u>
<u>Arlington Avenue and Victoria Avenue</u>	<u>PM</u>	<u>1.1</u>	<u>0.7</u>	<u>No</u>
<u>Alessandro Boulevard and Sycamore Canyon Boulevard</u>	<u>AM</u>	<u>1.1</u>	<u>0.7</u>	<u>No</u>

Notes:

- A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

ppm = parts per million

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-7: Carbon Monoxide Concentrations at Intersections, 2035**

<u>Intersection</u>	<u>Peak Hour</u>	<u>CO Concentration (ppm)</u>		<u>Significant Impact?</u>
		<u>1 Hour</u>	<u>8 Hour</u>	
<u>Alessandro Boulevard and Chicago Avenue</u>	<u>PM</u>	<u>1.9</u>	<u>1.3</u>	<u>No</u>
<u>Alessandro Boulevard and Canyon Crest Drive</u>	<u>PM</u>	<u>1.8</u>	<u>1.2</u>	<u>No</u>
<u>Alessandro Boulevard and Sycamore Canyon Boulevard</u>	<u>PM</u>	<u>1.6</u>	<u>1.1</u>	<u>No</u>
<u>Ramona Expressway and Sanderson Avenue</u>	<u>PM</u>	<u>2.2</u>	<u>1.5</u>	<u>No</u>
<u>Alessandro Boulevard and Mission Grove Parkway</u>	<u>PM</u>	<u>1.5</u>	<u>1.0</u>	<u>No</u>

Notes:

- A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

ppm = parts per million

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

### 4.3.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

#### 4.3.6.1 Air Quality Plan Management Plan Consistency

**Impact 4.3.6.1:** *Implementation of the World Logistics Center project has the potential to conflict with implementation of the SCAQMD 2012 AQMP.*

Threshold	Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?
-----------	---

According to the 1993 SCAQMD Handbook, there are two key indicators of consistency with the Air Quality Management Plan (AQMP):

1. Indicator: Whether the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
2. Indicator: A project would conflict with the AQMP if it would exceed the assumptions in the AQMP in 2012 or increments based on the year of project buildout and phase. The Handbook indicates that key assumptions to use in this analysis are population number and location and a regional housing needs assessment. The parcel-based land use and growth assumptions and inputs used in the Regional Transportation Model run by the Southern California Association of Governments that generated the mobile inventory used by the SCAQMD for AQMP are not available and assumed not to include the project; therefore, the SCAQMD's significance thresholds are used to determine if the project exceeds the assumptions in the AQMP.

Considering the recommended criteria in the SCAQMD's 1993 Handbook, this analysis utilizes the following criteria to address this potential impact:

- Project's contribution to air quality violations (SCAQMD's first indicator, 1 as listed above);
- Assumptions in AQMP (SCAQMD's second indicator, 2, as listed above); and
- Compliance with applicable emission control measures in the AQMPs.

**Project's Contribution to Air Quality Violations and Assumptions in AQMP.** According to the SCAQMD, the project is consistent with the AQMP if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (SCAQMD, 1993, page 12-3). As shown in analyses in Impacts 4.3.6.2, 4.3.6.3, and 4.3.6.4, the project could violate an air quality standard and therefore could contribute substantially to an existing or projected air quality violation.

If a project's emissions exceed the SCAQMD regional thresholds for NO<sub>x</sub>, VOC, PM<sub>10</sub>, or PM<sub>2.5</sub>, it follows that the emissions could cumulatively contribute to an exceedance of a pollutant for which the Basin is in nonattainment (ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>) at a monitoring station in the Basin. The thresholds are criteria for determining environmental significance and are discussed in the SCAQMD's 1993 Handbook for Air Quality Analysis. An exceedance of a nonattainment pollutant at a monitoring station would not be consistent with the goals of the AQMP—to achieve attainment of pollutants. As discussed in the analyses below (Impact 4.3.6.2, Construction Emissions, and Impact 4.3.6.4, Long-Term Operational Emissions), the project would exceed the regional emission significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and/or PM<sub>2.5</sub> prior to the application of mitigation. This means that project emissions could combine with other sources and could result in an ozone, PM<sub>10</sub>, or PM<sub>2.5</sub> exceedance at a nearby monitoring station. The Basin in which the project is located is in nonattainment for these pollutants;

therefore, according to this criterion, the project would not be consistent with the AQMP. The regional emissions assume a zero baseline for existing emissions on the project site and therefore assumes that the AQMP had no emissions for the project site. The regional significance thresholds can be interpreted to mean that if project emissions exceed the thresholds, then the project would also not be consistent with the assumptions in the AQMP. Therefore, based on this criterion, the project could contribute to air quality violations and would not be consistent with the AQMP.

**Compliance with Emission Control Measures.** The second indicator of whether the project could conflict with or obstruct implementation of the AQMP is by assessing the project's compliance with the control measures in the AQMPs and the State Implementation Plan (SIP).

**2012 AQMP.** The project would comply with all applicable rules and regulations enacted as part of the AQMP. In addition, the AQMP relies upon the SCAG regional transportation strategy, which is in its adopted 2012–2035 RTP/SCS and 2011 FTIP. Included in the RTP/SCS are transportation control measures including active transportation (non-motorized transportation, e.g., biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground access; highways; arterials; and operations and maintenance.

**2016 AQMP.** As stated previously, the SCAQMD recently approved on March 3, 2017 the Final 2016 AQMP. Currently, the 2016 AQMP is being reviewed by the U.S. EPA and CARB. Until the approval of the EPA and CARB, the current regional air quality plan is the Final 2012 AQMP adopted by the SCAQMD on December 7, 2012. Therefore, consistency analysis with the 2016 AQMP has not been included. Nonetheless, the project would comply with all applicable rules and regulations enacted as part of the 2016 AQMP, including transportation control measures from the 2016 RTP/SCS.

**State Implementation Plans.** Geographical areas in the State that exceed the Federal air quality standards are called nonattainment areas. The project area is in nonattainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. SIPs show how each area will attain the Federal standards. To do this, the SIPs identify the amount of pollutant emissions that must be reduced in each area to meet the standard and the emission controls needed to reduce the necessary emissions. On September 27, 2007, the CARB adopted its State Strategy for the 2007 SIP. In 2009, the SIP was revised to account for emissions reductions from regulations adopted in 2007 and 2008 and clarifies CARB's legal commitment. Additional recent revisions to the SIP are as follows:

- In 2008, the EPA revised the lead<sup>25</sup> national ambient air quality standard by reducing it to 0.15 µg/m<sup>3</sup>. On December 31, 2010, the Los Angeles County portion of the Basin was designated as nonattainment for the 2008 lead national standard as a result of exceedances measured near a large lead-acid battery recycling facility. The 2012 Lead SIP for Los Angeles County was prepared by the SCAQMD and addresses the recent revision to the lead national standard, and outlines the strategy and pollution control activities that demonstrate attainment of the lead national standard before December 31, 2015. The 2012 Lead SIP was approved May 4, 2012.
- A SIP revision for the federal nitrogen dioxide standard was prepared in 2012, to address the new 1-hour federal ambient air quality standard for nitrogen dioxide.
- The proposed California Infrastructure SIP revision was considered by the CARB on January 23, 2014. The proposed Infrastructure SIP revision is administrative in nature and covers the National Ambient Air Quality Standards (federal standards) for ozone (1997 and 2008), fine particulate matter (PM<sub>2.5</sub>; 1997, 2006, and 2012), lead (2008), nitrogen dioxide (2010), and sulfur dioxide (2010). The proposed revision describes the infrastructure (authorities, resources, and programs) California has in place to implement, maintain, and enforce these federal standards. It does not contain any proposals for emission control measures.

---

<sup>25</sup> Lead referred to here is a chemical element; a heavy metal.

The SIP takes into account CARB rules and regulations. The project will comply with applicable rules and regulations as identified in the AQMPs and SIPs and therefore, complies with this criterion.

**Summary.** Although the project would be consistent with the policies, rules, and regulations in the AQMPs and SIPs, the project must meet all the criteria listed above to be consistent with the AQMPs. The project could impede AQMP attainment because its construction and operation emissions exceed the SCAQMD regional significance thresholds, so the project is considered to be inconsistent with the AQMP.

**Mitigation Measures.** Applicable SCAQMD regulatory requirements are restated in the mitigation measures identified below in Section 4.3.6.2 and 4.3.6.3. These measures shall be incorporated in all project plans, specifications, and contract documents. **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.4A** are required.

**Level of Significance After Mitigation.** Implementation of the World Logistics Center project would exceed applicable thresholds for all criteria pollutants, with the exception of SO<sub>x</sub>, as noted below. Despite the implementation of mitigation measures, emissions associated with the project cannot be reduced below the applicable thresholds. Construction and operational emissions would be reduced to the extent feasible through implementation of mitigation measures listed above and described below. Construction emissions would be reduced through implementation of mitigation measures that require the use of Tier 4 construction equipment, reduced idling time, use of non-diesel equipment where feasible, low-VOC paints and cleaning solvents, and dust suppression measures. Operational emissions would be reduced through implementation of mitigation measures that require reduced vehicle idling, use of non-diesel on-site equipment, meeting or exceeding 2010 engine emission standards for all diesel trucks entering the site, electric vehicle charging stations, and prohibition of refrigerated warehouses. In the absence of further feasible mitigation to reduce the project's emission of criteria pollutants to below SCAQMD thresholds, potential air quality impacts resulting from exhaust from construction equipment will remain significant and unavoidable.

#### 4.3.6.2 Regional Construction Emissions

**Impact 4.3.6.2:** *Construction of the World Logistics Center project has the potential to exceed applicable daily thresholds that may affect sensitive receptors.*

<b>Threshold</b>	Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  For construction operations, the applicable daily thresholds are: <ul style="list-style-type: none"><li>• 75 pounds per day of ROC/VOC;</li><li>• 100 pounds per day of NO<sub>x</sub>;</li><li>• 550 pounds per day of CO;</li><li>• 150 pounds per day of PM<sub>10</sub>;</li><li>• 150 pounds per day of SO<sub>x</sub>; and</li><li>• 55 pounds per day of PM<sub>2.5</sub>.</li></ul>
------------------	--

Grading and other construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions during these construction activities will vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Activity during peak grading days typically generates a greater amount of air pollutants than other project construction activities.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

While the actual details of the future construction schedule are not known, it is expected that project construction would occur in two phases with seven discrete activities in Phase 1 and eight discrete activities in Phase 2. For Phase 1, the following activities are assumed to occur over the course of seven years in the analysis: 1) rough grading, which includes mass site grading; 2) finish grading; 3) building construction; 4) infrastructure construction which includes utility installation; 5) curb, gutter, sidewalk, subgrade preparation, drop rock, and paving activities; 6) asphalt paving; and 7) landscaping. For Phase 2, the same activities are assumed to occur over the course of nine years in the analysis, and includes interchange construction as the eighth activity. Within the “building construction” phase, it is assumed that there would also be subphases of concrete pouring, installation of wet utilities, electrical installation, and landscaping. Appendix A the construction of Phase 1 occurring over five years and the construction of Phase 2 occurring over ten years. Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR includes details of the emission factors and other assumptions.

Table 4.3-10 identifies projected emissions resulting from grading and construction activities for the World Logistics Center project and shows the estimated maximum daily construction emissions over the course of project construction prior to the application of mitigation.

**Table 4.3-10: Short-Term Regional Construction Emissions Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)								
	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	281	639	407	99	25	117	11	23	31
2021	270	460	434	97	20	117	11	18	29
2022	298	776	645	132	30	162	15	28	43
2023	262	347	419	97	14	111	11	13	24
2024	343	1,233	992	177	47	224	20	43	63
2025	263	342	457	105	13	118	12	12	24
2026	282	536	595	144	20	164	16	18	35
2027	269	415	476	114	15	130	13	14	27
2028	296	690	663	39	26	165	16	24	39
2029	281	543	560	125	20	145	14	19	33
2030	309	391	605	128	12	140	15	12	26
2031	268	207	427	97	5	102	11	5	16
2032	307	391	616	131	12	143	15	12	26
2033	297	340	565	125	10	135	14	10	24
2034	268	206	426	97	5	102	11	5	16
2035	282	237	511	117	5	122	13	5	19
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>

-Sulfur oxide (SO<sub>x</sub>) emissions are contained in the CalEEMod output; the maximum emissions would be 2 pounds per day, substantially under the threshold of 150 pounds per day.  
 -Dust plus exhaust emissions may not add up to total emissions for both PM<sub>10</sub> and PM<sub>2.5</sub> because the numbers included in this table are the maximum emissions between winter and summer model outputs for each of the three categories.  
 -The emissions assume all construction activities (mass grading, fine grading, building, utilities, curbing, landscaping, painting, paving, and/or interchange) occur on the same day, depending on the year in which the activity occurs.  
 -Emissions assume compliance with SCAQMD Rule 403.  
 VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 NA = not applicable as there is no separate threshold for dust/exhaust  
 Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.

**Table 4.3-8: Short-Term Regional Construction Emissions—Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	319	989	701	2	127	42	168	27	38	66
2021	333	1124	832	2	126	47	172	26	43	69
2022	333	1103	865	2	154	45	199	37	41	78
2023	328	1010	858	2	170	41	211	40	37	77
2024	312	811	771	2	151	32	184	31	30	61
2025	285	529	576	1	124	20	144	27	19	46
2026	270	405	401	1	91	16	107	18	14	33
2027	267	380	376	1	40	15	55	10	14	24
2028	272	423	400	1	172	16	188	24	14	39
2029	268	390	378	1	114	15	129	18	14	32
2030	272	206	324	1	114	6	120	18	6	24
2031	263	163	292	1	108	5	113	15	5	20
2032	261	151	267	1	103	4	107	14	4	19
2033	251	110	226	1	81	3	84	11	3	14
2034	250	111	221	1	99	3	102	13	3	15
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>

**Notes:**

- The emissions assume all construction activities (mass grading, fine grading, building, utilities, curbing, landscaping, painting, paving, and/or interchange) occur on the same day, depending on the year in which the activity occurs.
- Emissions assume compliance with SCAQMD Rule 403.

\* PM totals may not add up due to rounding.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter; NA = not applicable as there is no separate threshold for dust/exhaust

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

The construction emissions estimates summarized in Table 4.3-408 are based on the assumed construction scenario described in Appendix A.1, of this Draft Recirculated Revised Sections of the FEIR. Using emission factors from the CalEEMod model for off-road sources and EMFAC2017 emission factors for on-road sources, Table 4.3-408 indicates that construction emissions of criteria pollutants would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>.<sup>26</sup> This is a significant impact requiring mitigation.

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially by project, depending on the level of activity, the specific operations and equipment, local soils, and weather conditions at the time of construction. The World Logistics Center project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust. There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM<sub>10</sub> emissions from construction.

As identified in Table 4.3-408, fugitive dust and exhaust emissions during the anticipated peak construction day for the World Logistics Center project would exceed SCAQMD daily construction

<sup>26</sup> The project would emit SO<sub>x</sub> from construction equipment exhaust; however, the maximum emissions (2 pounds per day) are less than significant as they are far below the threshold of 150 pounds per day.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

thresholds. The percentage of dust and exhaust varies by year but for PM<sub>10</sub> is an average of 885 percent dust and 125 percent exhaust. PM<sub>2.5</sub> has an average of 504 percent dust and 5046 percent exhaust.

Concrete pouring would likely occur during nighttime hours due to limitations high temperatures pose for concrete work during the day. On-site equipment used during concrete pouring would involve daytime prep with actual concrete pouring occurring during the nighttime hours. On average, the total hours of operation for each piece of equipment during the concrete phase would be approximately 10 hours. Therefore, maximum daily emissions presented in Table 4.3-108 represent the average concrete pour day. However, under rare occurrences, extended concrete pour days may be required. Table 4.3-119 summarizes daily maximum emissions for each year of construction associated with 24-hour operation of on-site building concrete equipment. As shown in Table 4.3-119, maximum 24-hour concrete pour days would exceed SCAQMD thresholds for NO<sub>x</sub>. However, all maximum daily emissions are less than those for the worst-case construction day as summarized in Table 4.3-108. Therefore, rare 24-hour concrete pour days would be within the estimated worst-case construction day assumptions. No further analysis of 24-hour concrete pour days is required.

Similar to extended concrete pouring days, other phases of construction such as utility installation and building construction may require an occasional extended construction day based on the task at hand and schedule goals. Occasional extended construction hours would occur for specific tasks within specific planning areas as needed (determined on a day-to-day basis) and would not occur site-wide throughout the 165-year construction period. Therefore, it is anticipated that estimated yearly maximum construction day emissions, as summarized in Table 4.3-108, represent the realistic worst-case regional construction emissions for the 165-year construction duration. Therefore, no further analysis of potential extended construction days is required.

**Table 4.3-11: Short Term Regional 24-hour Concrete Pour Emissions—Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)				
	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub> Total	PM <sub>2.5</sub>
2020	No Concrete Phase				
2021	17.01	151.89	166.94	8.76	7.56
2022	15.74	138.58	165.83	7.71	6.57
2023	14.86	127.45	165.21	6.94	5.84
2024	14.29	121.56	165.30	6.37	5.30
2025	13.53	114.23	164.89	5.66	4.64
2026	13.52	114.13	164.83	5.66	4.63
2027	13.52	114.04	164.77	5.66	4.63
2028	13.51	113.97	164.72	5.66	4.63
2029	13.50	113.90	164.67	5.66	4.63
2030	14.15	91.24	169.34	3.48	2.63
2031	14.14	91.21	169.31	3.48	2.63
2032	14.13	91.15	169.27	3.48	2.63
2033	14.13	91.10	169.24	3.47	2.63
2034	14.12	91.06	169.20	3.47	2.63
2035	13.36	84.68	169.02	2.94	2.10
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

**Table 4.3-11: Short-Term Regional 24-hour Concrete Pour Emissions—Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)				
	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub> Total	PM <sub>2.5</sub>

- Sulfur oxide (SO<sub>x</sub>) emissions are contained in the CalEEMod output; the maximum emissions would be 2 pounds per day, substantially under the threshold of 150 pounds per day.  
 - The emissions assume all construction activities (mass grading, fine grading, building, utilities, curbing, landscaping, painting, paving, and/or interchange) occur on the same day, depending on the year in which the activity occurs.  
 - Emissions assume compliance with SCAQMD Rule 403.  
 VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 NA = not applicable as there is no separate threshold for dust/exhaust  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-9: Short-Term Regional 24-hour Concrete Pour Emissions—Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	18	155	165	0	12	9	20	1	8	9
2021	17	144	164	0	12	8	19	1	7	8
2022	15	131	163	0	12	7	18	1	6	7
2023	15	123	163	0	12	6	17	1	6	7
2024	14	117	163	0	12	5	17	1	5	6
2025	13	110	163	0	12	4	16	1	4	5
2026	13	110	163	0	12	4	16	1	4	5
2027	13	110	163	0	12	4	16	1	4	5
2028	13	110	163	0	12	4	16	1	4	5
2029	13	110	163	0	12	4	16	1	4	5
2030	14	87	167	0	12	2	14	1	2	3
2031	14	87	167	0	12	2	14	1	2	3
2032	14	87	167	0	12	2	14	1	2	3
2033	14	87	167	0	12	2	14	1	2	3
2034	14	87	167	0	12	2	14	1	2	3
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

\* PM totals may not add up due to rounding.  
 VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 NA = not applicable as there is no separate threshold for dust/exhaust  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

The World Logistics Center project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires implementation of dust-suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are

summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component). Compliance with these rules would reduce impacts on nearby sensitive receptors. The applicable Rule 403 measures are as follows:

- All clearing, grading, earthmoving, or excavation activities shall cease when winds exceed 25 miles per hour per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the project are watered at least three times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meter (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicular Code Section 23114.
- The contractor shall ensure that traffic speeds on unpaved roads and project site areas are 15 miles per hour or less to reduce fugitive dust haul road emissions.

As previously discussed, SCAQMD Rule 1113 regulates the sale and application of architectural coatings. Rule 1113 is applicable to any person who applies or solicits the application of any architectural coating within the Basin. Rule 1113 sets limits on the amount of ROG or VOC emissions allowed for all types of architectural coatings. Compliance with Rule 1113 means that architectural coatings used during construction would have ROG or VOC emissions that comply with these limits.

**Mitigation Measures.** The following measures are recommended to reduce the level of emissions of criteria pollutants:

- 4.3.6.2A** Construction equipment maintenance records (including the emission control tier of the equipment) shall be kept on site during construction and shall be available for inspection by the City of Moreno Valley.
- a) Off-road diesel-powered construction equipment greater than 50 horsepower shall meet United States Environmental Protection Agency Tier 4 off-road emissions standards. A copy of each unit's certified tier specification shall be available for inspection by the City at the time of mobilization of each applicable unit of equipment.
  - b) During all construction activities, off-road diesel-powered equipment may be in the "on" position not more than 10 hours per day.
  - c) Construction equipment shall be properly maintained according to manufacturer specifications.
  - d) All diesel powered construction equipment, delivery vehicles, and delivery trucks shall be turned off when not in use. On-site idling shall be limited to three minutes in any one hour.
  - e) Electrical hook ups to the power grid shall be provided for electric construction tools including saws, drills and compressors, where feasible, to reduce the need for diesel-powered electric generators. Where feasible and available, electric tools shall be used.
  - f) The project shall demonstrate compliance with South Coast Air Quality Management District Rule 403 concerning fugitive dust and provide appropriate documentation to the City of Moreno Valley.
  - g) All construction contractors shall be provided information on the South Coast Air Quality Management District Surplus Off-road Opt-In "SOON" funds which provides funds to accelerate cleanup of off-road diesel vehicles.

- h) Construction on-road haul trucks shall be model year 2010 or newer if diesel-fueled.
- i) Information on ridesharing programs shall be made available to construction employees.
- j) During construction, lunch options shall be provided onsite.
- k) A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints per AQMD Standards.
- l) Off-site construction shall be limited to the hours between 6 a.m. to 8 p.m. on weekdays only. Construction during City holidays shall not be permitted.

**4.3.6.2B** Prior to issuance of any grading permits, a Construction Staging Plan shall be submitted to and approved by the City of Moreno Valley that describes in detail the location of equipment staging areas, stockpiling/storage areas, construction parking areas, safe detours around the project construction site, as well as provide temporary traffic control (e.g., flag person) during construction-related truck hauling activities. Construction trucks shall be rerouted away from sensitive receptor areas. Trucks shall use State Route 60 using World Logistics Center Parkway (formerly Theodore Street), Redlands Boulevard (north of Eucalyptus Avenue), and Gilman Springs Road. In addition to its traffic safety purpose, the Construction Staging Plan can minimize traffic congestion and delays that increase idling emissions. A copy of the approved Traffic Control Plan shall be retained on site in the construction trailer.

**4.3.6.2C** The following measures shall be applied during construction of the project to reduce volatile organic compounds (VOC):

- a) Non-VOC containing paints, sealants, adhesives, solvents, asphalt primer, and architectural coatings (where used), or pre-fabricated architectural panels shall be used in the construction of the project to the maximum extent practicable. If such products are not commercially available, products with a VOC content of 100 grams per liter or lower for both interior and exterior surfaces shall be used.
- b) Leftover paint shall be taken to a designated hazardous waste center.
- c) Paint containers shall be closed when not in use
- d) Low VOC cleaning solvents shall be used to clean paint application equipment.
- e) Paint and solvent-laden rags shall be kept in sealed containers.

**4.3.6.2D** No grading shall occur on days with an Air Quality Index forecast greater than 150 for particulates or ozone as forecasted for the project area (Source Receptor Area 24).

**4.3.6.2E** The project shall comply with the SCAQMD proposed Indirect Source Rule for any warehouses that are constructed after the rule goes into effect. This rule is expected to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions during construction and operation. Emission reductions resulting from this rule were not included in the project analysis.

**Level of Significance After Mitigation.** Significant and unavoidable. As shown in Table 4.3-120, construction emissions are still significant after mitigation, with the exception of PM<sub>2.5</sub> and SO<sub>2</sub>. The reduction in PM<sub>2.5</sub> emissions is by a reduction in exhaust from the application of Tier 4 off-road equipment. PM<sub>10</sub> emissions are still significant because emissions in 2022, 2023, 2024, and 2028 exceed the threshold; however, emissions of PM<sub>10</sub> during all other years of construction are less than significant. Although mitigation reduces emissions of all pollutants (with the exception of CO due to how CalEEMod calculates Tier 4 emissions) during construction, potential air quality impacts resulting from exhaust from construction equipment and fugitive dust will remain significant and unavoidable.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

The results of this regional construction analysis indicate that during project construction, project emissions combined with regional emissions within the South Coast Air Basin, would result in the following cumulative health effects from ozone exposure:<sup>27</sup>

- Irritation of respiratory system; reduction in lung function; changes in breathing patterns; reduction of breathing capacity; inflammation of and damage to cells that line the lungs; increase in lung susceptibility to infection; aggravation of asthma; aggravation of other chronic lung diseases; permanent lung damage; some immunological changes; and/or increased mortality risk.

**Table 4.3-12: Mitigated Short-Term Regional Construction Emissions**

Year	Maximum Daily Pollutant Emissions (lbs/day)				
	VOC	NO <sub>x</sub>	CO <sup>*</sup>	PM <sub>10</sub>	PM <sub>2.5</sub>
2020	149	178	452	402	15
2021	151	177	493	401	15
2022	165	200	741	436	19
2023	149	142	488	400	14
2024	167	235	1135	182	25
2025	150	140	537	408	15
2026	155	170	718	447	20
2027	151	143	567	117	16
2028	157	173	803	443	19
2029	154	157	675	428	17
2030	160	160	808	131	18
2031	151	124	490	99	13
2032	160	162	803	134	18
2033	158	152	723	128	17
2034	151	124	489	99	13
2035	155	133	636	119	16
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>

\* There is an error in the way CalEEMod estimates the effect of a higher tier (such as Tier 3 or 4) on mitigated CO; therefore, the mitigated CO values are greater than unmitigated values.

- Sulfur oxide (SO<sub>x</sub>) emissions are contained in the CalEEMod output in Appendix A of the Air Quality, Greenhouse Gas, and Health Risk Assessment Report; the maximum emissions would be approximately 2 pounds per day after mitigation, substantially under the threshold of 150 pounds/day.
- Mitigation Measure 4.3.6.2A(a) was estimated by CalEEMod using its mitigation module by assuming Tier 4 off-road equipment for equipment greater than 50 horsepower.
- Mitigation Measure 4.3.6.2A(b) restricts equipment from operating more than 10 hours per day in the on position, which is estimated in CalEEMod in both the unmitigated and mitigated estimates.
- Mitigation Measures 4.3.6.2A(c) through (e), 4.3.6.2A(g) through (m), 4.3.6.2B, and 4.3.6.2D are not quantified.
- Mitigation Measure 4.3.6.2A(f) is assumed in the unmitigated and mitigated estimates (Rule 403).
- Mitigation Measure 4.3.6.2A(i) requires that construction haul trucks be 2007 model year or greater. CalEEMod does not have a mitigation measure embedded in the model to quantify the reduction from this measure. Therefore, this reduction quantification was not provided.
- Mitigation Measure 4.3.6.2C reduces VOC emissions during painting and is calculated as demonstrated in the spreadsheets in Appendix A of the Air Quality, Greenhouse Gas, and Health Risk Assessment Report.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

<sup>27</sup> Although carbon monoxide emissions are over the threshold, it is primarily a localized pollutant. The localized analyses demonstrated that concentrations would not exceed the ambient air quality standards for carbon monoxide; therefore, less than significant health effects are anticipated.

**Table 4.3-10: Mitigated Short-Term Regional Construction Emissions**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total <sup>2</sup>	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total <sup>2</sup>
2020	160	148	789	2	127	4	130	27	4	31
2021	163	172	943	2	126	4	130	26	4	30
2022	166	191	995	2	154	5	159	37	5	42
2023	164	172	996	2	170	4	174	40	4	44
2024	162	165	939	2	151	4	155	31	4	35
2025	155	126	709	1	124	3	126	27	3	30
2026	149	87	493	1	91	2	93	18	2	20
2027	147	71	454	1	40	2	42	10	2	12
2028	151	103	476	1	172	2	174	24	2	26
2029	148	87	451	1	114	2	116	18	2	20
2030	148	82	430	1	114	2	116	18	2	20
2031	147	77	375	1	108	1	109	15	1	16
2032	145	72	348	1	103	1	104	14	1	16
2033	143	61	270	1	81	1	82	11	1	12
2034	143	64	263	1	99	1	100	13	1	14
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

Notes:

- Mitigation Measure 4.3.6.2A(a) was estimated by CalEEMod using its mitigation module by assuming Tier 4 off-road equipment for equipment greater than 50 horsepower.
- Mitigation Measure 4.3.6.2A(b) restricts equipment from operating more than 10 hours per day in the on position, which is estimated in CalEEMod in both the unmitigated and mitigated estimates.
- Mitigation Measures 4.3.6.2A(c) through (e), 4.3.6.2A(g) through (m), 4.3.6.2B, and 4.3.6.2D are not quantified.
- Mitigation Measure 4.3.6.2A(f) is assumed in the unmitigated and mitigated estimates (Rule 403).
- Mitigation Measure 4.3.6.2A(i) requires that construction haul trucks be 2010 model year or greater. Mitigated model years are reflected in EMFAC2017 emission factors.
- Mitigation Measure 4.3.6.2C reduces VOC emissions during painting and is calculated as demonstrated in the spreadsheets in Appendix A of the Air Quality, Greenhouse Gas, and Health Risk Assessment Report (Appendix A.1 of this Draft Recirculated RSFEIR).

<sup>1</sup> There is an error in the way CalEEMod estimates the effect of a higher tier (such as Tier 3 or 4) on mitigated CO; therefore, the mitigated CO values are greater than unmitigated values.

<sup>2</sup> PM totals may not add up due to rounding.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**4.3.6.3 Localized Construction and Operational Air Quality Impacts**

**Impact 4.3.6.3:** *Construction and operation of the World Logistics Center project has the potential to exceed localized daily thresholds that may affect sensitive receptors.*

<b>Threshold</b>	Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  The applicable localized thresholds are: <ul style="list-style-type: none"><li>• 20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction or operation;</li><li>• 0.18 ppm (State 1 hour), 0.100 ppm (National 1 hour), and 0.030 ppm (Annual) of NO<sub>x</sub> during construction or operation;</li><li>• 10.4 µg/m<sup>3</sup> (24 hours) 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction;</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub>; during operation; and</li><li>• 2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operation</li><li>• During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operations to assess the significance of the activities</li></ul>
------------------	--

The localized significance threshold analysis ~~focused on three potential scenarios~~evaluated four conditions:

- ~~1. Project Phase 1 (2018), which evaluates the air quality impacts if Phase 1 of the project (approximately 57 percent of the square footage) was built out in full in 2018<sup>28</sup> and no other changes occurred to land uses or the roadway system;~~
- ~~2. Project Phase 1 and Phase 2 Full Build Out (2018), which evaluates what air quality impacts would arise if the entire project, both Phase 1 and Phase 2, were built out in full in 2018 and no other changes occurred to land uses or the roadway system; and~~
- ~~3. Project Development Schedule, which evaluates the air quality impacts from the following scenarios:~~
  - ~~○ 2025, the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase I operations would occur (approximately 57 percent of entire project floor space);~~
  - ~~○ 2032, the year when the project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur adjacent to the existing residences along Gilman Springs Road (eastern portion of site); and~~
  - ~~○ 2040<sup>29</sup> when the Phase 1 and Phase 2 of the project are fully operational.~~
- Project Build Out (2020): this condition assumes that Phase 1 and Phase 2 of the project are fully built out in 2020 as a worst-case scenario.

<sup>28</sup> 2018 is the CEQA Baseline year for purposes of this analysis.

<sup>29</sup> In some circumstances, references are made to the year 2035. The year 2035 is the year the construction schedule assumes full completion of project construction. However, detailed traffic volumes were provided by the project traffic consultant for the long-term planning year 2040. Similar to the Phase 1 buildout year, and for purposes of this assessment, the project buildout year is referred to as year 2040 to remain consistent with the TIA.

- 2022, the year when the Project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur near the existing residences west of the project boundary along Merwin Street;
- 2025, the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the Project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase I operations would occur (approximately 57 percent of entire project floor space); and
- 2035 when Phase 1 and Phase 2 of the project are fully operational.

The Project Phase 1 (2018) and Project Phase 1 and Phase 2 Full Build Out (2018) under 2020 conditions represents hypothetical worst-case conditions in that the project physically could not be built-out in 2018 or, in fact, in any single year due to the size of the project. These conditions have been included in this assessment to correspond to the analysis scenarios examined in the project TIA. These conditions also do not account for the fact that vehicle emissions are expected to decline over time as vehicle emission control technologies improve. Thus, consideration of these conditions will significantly overestimate the project's potential air quality impacts. The Project Development condition represents 2022, 2025, and 2035 conditions represent the logical and realistic development of the project over a period of 165 years as represented by the project applicant. The LST analysis is presented for each condition below.

Pursuant to the SCAQMD's LST methodology, only emissions generated from emission sources located within and along the project boundaries are included in the LST assessment. These emission sources include vehicle travel on the roadway network within and along the borders of the project and emissions from support equipment including forklifts, yard/hostler trucks, and emergency standby electric generators.

The project's emissions then served as input into the AERMOD air dispersion model to derive estimate of the project's localized air quality impacts for each condition.

### **Project Phase 1 (2018) LST Assessment**

The project's on-site emissions were estimated from the traffic generated by the various project vehicles as provided by the TIA. Vehicle emissions were assumed to be representative of the calendar year 2018 vehicle fleet. Also included were emissions from various support equipment including forklifts, yard trucks, and standby emergency generators. The localized assessment results for the Project Phase 1 (2018) condition are provided in Table 4.3-13 for receptors located within the project boundaries and in Table 4.3-14 for receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.<sup>30</sup>

As noted from Table 4.3-13, the project would not exceed the SCAQMD's localized significance thresholds for any of the pollutants studied at receptors located within the project boundaries. As shown in Table 4.3-14, the significance thresholds would not be exceeded at any sensitive receptor located outside of the project boundaries.

### **The Project Phase 1 and Phase 2 Full Build Out (2018) LST Assessment**

The localized assessment results for the Project Phase 1 and Phase 2 Full Build Out (2018) condition are provided in Table 4.3-115 for receptors located within the project boundaries and in Table 4.3-126 for receptors located outside the project's boundaries along with a comparison to the SCAQMD's

---

<sup>30</sup> In keeping with the SCAQMD recommendations, the highest NO<sub>2</sub> and CO air quality measurements over a 3-year rolling average was used to determine existing background conditions. Historical data for years 2014, 2015, 2016, and 2017 were obtained from SCAQMD's Riverside-Rubidoux air monitoring station.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.

As noted from Table 4.3-115, the project would exceed the SCAQMD’s significance thresholds for the annual PM<sub>10</sub> threshold for receptors located within the project’s boundaries. As shown in Table 4.3-126, the significance thresholds would not be exceeded at any sensitive receptor located outside of the project boundaries.

**Table 4.3-13: Localized Assessment of Project Phase 1 (2018) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	1.6	0.04	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.04	0.08	0.18	No
	National 1 hour, ppm	0.053	0.04	0.06	0.100	No
	Annual, ppm	0.015	0.004	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	1.7	1.7	2.5	No
	Annual, µg/m <sup>3</sup>	NA	0.99	0.99	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.5	0.5	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.

<sup>2</sup>Highest impacts generally occur at the existing residences within the project boundaries.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.

**Table 4.3-14: Localized Assessment of Project Phase 1 (2018) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	1.6	0.04	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.04	0.07	0.18	No
	National 1 hour, ppm	0.053	0.04	0.06	0.100	No
	Annual, ppm	0.015	0.004	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5	No
	Annual, µg/m <sup>3</sup>	NA	0.4	0.4	1.0	No

**Table 4.3-14: Localized Assessment of Project Phase 1 (2018) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.2	0.2	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.<sup>2</sup> Highest impacts generally occur at the existing residences along Gilman Springs Road to the east of the project.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-15: Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.02	2.2	20	No
	8 hour, ppm	1.6	0.01	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.02	0.08	0.18	No
	National 1 hour, ppm	0.053	0.01	0.07	0.100	No
	Annual, ppm	0.015	0.005	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	1.6	1.6	2.5	No
	Annual, µg/m <sup>3</sup>	NA	1.0	1.0	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.5	0.5	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.<sup>2</sup> Highest impacts generally occur at the existing residences within the project boundaries.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-16: Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.01	2.2	20	No
	8 hour, ppm	1.6	0.01	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.01	0.08	0.18	No
	National 1 hour, ppm	0.064	0.01	0.06	0.100	No
	Annual, ppm	0.015	0.002	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5	No
	Annual, µg/m <sup>3</sup>	NA	0.5	0.5	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.2	0.2	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.

<sup>2</sup> Highest impacts generally occur at the existing residences along Gilman Springs Road to the east of the project.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.

**Table 4.3-11: Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.05	2.2	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.019	0.092	0.180	No
	National 1 hour, ppm	0.058	0.018	0.076	0.100	No
	Annual, ppm	0.015	0.004	0.019	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	7.2	7.2	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	4.0	4.0	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.0	2.0	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences within the project boundaries.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-12: Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2020) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation)**

<b>Pollutant</b>	<b>Averaging Time, Units</b>	<b>Existing Background<sup>1</sup></b>	<b>Air Concentration<sup>2</sup></b>		<b>Standard/Threshold</b>	<b>Total Impact Exceeds Threshold</b>
			<b>Project Local Increase</b>	<b>Total (Background + Project)</b>		
Carbon Monoxide	1 hour, ppm	2.2	0.03	2.2	20.0	No
	8 hour, ppm	2.0	0.02	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.015	0.088	0.180	No
	National 1 hour, ppm	0.058	0.015	0.073	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.9	2.9	2.5	No
	Annual, µg/m <sup>3</sup>	NA	1.8	1.8	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5	No

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences along Gilman Springs Road to the east of the project. Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

It is important to note the ~~Project Phase 1 (2018)~~ and Project Phase 1 and Phase 2 Full Build Out (2018~~20~~) conditions assumes that the project's emissions are at the levels that would occur in 2018~~20~~. The majority of the project's operational emissions are from on-road mobile sources, more particularly, heavy-duty trucks that contribute a disproportionate amount of emissions compared to passenger vehicles. Emissions from on-road mobile sources are regulated at the State and Federal levels and, therefore, are outside of the control of local agencies such as the City and the SCAQMD. For example, the CARB is working closely with the USEPA, engine and vehicle manufacturers, and other interested parties to identify programs that will reduce emissions from heavy-duty diesel vehicles in California. Emission reductions arise from a combination of measures including the use of ultra-low sulfur diesel fuel, new emission standards for large diesel engines, restrictions on diesel engine idling, addition of post-combustion filter and catalyst equipment, and retrofits for business and government diesel truck fleets. The implementation of these emission reductions will also result in reductions of other pollutants such as NO<sub>x</sub>, VOC, and CO. As these emission reduction programs are implemented and there is a turnover in the use of older vehicles with newer and cleaner vehicles, the project's operational emissions are expected to decline significantly in the future. Emission controls on mobile source vehicles already adopted by the CARB particularly dealing with NO<sub>x</sub> and PM<sub>10</sub> controls on heavy duty trucks will reduce truck emissions significantly over time. As an example, in the South Coast Air Basin, the per-mile running exhaust rate of NO<sub>x</sub> emissions from the largest category of heavy duty diesel trucks is estimated to decline from an average of 5.4 grams/mile in 2018 to 2.5 grams/mile by 2025, a decline of 53 percent from 2018 levels and to 2.22 grams/mile in 2040, a decrease of 59 percent from 2018 levels. Similarly, the per-mile running exhaust rate of PM<sub>10</sub> emissions from the largest category of heavy duty diesel trucks is estimated to decline from an average of 0.09 gram/mile in 2018 to 0.020 gram/mile in 2025, a decline of 79 percent from 2018 levels and decline to 0.018 grams/mile in 2040, a decline of 81 percent from 2018 levels. Thus, two Project (2018~~20~~) conditions represent highly conservative estimates, in terms of overestimating of the project's operational impacts.

**Project Development Schedule LST Assessment**

The final localized threshold assessment condition examined potential local project impacts considering the proposed construction and build out schedule of the project over a time period of 156 years from

the commencement of construction in 2020 to the final build out and occupation in 2040<sup>35</sup>. This condition examined three specific time periods:

- ~~The year 2025: the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern of the project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street and when all of Phase I operations would occur (approximately 57 percent of entire project floor space); These residences are the closest sensitive receptors outside of the project's boundaries. According to the conceptual construction schedule provided by the applicant, extensive building construction is expected to take place within the southern portion of the site, south of Alessandro Boulevard, as well on both sides of World Logistics Center Parkway during the completion of Phase 1 construction and the beginning of Phase 2 construction. This scenario also corresponds to the complete operations of Phase 1 and the attendant operational emissions. The project's onsite maximum daily and annual construction emissions were estimated using the CalEEMod land use emission model and the construction equipment inventory and activities provided by the applicant. The project's onsite operational emissions, principally from the project's mobile sources, were derived from detailed traffic volume data provided by the project's TIA that reflects a completely operational Phase 1. The TIA applied a comprehensive regional transportation model to develop daily and peak hour traffic volumes for 2025 and 2040<sup>buildout</sup> from the project's mobile sources. Peak hour and daily project traffic volumes were developed for each year from 2020 to buildout for roadway segments within and along the boundaries of the project using the following assumptions:~~
  - Project operational traffic volumes were assumed to be zero in 2020, the year that project construction would commence.
  - Traffic volumes for the years 2021 to 2025<sup>4</sup> (the completion year for Phase 1 operations) were interpolated from 2021 to 2025 volumes provided in the TIA by applying the annual project occupancy schedule to the 2025 traffic volumes.
  - Traffic volumes for the years 2025<sup>6</sup> to buildout<sup>2034</sup> were interpolated from the provided traffic volumes in 2025 and 2040<sup>at buildout</sup> by applying the annual project occupancy schedule.
- ~~The year 2032, when the project's total daily on-site construction and operational emissions would be the highest for several air pollutants and construction and operations would occur along the eastern portion of the project potentially impacting the existing residences across from the project along Gilman Springs Road; and~~
- ~~The year 2040, which is the long term planning year analyzed in the TIA and representative of the complete build out of the project.~~

**Localized Impact Analysis, 2025.** The localized impacts for the short-term construction and operational activities were analyzed using an air dispersion model (EPA AERMOD Model) to simulate the transport and dispersion of project-related emissions through the air. These impacts were then compared to the applicable SCAQMD localized concentration thresholds.

The estimated maximum localized air quality impacts from the construction and operation of the project at Phase 1 buildout are summarized in Table 4.3-17<sup>3</sup> for locations within the project's boundaries. These maximum impacts were found at the locations of the existing residences within the project boundaries. Table 4.3-18<sup>4</sup> summarizes the highest air quality impacts for sensitive receptors located outside of the project boundaries. These maximum impacts were found at the locations of the existing residences outside of the project boundary located west of the project boundary along Merwin Street. As noted from these two tables, project impacts would exceed the significance thresholds for PM<sub>10</sub> for locations within the project boundaries, thus represents a significant impact without mitigation. ~~Project impacts would not exceed localized thresholds for receptors located outside the project boundaries.~~

**Table 4.3-17: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.05	2.2	20	No
	8 hour, ppm	1.6	0.02	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.03	0.09	0.18	No
	National 1 hour, ppm	0.053	0.02	0.08	0.100	No
	Annual, ppm	0.015	0.003	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	3.3	3.3	2.5 <sup>2</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	1.6	1.6	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5 <sup>2</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017. <sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 ug/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-13: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (without Mitigation)**

<b>Pollutant</b>	<b>Averaging Time, Units</b>	<b>Existing Background<sup>1</sup></b>	<b>Air Concentration</b>		<b>Standard/Threshold</b>	<b>Total Impact Exceeds Threshold?</b>
			<b>Project Local Increase</b>	<b>Total (Background + Project)</b>		
<u>Carbon Monoxide</u>	<u>1 hour, ppm</u>	<u>2.2</u>	<u>0.09</u>	<u>2.3</u>	<u>20.0</u>	<u>No</u>
	<u>8 hour, ppm</u>	<u>2.0</u>	<u>0.03</u>	<u>2.0</u>	<u>9.0</u>	<u>No</u>
<u>Nitrogen Dioxide</u>	<u>State 1 hour, ppm</u>	<u>0.073</u>	<u>0.030</u>	<u>0.104</u>	<u>0.180</u>	<u>No</u>
	<u>National 1 hour, ppm</u>	<u>0.058</u>	<u>0.021</u>	<u>0.079</u>	<u>0.100</u>	<u>No</u>
	<u>Annual, ppm</u>	<u>0.015</u>	<u>0.002</u>	<u>0.017</u>	<u>0.030</u>	<u>No</u>
<u>PM<sub>10</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>5.7</u>	<u>5.7</u>	<u>2.5<sup>2</sup></u>	<u>Yes</u>
	<u>Annual, µg/m<sup>3</sup></u>	<u>NA</u>	<u>2.6</u>	<u>2.6</u>	<u>1.0</u>	<u>Yes</u>
<u>PM<sub>2.5</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>1.5</u>	<u>1.5</u>	<u>2.5<sup>2</sup></u>	<u>No</u>

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-14: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.037	0.110	0.180	No
	National 1 hour, ppm	0.058	0.024	0.082	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.4	5.4	2.5 <sup>2</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	0.6	0.6	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.3	1.3	2.5 <sup>2</sup>	No

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Localized Air Quality Impact Analysis, 20322.** The year 20322 was selected for the LST Analysis for two principal reasons: 1) the year 20322 corresponds to the year with the highest combined total onsite construction and operational emissions for NO<sub>x</sub> and PM<sub>2.5</sub>, the second highest onsite emissions for and CO<sub>2</sub> and the third or fourth highest onsite emissions of PM<sub>10</sub> and PM<sub>2.5</sub> during the time period of 2020 to 2035; and 2) the location of the building construction in 20322 places the construction emissions adjacent nearest to the existing residences located on the eastern sidewalk of the project across Gilman Springs Road boundary along Merwin Street.

**Table 4.3-18: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	1.6	0.01	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.02	0.09	0.18	No
	National 1 hour, ppm	0.053	0.02	0.08	0.100	No
	Annual, ppm	0.015	0.001	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.1	2.1	2.5 <sup>2</sup>	No

**Table 4.3-18: Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/ Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
	Annual, µg/m <sup>3</sup>	NA	0.7	0.7	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.5	0.5	2.5 <sup>2</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit)  
 NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>  
<sup>1</sup> Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

The project’s maximum combined impacts from construction and operations during 20322 are shown in Table 4.3-195 for the existing sensitive receptors located within the project boundaries along with the SCAQMD-recommended significance thresholds. Table 4.3-2016 shows the maximum combined impacts for sensitive receptors located outside of the project boundaries. These latter Maximum impacts outside of the project boundary were found within the residential areas located to the eastwest of the project across Gilman Springs Road boundary. As shown in these tables, the project would exceed the SCAQMD’s significance thresholds for PM<sub>10</sub> at locations within the project boundary and outside of the project boundary and NO<sub>x</sub> within the project boundary.

**Table 4.3-15: Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.13	2.3	20.0	No
	8 hour, ppm	2.0	0.04	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.056	0.129	0.180	No
	National 1 hour, ppm	0.058	0.048	0.106	0.100	Yes
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.2	5.2	2.5 <sup>3</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	1.4	1.4	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.6	1.6	2.5 <sup>3</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)  
 NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>  
<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.  
<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project.  
<sup>3</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.  
 Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Table 4.3-16: Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

<u>Pollutant</u>	<u>Averaging Time, Units</u>	<u>Existing Background<sup>1</sup></u>	<u>Air Concentration<sup>2</sup></u>		<u>Standard/Threshold</u>	<u>Total Impact Exceeds Threshold?</u>
			<u>Project Local Increase</u>	<u>Total (Background + Project)</u>		
<u>Carbon Monoxide</u>	<u>1 hour, ppm</u>	<u>2.2</u>	<u>0.11</u>	<u>2.3</u>	<u>20.0</u>	<u>No</u>
	<u>8 hour, ppm</u>	<u>2.0</u>	<u>0.03</u>	<u>2.0</u>	<u>9.0</u>	<u>No</u>
<u>Nitrogen Dioxide</u>	<u>State 1 hour, ppm</u>	<u>0.073</u>	<u>0.041</u>	<u>0.115</u>	<u>0.180</u>	<u>No</u>
	<u>National 1 hour, ppm</u>	<u>0.058</u>	<u>0.036</u>	<u>0.094</u>	<u>0.100</u>	<u>No</u>
	<u>Annual, ppm</u>	<u>0.015</u>	<u>0.001</u>	<u>0.016</u>	<u>0.030</u>	<u>No</u>
<u>PM<sub>10</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>4.0</u>	<u>4.0</u>	<u>2.5<sup>3</sup></u>	<u>Yes</u>
	<u>Annual, µg/m<sup>3</sup></u>	<u>NA</u>	<u>0.8</u>	<u>0.8</u>	<u>1.0</u>	<u>No</u>
<u>PM<sub>2.5</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>1.3</u>	<u>1.3</u>	<u>2.5<sup>3</sup></u>	<u>No</u>

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project.

<sup>3</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Localized Air Quality Impact Analysis, 204035.** The year 204035 represents a long-term planning year when both phases of the project would be fully in operation. Operational emissions during 204035 were estimated based on the project’s trip generation and project-related travel along the local roadway network within and along the project boundaries. Table 4.3-2417 shows the maximum localized air quality impacts for 2040 relative to the background air quality levels at the existing sensitive receptors located within the project boundaries. Table 4.3-2218 identifies the highest localized impacts for sensitive receptors located outside of the project boundaries. As shown in Table 4.3-2417 and Table 4.3-2218, the project would exceed PM<sub>10</sub> LSTs for receptors within and outside the project boundary, and would, therefore, represent a significant impact without mitigation.

**Summary.** The localized significance analysis demonstrates that without mitigation, the project would exceed the localized significance thresholds for NO<sub>x</sub> and PM<sub>10</sub> for one or more of the LST assessment years (2022, 2025, 2032, or 204035) analyzed. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an exceedance of the national 1-hour NO<sub>2</sub> annual and, as well as the 24-hour and annual PM<sub>10</sub> ambient air quality standards.

**Table 4.3-19: Localized Assessment – Construction and Operation, Year 2032 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.06	2.2	20	No
	8 hour, ppm	1.6	0.02	1.7	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.03	0.09	0.18	No
	National 1 hour, ppm	0.053	0.02	0.08	0.100	No
	Annual, ppm	0.015	0.003	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	3.9	3.9	2.5 <sup>3</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	1.7	1.7	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.9	0.9	2.5 <sup>3</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the east of the project across Gilman Springs Road

<sup>3</sup>During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>.

This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-20: Localized Assessment – Construction and Operation, Year 2032 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/ Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.09	2.3	20	No
	8 hour, ppm	1.6	0.03	1.7	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.02	0.08	0.18	No
	National 1 hour, ppm	0.053	0.01	0.07	0.100	No
	Annual, ppm	0.015	0.001	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	4.7	4.7	2.5 <sup>3</sup>	Yes
	Annual, µg/m <sup>3</sup>	NA	1.5	1.5	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.9	0.9	2.5 <sup>3</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.

<sup>2</sup>Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the east of the project across Gilman Springs Road

<sup>3</sup>During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>.

This provides a very conservative threshold for determining the significance of project impacts.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-21: Localized Assessment – Project Operation Full Build Out, Year 2040 Maximum Impacts Within the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/ Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	1.6	0.009	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.009	0.07	0.18	No
	National 1 hour, ppm	0.053	0.008	0.06	0.100	No
	Annual, ppm	0.015	0.003	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.9	2.9	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	1.8	1.8	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-22: Localized Assessment – Project Operation, Year 2040 Maximum Impacts Outside of the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/ Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	1.6	0.04	1.6	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.064	0.006	0.07	0.18	No
	National 1 hour, ppm	0.053	0.006	0.06	0.100	No
	Annual, ppm	0.015	0.001	0.02	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.2	2.2	2.5	No
	Annual, µg/m <sup>3</sup>	NA	1.3	1.3	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.6	0.6	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup>Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-17: Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (without Mitigation)**

<u>Pollutant</u>	<u>Averaging Time, Units</u>	<u>Existing Background<sup>1</sup></u>	<u>Air Concentration</u>		<u>Standard/Threshold</u>	<u>Total Impact Exceeds Threshold?</u>
			<u>Project Local Increase</u>	<u>Total (Background + Project)</u>		
<u>Carbon Monoxide</u>	<u>1 hour, ppm</u>	<u>2.2</u>	<u>0.04</u>	<u>2.2</u>	<u>20</u>	<u>No</u>
	<u>8 hour, ppm</u>	<u>2.0</u>	<u>0.02</u>	<u>2.0</u>	<u>9.0</u>	<u>No</u>
<u>Nitrogen Dioxide</u>	<u>State 1 hour, ppm</u>	<u>0.073</u>	<u>0.018</u>	<u>0.091</u>	<u>0.180</u>	<u>No</u>
	<u>National 1 hour, ppm</u>	<u>0.058</u>	<u>0.016</u>	<u>0.074</u>	<u>0.100</u>	<u>No</u>
	<u>Annual, ppm</u>	<u>0.015</u>	<u>0.003</u>	<u>0.018</u>	<u>0.030</u>	<u>No</u>
<u>PM<sub>10</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>8.3</u>	<u>8.3</u>	<u>2.5</u>	<u>Yes</u>
	<u>Annual, µg/m<sup>3</sup></u>	<u>NA</u>	<u>4.6</u>	<u>4.6</u>	<u>1.0</u>	<u>Yes</u>
<u>PM<sub>2.5</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>2.1</u>	<u>2.1</u>	<u>2.5</u>	<u>No</u>

**Notes:**

<sup>(1)</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Table 4.3-18: Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (without Mitigation)**

<u>Pollutant</u>	<u>Averaging Time, Units</u>	<u>Existing Background<sup>(1)</sup></u>	<u>Air Concentration</u>		<u>Standard/Threshold</u>	<u>Total Impact Exceeds Threshold?</u>
			<u>Project Local Increase</u>	<u>Total (Background + Project)</u>		
<u>Carbon Monoxide</u>	<u>1 hour, ppm</u>	<u>2.2</u>	<u>0.03</u>	<u>2.2</u>	<u>20</u>	<u>No</u>
	<u>8 hour, ppm</u>	<u>2.0</u>	<u>0.01</u>	<u>2.0</u>	<u>9.0</u>	<u>No</u>
<u>Nitrogen Dioxide</u>	<u>State 1 hour, ppm</u>	<u>0.073</u>	<u>0.013</u>	<u>0.086</u>	<u>0.180</u>	<u>No</u>
	<u>National 1 hour, ppm</u>	<u>0.058</u>	<u>0.012</u>	<u>0.070</u>	<u>0.100</u>	<u>No</u>
	<u>Annual, ppm</u>	<u>0.015</u>	<u>0.001</u>	<u>0.016</u>	<u>0.030</u>	<u>No</u>
<u>PM<sub>10</sub></u>	<u>24 hour, ug/m<sup>3</sup></u>	<u>NA</u>	<u>2.50</u>	<u>2.50</u>	<u>2.5</u>	<u>Yes</u>
	<u>Annual, ug/m<sup>3</sup></u>	<u>NA</u>	<u>0.95</u>	<u>0.95</u>	<u>1.0</u>	<u>No</u>
<u>PM<sub>2.5</sub></u>	<u>24 hour, ug/m<sup>3</sup></u>	<u>NA</u>	<u>0.66</u>	<u>0.66</u>	<u>2.5</u>	<u>No</u>

Notes:

ug/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Mitigation Measures.** Mitigation measures identified previously under Impact 4.3.6.2 (**Mitigation Measures 4.3.6.2A, 4.3.6.2B, and 4.3.6.2D and 4.3.6.2E**) to reduce construction emissions of criteria pollutants are required. The project will also be required to comply with SCAQMD Rules 402 and 403. Additionally, the following mitigation measures are required to reduce emissions of criteria pollutants during project operations.

**4.3.6.3A** Prior to issuance of occupancy permits for each warehouse building within the WLCSP, the developer shall demonstrate to the City that vehicles can access the building using paved roads and parking lots.

**4.3.6.3B** The following shall be implemented as indicated:

**Prior to Issuance of a Certificate of Occupancy**

- a) Signs shall be prominently displayed informing truck drivers about the California Air Resources Board diesel idling regulations, and the prohibition of parking in residential areas.
- b) Signs shall be prominently displayed in all dock and delivery areas advising of the following: engines shall be turned off when not in use; trucks shall not idle for more than three consecutive minutes; telephone numbers of the building facilities manager and the California Air Resources Board to report air quality violations.
- c) Signs shall be installed at each exit driveway providing directional information to the City's truck route. Text on the sign shall read "To Truck Route" with a directional arrow. Truck routes shall be clearly marked per the City Municipal Code.

**On an Ongoing Basis**

- d) Tenants shall maintain records on fleet equipment and vehicle engine maintenance to ensure that equipment and vehicles are maintained pursuant to manufacturer's specifications. The records shall be maintained on site and be made available for inspection by the City.
- e) Tenant's staff in charge of keeping vehicle records shall be trained/certified in diesel technologies, by attending California Air Resources Board approved courses (such as the free, one-day Course #512). Documentation of said training shall be maintained on-site and be available for inspection by the City.
- f) Tenants shall be encouraged to become a SmartWay Partner.
- g) Tenants shall be encouraged to utilize SmartWay 1.0 or greater carriers.
- h) Tenants' fleets shall be in compliance with all current air quality regulations for on-road trucks including but not limited to California Air Resources Board's Heavy-Duty Greenhouse Gas Regulation and Truck and Bus Regulation.
- i) Information shall be posted in a prominent location available to truck drivers regarding alternative fueling technologies and the availability of such fuels in the immediate area of the World Logistics Center.
- j) Tenants shall be encouraged to apply for incentive funding (such as the Voucher Incentive Program [VIP], Carl Moyer, etc.) to upgrade their fleet.
- k) All yard trucks (yard dogs/yard goats/yard jockeys/yard hostlers) shall be powered by electricity, natural gas, propane, or an equivalent non-diesel fuel. Any off-road engines in the yard trucks shall have emissions standards equal to Tier 4 Interim or greater. Any on-road engines in the yard trucks shall have emissions standards that meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1, Section 2025.
- l) All diesel trucks entering logistics sites shall meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1, Section 2025 or be powered by natural gas, electricity, or other diesel alternative. Facility operators shall maintain a log of all trucks entering the facility to document that the truck usage meets these emission standards. This log shall be available for inspection by City staff at any time.
- m) All standby emergency generators shall be fueled by natural gas, propane, or any non-diesel fuel.
- n) Truck and vehicle idling shall be limited to three (3) minutes.

**4.3.6.3C** Prior to the issuance of building permits for more than 25 million square feet of logistics warehousing within the Specific Plan area, a publically-accessible fueling station shall be operational within the Specific Plan area offering alternative fuels (natural gas, electricity, etc.) for purchase by the motoring public. Any fueling station shall be placed a minimum of 1000 feet from any off-site sensitive receptors or off-site zoned sensitive uses. This facility may be established in connection with the convenience store required in Mitigation Measure 4.3.6.3D.

**4.3.6.3D** Prior to the issuance of building permits for more than 25 million square feet of logistics warehousing within the Specific Plan area a site shall be operational within the Specific Plan area offering food and convenience items for purchase by the motoring public. This facility may be established in connection with the fueling station required in Mitigation Measure 4.3.6.3C.

**4.3.6.3E** Refrigerated warehouse space is prohibited unless it can be demonstrated that the environmental impacts resulting from the inclusion of refrigerated space and its associated facilities, including, but not limited to, refrigeration units in vehicles serving

the logistics warehouse, do not exceed any environmental impact for the entire World Logistics Center identified in the Revised Sections of the FEIR. Such environmental analysis shall be provided with any warehouse plot plan proposing refrigerated space. Any such proposal shall include electrical hookups at dock doors to provide power for vehicles equipped with Transportation Refrigeration Units (TRUs).

**4.3.6.3F** The project shall comply with the SCAQMD proposed Indirect Source Rule for any warehouses that are constructed after the rule does into effect. This rule is expected to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions during construction and operation. Emission reductions resulting from this rule were not included in the project analysis.

**Level of Significance After Mitigation.** Significant and unavoidable. Table 4.3-23 compares the project impacts before and after mitigation for those assessment conditions and pollutants that indicated a significant impact before mitigation. After application of mitigation, the project would continue to exceed the localized significance thresholds at one or more of the existing residences located within and outside the project boundaries for PM<sub>10</sub> (24-hour and/or annual). ~~In addition, the project would continue to exceed the localized significance thresholds at offsite receptors for PM<sub>10</sub> (24-hour and annual).~~

~~In summary, those residents inside and outside the project boundaries could be exposed to significant short-term and long-term PM<sub>10</sub> concentrations on an ongoing basis. The health effects from particulate matter were discussed earlier and could include the following:~~

- ~~• Particulate matter can cause the following health effects from short term (24-hour) exposure: irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; and/or those with heart disease can suffer heart attacks and arrhythmias.~~
- ~~• Particulate matter can cause the following health effects from long-term exposure (annual): reduced lung function; chronic bronchitis; changes in lung morphology; and/or death.~~

**Table 4.3-23: Comparison of Local Project Air Quality Impacts Before and After Mitigation**

Assessment Condition	Location	Pollutant, Averaging Time, Units	Total Impact Before Mitigation <sup>(1)</sup>	Total Impact After Mitigation	Significance Threshold	Exceeds Threshold After Mitigation?
Project Phase 1 and Phase 2 Full Build Out (2018)	Inside Project Boundaries	PM <sub>10</sub> -Annual, µg/m <sup>3</sup>	1.02	0.97	1.0	No
Project Development Schedule Year 2025	Inside Project Boundaries	PM <sub>10</sub> -24-hour, µg/m <sup>3</sup>	3.30	3.23	2.5	Yes
		PM <sub>10</sub> -Annual, µg/m <sup>3</sup>	1.57	1.56	1.0	Yes
Project Development Schedule Year 2032	Inside Project Boundaries	PM <sub>10</sub> -24-hour, µg/m <sup>3</sup>	3.90	3.89	2.5	Yes
		PM <sub>10</sub> -Annual, µg/m <sup>3</sup>	1.7	1.7	1.0	Yes

**Table 4.3-23: Comparison of Local Project Air Quality Impacts Before and After Mitigation**

<b>Assessment Condition</b>	<b>Location</b>	<b>Pollutant, Averaging Time, Units</b>	<b>Total Impact Before Mitigation<sup>(1)</sup></b>	<b>Total Impact After Mitigation</b>	<b>Significance Threshold</b>	<b>Exceeds Threshold After Mitigation?</b>
	Outside Project Boundaries	PM <sub>10</sub> -24 hour, µg/m <sup>3</sup>	4.7	4.6	2.5	Yes
		PM <sub>10</sub> -Annual, µg/m <sup>3</sup>	1.5	1.4	1.0	Yes
Project Development Schedule Year 2040 Build-Out	Inside Project Boundaries	PM <sub>10</sub> -24 hour, µg/m <sup>3</sup>	2.9	2.9	2.5	Yes
		PM <sub>10</sub> -Annual, µg/m <sup>3</sup>	1.8	1.8	1.0	Yes
	Outside Project Boundaries	PM <sub>10</sub> -Annual, µg/m <sup>3</sup>	1.3	1.3	1.0	Yes

Notes: µg/m<sup>3</sup> = micrograms per cubic meter (a unit of concentration); ppm = parts per million (a unit of concentration)

<sup>(1)</sup> Total Impacts include the incremental impacts from the project plus the pollutant background; see Tables 4.3-13 to 4.3-22 for the total impacts for the various assessment conditions prior to the application of mitigation.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-19: Comparison of Local Project Air Quality Impacts Before and After Mitigation**

<b>Assessment Condition</b>	<b>Location</b>	<b>Pollutant, Averaging Time, Units</b>	<b>Total Impact Before Mitigation<sup>1</sup></b>	<b>Total Impact After Mitigation</b>	<b>Significance Threshold</b>	<b>Exceeds Threshold After Mitigation?</b>
<u>Project Development Schedule Year 2025</u>	<u>Inside Project Boundaries</u>	<u>PM<sub>10</sub> 24-hour, µg/m<sup>3</sup></u>	<u>5.7</u>	<u>5.6</u>	<u>2.5</u>	<u>Yes</u>
		<u>PM<sub>10</sub> Annual, µg/m<sup>3</sup></u>	<u>2.6</u>	<u>2.6</u>	<u>1.0</u>	<u>Yes</u>
<u>Project Development Schedule Year 2025</u>	<u>Outside Project Boundaries</u>	<u>PM<sub>10</sub> 24-hour, µg/m<sup>3</sup></u>	<u>5.4</u>	<u>5.2</u>	<u>2.5</u>	<u>Yes</u>
<u>Project Development Schedule Year 2022</u>	<u>Inside Project Boundaries</u>	<u>NO<sub>x</sub> National 1 hour, ppm</u>	<u>0.106</u>	<u>0.068</u>	<u>0.100</u>	<u>No</u>
		<u>PM<sub>10</sub> 24-hour, µg/m<sup>3</sup></u>	<u>5.2</u>	<u>5.2</u>	<u>2.5</u>	<u>Yes</u>
		<u>PM<sub>10</sub> Annual, µg/m<sup>3</sup></u>	<u>1.4</u>	<u>1.4</u>	<u>1.0</u>	<u>Yes</u>
	<u>Outside Project Boundaries</u>	<u>PM<sub>10</sub> 24-hour, µg/m<sup>3</sup></u>	<u>4.0</u>	<u>4.0</u>	<u>2.5</u>	<u>Yes</u>
<u>Project Development Schedule Year 2035 Build Out</u>	<u>Inside Project Boundaries</u>	<u>PM<sub>10</sub> 24 hour, µg/m<sup>3</sup></u>	<u>8.3</u>	<u>8.3</u>	<u>2.5</u>	<u>Yes</u>
		<u>PM<sub>10</sub> Annual, µg/m<sup>3</sup></u>	<u>4.6</u>	<u>4.6</u>	<u>1.0</u>	<u>Yes</u>
	<u>Outside Project Boundaries</u>	<u>PM<sub>10</sub> 24 hour, µg/m<sup>3</sup></u>	<u>2.50</u>	<u>2.49</u>	<u>2.5</u>	<u>No</u>

**Notes:**

<sup>1</sup> Total Impacts include the incremental impacts from the project plus the pollutant background; see Tables 4.3-13 to 4.3-22 for the total impacts for the various assessment conditions prior to the application of mitigation.

µg/m<sup>3</sup> = micrograms per cubic meter (a unit of concentration); ppm = parts per million (a unit of concentration)

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**4.3.6.4 Long-Term Operational Emissions**

**Impact 4.3.6.4:** *Implementation of the World Logistics Center project may have the potential to exceed applicable daily thresholds for operational activities.*

<b>Threshold</b>	<p>Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?</p> <p>For long-term operations, the applicable daily thresholds are:</p> <ul style="list-style-type: none"> <li>• 55 pounds of VOC;</li> <li>• 55 pounds of NO<sub>x</sub>;</li> <li>• 550 pounds of CO;</li> <li>• 150 pounds of PM<sub>10</sub>;</li> <li>• 55 pounds of PM<sub>2.5</sub>; and</li> <li>• 150 pounds of SO<sub>x</sub>.</li> </ul>
------------------	--

Long-term air pollutant emission impacts that would result from the World Logistics Center project are those associated with stationary sources (generators, boilers, forklifts, etc.), area sources (landscaping and maintenance activities), and mobile sources (e.g., emissions from the use of motor vehicles by project-generated traffic). As discussed above in Section 4.3.3.2, the TIA provides VMT attributable to the project based on the net effect the project would have on regional travel as well as project VMT without consideration of a net effect. The emissions from the net effect on VMT, in conjunction with the proposed stationary and area sources, are shown in the tables below for determination of significance. For informational purposes only the *Air Quality, Greenhouse Gas, and Health Risk Assessment Report* (Appendix A.1) of this Draft Recirculated Revised Section of the FEIR includes operational mobile emissions without consideration of a net effect in regional traffic volumes.

**Worst-Case Scenario.** Projected emissions resulting from operational activities of the project under the worst-case scenario are identified in Table 4.3-2420.

There may be minor emissions of VOC from the fueling station, depending on what type of fuel is used. However, details regarding the fueling station are currently unknown so the emission source is not estimated. This is a worst-case analysis because it assumes that the entire project would be built-out in 201820. The motor vehicle and truck emission factors are from 201820, which assumes a “dirtier” fleet than would be the case in later years. In addition, no reductions are taken for mitigation measures.

**Table 4.3-24: Operational Regional Air Pollutant Emissions (Worst-Case Scenario)**

Scenario	Source	Emissions (pounds per day)				
		VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Phase 4 2018 emission factors	Mobile	407	2,078	579	386	116
	Area	175	<1	2	<1	<1
	Onsite equipment	5	138	51	4	4
	<b>Total</b>	<b>287</b>	<b>2,216</b>	<b>632</b>	<b>388</b>	<b>117</b>
Buildout 2018 emission factors	Mobile	241	3,958	1,472	898	274
	Area	311	<1	4	<1	<1
	Onsite equipment	9	245	89	2	2
	<b>Total</b>	<b>561</b>	<b>4,202</b>	<b>1,565</b>	<b>901</b>	<b>276</b>
Significance Threshold		55	55	550	150	55
Significant Impact?		Yes	Yes	Yes	Yes	Yes

**Table 4.3-24: Operational Regional Air Pollutant Emissions (Worst-Case Scenario)**

Scenario	Source	Emissions (pounds per day)				
		VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>

Notes: VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide  
 PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter <1 = less than one

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-20: Operational Regional Air Pollutant Emissions (Worst-Case Scenario)**

Scenario Source	Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Buildout 2020 emission factors Mobile	161	3,500	1,377	14	260	131
Area	311	<1	4	0	<1	<1
Onsite equipment	9	245	89	0	2	2
<b>Total</b>	<b>481</b>	<b>3,745</b>	<b>1,470</b>	<b>14</b>	<b>263</b>	<b>134</b>
<b>Significance Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter;  
 <1 = less than one

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

As identified in Table 4.3-24~~20~~, operational emissions for the project would exceed SCAQMD daily operational thresholds for all criteria pollutants with the exception of SO<sub>x</sub> for the “worst-case” 2018~~20~~ scenario.

**Operational Regional Emissions.** Table 4.3-25~~21~~ shows the detailed operational emission sources generated both on site and off site for Phase 1 and buildout. The table shows particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) divided into dust (roadway and tire and brake wear) and exhaust sources. As shown in the table, emissions of VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> are significant after completion of Phase 1 and after full buildout.

Table 4.3-26 ~~22~~ shows the operational emissions year by year using ~~future year~~ emission factors interpolated from 2025 and 2035 emission factors. The VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions would be over the SCAQMD’s significance thresholds for most years ~~beginning as early as year 2021~~ for NO<sub>x</sub>, 2023 for VOC, 2024 for PM<sub>10</sub> and PM<sub>2.5</sub>, and 2029 for CO. The emissions demonstrate that although the number of vehicles and trucks would increase year by year, the emissions do not increase dramatically because the per-vehicle emission factors decrease over time as cleaner vehicles enter the fleet over time.

**Combined Construction and Operation.** There would be overlapping of construction and operational emissions with project implementation. The maximum daily operational emissions were added to the maximum daily construction emissions and are shown in Table 4.3-27~~3~~, which shows all pollutants for all years exceed the SCAQMD thresholds, with the exception of SO<sub>x</sub> emissions. ~~SO<sub>x</sub> are not shown in the table as they are far below the significance threshold of 150 pounds per day.~~

As identified in the preceding tables, project-related air quality impacts for all criteria pollutants, with the exception of SO<sub>x</sub>, would be significant and mitigation measures are required.

**Table 4.3-25: Operational Regional Air Pollutant Emissions (Detail, Unmitigated)**

Phase	Source	Emissions (pounds/day)								
		VOC	NO <sub>x</sub>	CO	PM <sub>10</sub> -Dust	PM <sub>10</sub> -Exh.	PM <sub>10</sub> -Total	PM <sub>2.5</sub> -Dust	PM <sub>2.5</sub> -Exh.	PM <sub>2.5</sub> -Total
Phase 4	Mobile	57	607	322	313	5	318	85	3	88
	Area	175	<1	2	0	<1	<1	0	<1	<1
	On-site Equipment	5	138	51	0	4	4	0	4	4
	<b>Total</b>	<b>238</b>	<b>746</b>	<b>375</b>	<b>313</b>	<b>6</b>	<b>319</b>	<b>85</b>	<b>4</b>	<b>89</b>
Buildout	Mobile	403	803	772	940	5	945	252	5	256
	Area	311	<1	4	0	<1	<1	0	<1	<1
	On-site Equipment	9	245	89	0	2	2	0	2	2
	<b>Total</b>	<b>422</b>	<b>1,047</b>	<b>865</b>	<b>940</b>	<b>7</b>	<b>947</b>	<b>252</b>	<b>7</b>	<b>259</b>
Significance Threshold		55	55	550	None	None	150	None	None	55
Significant Impact?		Yes	Yes	Yes	—	—	Yes	—	—	Yes

Notes: VOC = volatile organic compounds — NO<sub>x</sub> = nitrogen oxides — CO = carbon monoxide — PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter — Exh. = exhaust — <1 = less than 1

— On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-21: Operational Regional Air Pollutant Emissions (Detail, Unmitigated)**

Phase	Source	Emissions (pounds/day)									
		VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> Dust	PM <sub>10</sub> Exh.	PM <sub>10</sub> Total	PM <sub>2.5</sub> Dust	PM <sub>2.5</sub> Exh.	PM <sub>2.5</sub> Total
Phase 1	Mobile	24	849	277	5	129	13	141	40	7	47
	Area	203	0	3	0	0	0	0	0	0	0
	On-site Equipment	5	138	51	0	0	1	1	0	1	1
	<b>Total</b>	<b>232</b>	<b>988</b>	<b>331</b>	<b>5</b>	<b>129</b>	<b>14</b>	<b>143</b>	<b>40</b>	<b>9</b>	<b>48</b>
Buildout	Mobile	45	1,361	867	10	375	13	388	113	12	125
	Area	311	0	4	0	0	0	0	0	0	0
	On-site Equipment	9	245	89	0	0	2	2	0	2	2
	<b>Total</b>	<b>364</b>	<b>1,606</b>	<b>961</b>	<b>10</b>	<b>375</b>	<b>15</b>	<b>390</b>	<b>113</b>	<b>15</b>	<b>127</b>
<b>Significance Threshold</b>		<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>None</b>	<b>None</b>	<b>150</b>	<b>None</b>	<b>None</b>	<b>55</b>
<b>Significant Impact?</b>		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>==</b>	<b>==</b>	<b>Yes</b>	<b>==</b>	<b>==</b>	<b>Yes</b>

Notes:

- On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter; Exh. = exhaust; <1 = less than 1

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-26: Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

<b>Year</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2020	0	0	0	*	0	0
2021	25	98	50	*	44	12
2022	49	195	100	*	89	25
2023	82	326	166	*	148	41
2024	115	456	233	*	207	58
2025	175	698	356	*	317	89
2026	226	769	460	*	445	123
2027	252	806	514	*	513	141
2028	268	829	547	*	553	152
2029	284	854	580	*	594	163
2030	307	884	627	*	652	179
2031	332	920	680	*	718	197
2032	358	957	733	*	784	214
2033	384	993	786	*	849	232
2034	401	1,017	821	*	893	244
2035	418	1,041	856	*	936	256
<b>Buildout</b>	<b>422</b>	<b>1,047</b>	<b>865</b>		<b>947</b>	<b>259</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

— Emissions are from local vehicles, trucks, natural gas, emergency generators, forklifts, yard trucks, painting, and consumer products. There is no reduction from existing onsite emissions.

— Operational emissions are assumed to be zero in 2020 when project construction commences.

— PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.

— Landscaping emissions are negligible.

\* Sulfur dioxide emissions as estimated are substantially less than the threshold of 150 pounds per day. Thus, emissions reflecting decreased vehicle miles traveled would also be less than significant.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; SO<sub>2</sub> = sulfur dioxide; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-22: Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

<u>Year</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
<u>2020</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2021</u>	<u>51</u>	<u>338</u>	<u>111</u>	<u>1</u>	<u>34</u>	<u>14</u>
<u>2022</u>	<u>97</u>	<u>608</u>	<u>200</u>	<u>2</u>	<u>67</u>	<u>27</u>
<u>2023</u>	<u>138</u>	<u>808</u>	<u>269</u>	<u>3</u>	<u>97</u>	<u>37</u>
<u>2024</u>	<u>174</u>	<u>941</u>	<u>315</u>	<u>4</u>	<u>125</u>	<u>45</u>
<u>2025</u>	<u>205</u>	<u>988</u>	<u>330</u>	<u>5</u>	<u>138</u>	<u>48</u>
<u>2026</u>	<u>221</u>	<u>1,033</u>	<u>417</u>	<u>6</u>	<u>169</u>	<u>57</u>
<u>2027</u>	<u>238</u>	<u>1,109</u>	<u>494</u>	<u>6</u>	<u>195</u>	<u>65</u>
<u>2028</u>	<u>255</u>	<u>1,184</u>	<u>570</u>	<u>7</u>	<u>220</u>	<u>73</u>
<u>2029</u>	<u>272</u>	<u>1,255</u>	<u>639</u>	<u>7</u>	<u>245</u>	<u>81</u>
<u>2030</u>	<u>289</u>	<u>1,323</u>	<u>705</u>	<u>8</u>	<u>271</u>	<u>89</u>
<u>2031</u>	<u>305</u>	<u>1,388</u>	<u>766</u>	<u>8</u>	<u>296</u>	<u>97</u>
<u>2032</u>	<u>321</u>	<u>1,451</u>	<u>825</u>	<u>9</u>	<u>321</u>	<u>105</u>
<u>2033</u>	<u>337</u>	<u>1,511</u>	<u>879</u>	<u>9</u>	<u>346</u>	<u>113</u>
<u>2034</u>	<u>353</u>	<u>1,568</u>	<u>930</u>	<u>9</u>	<u>371</u>	<u>121</u>
<u>2035</u>	<u>364</u>	<u>1,606</u>	<u>961</u>	<u>10</u>	<u>390</u>	<u>127</u>
<b><u>SCAQMD Threshold</u></b>	<b><u>55</u></b>	<b><u>55</u></b>	<b><u>550</u></b>	<b><u>150</u></b>	<b><u>150</u></b>	<b><u>55</u></b>
<b><u>Significant?</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>

Notes:

- Emissions are from local vehicles, trucks, natural gas, emergency generators, forklifts, yard trucks, painting, and consumer products. There is no reduction from existing onsite emissions.
- Operational emissions are assumed to be zero in 2020 when project construction commences.
- PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.
- Landscaping emissions are negligible.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; SO<sub>2</sub> = sulfur dioxide; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-27: Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

<b>Year</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2020 (construction only)	281	639	407	124	34
2021	294	557	484	161	42
2022	347	972	745	254	68
2023	344	673	585	259	65
2024	457	1,688	1,225	431	121
2025	438	1,040	813	434	112
2026	507	1,304	1,055	608	158
2027	521	1,221	990	642	168
2028	564	1,519	1,210	718	192
2029	565	1,395	1,140	739	196
2030	616	1,274	1,231	792	205
2031	601	1,127	1,107	820	213
2032	666	1,347	1,349	926	241
2033	681	1,333	1,351	985	256
2034	669	1,223	1,247	995	260
2035	699	1,278	1,367	1,058	274
Buildout (operation only)	422	1,047	865	947	259
<b>Max Daily Emissions</b>	<b>699</b>	<b>1,688</b>	<b>1,367</b>	<b>1,058</b>	<b>274</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

— Year 2020 contains construction emissions only; buildout contains operational emissions only

— Sulfur oxide (SO<sub>x</sub>) emissions are substantially under the threshold of 150 pounds per day

— Reduction from existing onsite emissions are not included.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-23: Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

<u>Year</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
<u>2020 (construction only)</u>	<u>319</u>	<u>989</u>	<u>701</u>	<u>2</u>	<u>168</u>	<u>66</u>
<u>2021</u>	<u>384</u>	<u>1,463</u>	<u>943</u>	<u>3</u>	<u>207</u>	<u>83</u>
<u>2022</u>	<u>429</u>	<u>1,710</u>	<u>1,066</u>	<u>4</u>	<u>266</u>	<u>105</u>
<u>2023</u>	<u>465</u>	<u>1,818</u>	<u>1,127</u>	<u>5</u>	<u>308</u>	<u>114</u>
<u>2024</u>	<u>486</u>	<u>1,751</u>	<u>1,086</u>	<u>6</u>	<u>309</u>	<u>106</u>
<u>2025</u>	<u>490</u>	<u>1,517</u>	<u>906</u>	<u>7</u>	<u>282</u>	<u>94</u>
<u>2026</u>	<u>491</u>	<u>1,438</u>	<u>817</u>	<u>7</u>	<u>276</u>	<u>90</u>
<u>2027</u>	<u>505</u>	<u>1,489</u>	<u>870</u>	<u>7</u>	<u>250</u>	<u>89</u>
<u>2028</u>	<u>528</u>	<u>1,607</u>	<u>970</u>	<u>8</u>	<u>408</u>	<u>112</u>
<u>2029</u>	<u>540</u>	<u>1,645</u>	<u>1,017</u>	<u>8</u>	<u>374</u>	<u>113</u>
<u>2030</u>	<u>560</u>	<u>1,529</u>	<u>1,029</u>	<u>9</u>	<u>391</u>	<u>114</u>
<u>2031</u>	<u>568</u>	<u>1,551</u>	<u>1,058</u>	<u>9</u>	<u>408</u>	<u>117</u>
<u>2032</u>	<u>582</u>	<u>1,602</u>	<u>1,092</u>	<u>9</u>	<u>428</u>	<u>124</u>
<u>2033</u>	<u>588</u>	<u>1,620</u>	<u>1,105</u>	<u>10</u>	<u>429</u>	<u>127</u>
<u>2034</u>	<u>603</u>	<u>1,679</u>	<u>1,150</u>	<u>10</u>	<u>473</u>	<u>137</u>
<u>2035 (operations only)</u>	<u>364</u>	<u>1,606</u>	<u>961</u>	<u>10</u>	<u>390</u>	<u>127</u>
<b><u>Max Daily Emissions</u></b>	<b><u>603</u></b>	<b><u>1,818</u></b>	<b><u>1,150</u></b>	<b><u>10</u></b>	<b><u>473</u></b>	<b><u>137</u></b>
<b><u>SCAQMD Threshold</u></b>	<b><u>55</u></b>	<b><u>55</u></b>	<b><u>550</u></b>	<b><u>150</u></b>	<b><u>150</u></b>	<b><u>55</u></b>
<b><u>Significant?</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>

Notes:

- Year 2020 contains construction emissions only; buildout contains operational emissions only
- Reduction from existing onsite emissions are not included.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Mitigation Measures.** The mitigation measures previously identified under Impact 4.3.6.3 (**Mitigation Measures 4.3.6.3A through 4.3.6.3E**) would reduce operational emissions of criteria pollutants associated with the project

Additionally, the following mitigation measure is required:

**4.3.6.4A** The following measures shall be incorporated as conditions to any Plot Plan approval within the Specific Plan:

- All tenants shall be required to participate in Riverside County's Rideshare Program.
- Storage lockers shall be provided in each building for a minimum of three percent of the full-time equivalent employees based on a ratio of 0.50 employees per 1,000 square feet of building area. Lockers shall be located in proximity to required bicycle storage facilities.
- Class II bike lanes shall be incorporated into the design for all project streets.
- The project shall incorporate pedestrian pathways between on-site uses.
- Site design and building placement shall provide pedestrian connections between internal and external facilities.
- The project shall provide pedestrian connections to residential uses within 0.25 mile from the project site.

- g) A minimum of two electric vehicle-charging stations for automobiles or light-duty trucks shall be provided at each building. In addition, parking facilities with 200 parking spaces or more shall be designed and constructed so that at least six percent of the total parking spaces are capable of supporting future electric vehicle supply equipment (EVSE) charging locations. Sizing of conduit and service capacity at the time of construction shall be sufficient to install Level 2 Electric Vehicle Supply Equipment (EVSE) or greater.
- h) Each building shall provide indoor and/or outdoor - bicycle storage space consistent with the City Municipal Code and the California Green Building Standards Code. Each building shall provide a minimum of two shower and changing facilities for employees.
- i) Each building shall provide preferred and designated parking for any combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles equivalent to the number identified in California Green Building Standards Code Section 5.106.5.2 or the Moreno Valley Municipal Code whichever requires the higher number of carpool/vanpool stalls.
- j) The following information shall be provided to tenants: onsite electric vehicle charging locations and instructions, bicycle parking, shower facilities, transit availability and the schedules, telecommunicating benefits, alternative work schedule benefits, and energy efficiency.

It is important to note that, in addition to the operational activity mitigation measures identified previously, future development would need to incorporate physical attributes and operational programs that will act to generally reduce operational-source pollutant emissions including GHG emissions. These project characteristics are identified in Section 4.7, *Climate Change and Greenhouse Gas Emissions*, and Section 4.17, *Energy*, of this Draft Recirculated Revised Sections of the FEIR.

On October 21, 2016, the Project's developers entered into a settlement agreement with the SCAQMD which requires the payment to the SCAQMD of an Air Quality Improvement Fee of 64 cents per square foot for each building as the Project is constructed. The settlement agreement states:

*"[T]he payment of the Air Quality Improvement Fee will adequately mitigate heavy-duty truck related air quality impacts that may result from the construction and operation of the World Logistics Center as described in the EIR and that no additional charges will be imposed on the World Logistics Center to mitigate emissions, including NO<sub>x</sub>, described in the EIR from heavy-duty trucks."*

Funds may be used by SCAQMD for any purpose to improve air quality in the South Coast Air Basin although the SCAQMD has indicated that the funds will be used "to develop mitigation efforts focused on reducing emissions in the areas affected by the warehouse project."<sup>31</sup> One possible use might be that individual or fleet truck owners servicing the Project could be offered a financial incentive to purchase a near-zero or zero-emission truck model, similar to the Carl Moyer Program. This type of program has been an effective tool for more than 19 years in speeding the transition of heavy-duty trucks and other equipment to cleaner models. In the 2017 Reporting Cycle for the Carl Moyer Program (Funding Years 8-19), \$87,373,480 was funded for "On-Road" vehicles by the SCAQMD for a reduction of 6,265 tons of NO<sub>x</sub> and ROG emissions, and a reduction of 145.3 tons of PM emissions, with an average cost effectiveness of \$11,612. Using those costs and resulting reductions in emissions, the \$26,000,000 Air Quality Improvement Fee could result in a reduction of 1,864 tons of NO<sub>x</sub> and ROG emissions, and a PM reduction of 43 tons of PM emissions. Therefore, with the payment of the Air Quality Improvement Fee through the 2016 settlement, the Project's net contribution to regional air quality would be further reduced. Because the use of the funds will be determined by the SCAQMD's Governing Board and because it is not yet known how the Board will allocate the funds, no credit in emissions has been taken by the Project.

<sup>31</sup> SCAQMD press released October, 21, 2016, announcing the settlement.

**Level of Significance after Mitigation.** Significant and unavoidable. Mitigated operational emissions for full buildout are shown in Table 4.3-28<sup>4</sup>. Note that the emissions are based on conservative assumptions and does not subtract existing emissions that would cease to exist (i.e., assumes all emissions are net new). As shown on Table 4.3-28<sup>4</sup> Additionally, mitigation requiring the use of natural gas and propane equipment lead to decreases in PM and NO<sub>x</sub>, but may lead to increases in CO. As shown on Table 4.3-24, even with implementation of the mitigation measures, emissions are still significant. Despite implementation of mitigation measures, emissions of criteria pollutants would still exceed SCAQMD significance thresholds resulting in a significant and unavoidable operational air quality impact.

**Table 4.3-28: Operational Regional Air Pollutant Emissions (Mitigated)**

Scenario	Source	Emissions (pounds per day)				
		VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Buildout	Vehicles: Local and trucks	97	802	773	945	256
	Area	311	<1	4	<1	<1
	Onsite Equipment	8	94	107	<1	<1
	<b>Total Project Emissions</b>	<b>416</b>	<b>893</b>	<b>883</b>	<b>946</b>	<b>257</b>
	Significance Threshold	55	55	550	150	55
	Significant Impact?	Yes	Yes	Yes	Yes	Yes

— PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.  
 — Landscaping emissions are negligible.  
 — Sulfur oxides emissions are under the 150 pounds per day significance threshold and at buildout would be less than 23 pounds per day.  
 VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.  
 Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.

**Table 4.3-24: Operational Regional Air Pollutant Emissions (Buildout Mitigated)**

Source	Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Vehicles: Local and trucks	45	1,341	867	10	387	125
Area	311	0	4	0	0	0
Onsite Equipment	8	91	107	0	0	0
<b>Total Project Emissions</b>	<b>363</b>	<b>1,432</b>	<b>978</b>	<b>10</b>	<b>388</b>	<b>125</b>
<b>Significance Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:  
 • PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.  
 • Landscaping emissions are negligible.  
 • On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.  
 VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
<sup>1</sup> Mitigation requiring the use of natural gas and propane equipment lead to decreases in PM and NO<sub>x</sub>, but may lead to increases in CO; therefore, the mitigated CO values are greater than unmitigated values.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

Therefore, there could be cumulative health effects from ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> as described earlier in this section and summarized as follows:

- Ozone can cause the following health effects: irritate respiratory system; reduce lung function; breathing pattern changes; reduce breathing capacity; inflame and damage cells that line the lungs;

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; and/or increase mortality risk.

- ~~Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) can cause the following health effects from short-term (hours/days) exposure: irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; and/or those with heart disease can suffer heart attacks and arrhythmias.~~
- ~~Particulate matter can cause the following health effects from long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; and/or death.~~

During overlap of construction and operation, VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> would continue to exceed SCAQMD significance thresholds after mitigation, as shown in Table 4.3-29. Therefore, impacts are significant and unavoidable.

**Table 4.3-29: Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day) – Mitigated**

Year	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
2020	149	178	452	4	3
2021	176	261	542	48	16
2022	214	367	839	93	29
2023	234	420	651	150	44
2024	284	625	1,363	211	62
2025	324	736	887	319	90
2026	379	827	1,176	447	125
2027	400	831	1,083	514	143
2028	422	881	1,352	556	155
2029	434	884	1,259	596	165
2030	463	914	1,441	654	181
2031	479	906	1,179	718	197
2032	513	978	1,548	785	216
2033	536	999	1,523	851	233
2034	546	988	1,326	893	244
2035	566	1,020	1,510	936	256
Buildout	416	893	883	946	257
<b>Max Daily Emissions</b>	<b>566</b>	<b>1,020</b>	<b>1,548</b>	<b>946</b>	<b>257</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

Year 2020 contains construction emissions only; buildout contains operational emissions only

Sulfur oxide (SO<sub>x</sub>) emissions are substantially under the threshold of 150 pounds per day.

Emissions do not include existing onsite emissions.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018

**Table 4.3-25: Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, pounds per day) – Mitigated**

<u>Year</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
<u>2020 (construction only)</u>	<u>160</u>	<u>148</u>	<u>789</u>	<u>2</u>	<u>130</u>	<u>31</u>
<u>2021</u>	<u>207</u>	<u>369</u>	<u>1,032</u>	<u>3</u>	<u>160</u>	<u>40</u>
<u>2022</u>	<u>251</u>	<u>574</u>	<u>1,164</u>	<u>4</u>	<u>220</u>	<u>62</u>
<u>2023</u>	<u>290</u>	<u>730</u>	<u>1,236</u>	<u>5</u>	<u>264</u>	<u>74</u>
<u>2024</u>	<u>328</u>	<u>885</u>	<u>1,238</u>	<u>6</u>	<u>275</u>	<u>75</u>
<u>2025</u>	<u>359</u>	<u>982</u>	<u>1,049</u>	<u>7</u>	<u>263</u>	<u>77</u>
<u>2026</u>	<u>369</u>	<u>983</u>	<u>920</u>	<u>7</u>	<u>261</u>	<u>76</u>
<u>2027</u>	<u>384</u>	<u>1,036</u>	<u>959</u>	<u>7</u>	<u>235</u>	<u>76</u>
<u>2028</u>	<u>406</u>	<u>1,138</u>	<u>1,057</u>	<u>8</u>	<u>393</u>	<u>98</u>
<u>2029</u>	<u>420</u>	<u>1,187</u>	<u>1,103</u>	<u>8</u>	<u>360</u>	<u>100</u>
<u>2030</u>	<u>436</u>	<u>1,245</u>	<u>1,148</u>	<u>9</u>	<u>385</u>	<u>108</u>
<u>2031</u>	<u>451</u>	<u>1,301</u>	<u>1,156</u>	<u>9</u>	<u>403</u>	<u>112</u>
<u>2032</u>	<u>466</u>	<u>1,355</u>	<u>1,188</u>	<u>9</u>	<u>423</u>	<u>119</u>
<u>2033</u>	<u>479</u>	<u>1,401</u>	<u>1,165</u>	<u>10</u>	<u>426</u>	<u>123</u>
<u>2034</u>	<u>495</u>	<u>1,459</u>	<u>1,210</u>	<u>10</u>	<u>469</u>	<u>133</u>
<u>2035 (operations only)</u>	<u>363</u>	<u>1,432</u>	<u>978</u>	<u>10</u>	<u>388</u>	<u>125</u>
<b><u>Max Daily Emissions</u></b>	<b><u>495</u></b>	<b><u>1,459</u></b>	<b><u>1238</u></b>	<b><u>10</u></b>	<b><u>469</u></b>	<b><u>133</u></b>
<b><u>SCAQMD Threshold</u></b>	<b><u>55</u></b>	<b><u>55</u></b>	<b><u>550</u></b>	<b><u>150</u></b>	<b><u>150</u></b>	<b><u>55</u></b>
<b><u>Significant?</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Yes</u></b>	<b><u>Yes</u></b>

Notes:

- Year 2020 contains construction emissions only; buildout contains operational emissions only.
- Emissions do not include existing onsite emissions.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**4.3.6.5 Impacts to Sensitive Receptors**

**Impact 4.3.6.5:** *Implementation of the World Logistics Center project may have the potential to result in impacts to sensitive receptors.*

<b>Threshold</b>	<p>Would the proposed project expose sensitive receptors to substantial pollutant concentrations?</p> <p>For localized air quality impacts, the applicable thresholds are:</p> <ul style="list-style-type: none"> <li>• 20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction and operation;</li> <li>• 0.18 ppm (State 1 hour), 0.100 ppm National 1 hour), and 0.030 ppm (Annual) of NO<sub>x</sub> during construction and operation;</li> <li>• 10.4 µg/m<sup>3</sup> (24-hours) and 1 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction</li> <li>• 2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during operations; and</li> <li>• 2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operations.</li> </ul> <p>During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance threshold for operations.</p>
------------------	---

For health risk impacts, the applicable thresholds are:

- Maximum Individual Cancer Risk: An increased cancer risk greater than 10 in 1 million at any receptor location;
- Cancer burden: An increase in cancer burden of 0.5 or
- Non-cancer chronic hazard indices (HI): A cumulative increase for any target organ system exceeding 1.0 at any receptor location.

**Acute and Chronic Health Risk Impacts.** Acute and chronic health risk impact analyses examine the increased risk for non-cancer health outcomes associated with project-related air pollutant emissions. Since these are non-cancer health impacts, as described below, the impacts are analyzed separately from increased cancer risk associated with air pollution.

The construction and operation of the project would not emit any toxic chemicals in any significant quantity other than vehicle exhaust. While there may be other toxic substances in use on site, risk would be negligible due to intermittent use (i.e., chemicals from periodic maintenance), dispersion of chemicals throughout the project site, and compliance with State and Federal handling regulations.

Exposure to diesel exhaust can have immediate (acute) health effects, such as irritation of the eyes, nose, throat, and lungs, and can cause coughs, headaches, light headedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. However, according to the rulemaking on *Identifying Particulate Emissions from Diesel-Fueled Engines as a Toxic Air Contaminant* (CARB 1998), the available data from studies of humans exposed to diesel exhaust are not sufficient for deriving an acute non-cancer REL.

The analysis, however, does derive an estimate of acute non-cancer risks by examining the acute health effects of the various toxic components that comprise diesel and gasoline emissions. There is specific guidance for estimating the acute non-cancer hazards from these toxic components based on chemical profiles established by the CARB which was used in the analysis to determine the project's acute non-cancer hazards.

To determine the project's *chronic* non-cancer hazard impact, the highest annual diesel PM emissions concentrations was determined covering the years 2020 (the commencement of project construction) to 2035 (the full build out of the project). In this regard, the highest annual average diesel PM concentration concentrations prior to mitigation determined through air dispersion modeling was 0.2 ug/m<sup>3</sup>, occurred at an existing residence located within the project boundaries. This diesel PM concentration was due to the impacts of diesel PM emissions from the off-road construction equipment and operation equipment. This level of diesel PM impact results in a chronic non-cancer HI of 0.04. This HI is less than the SCAQMD's significance level of 1.0, and is, therefore, less than significant.

The estimation of the *acute* non-cancer HI requires the estimation of the maximum 1-hour impacts of TAC components in organic gases and PM emissions. For project construction, estimates of the maximum 1-hour ROG and PM exhaust emissions were derived from the project's peak daily construction equipment emissions; for project operation, estimates of the project's maximum 1-hour TOG and PM emissions were derived from the project's peak hour traffic data along the nearly 230 roadway segments contained within the study area and then speciated or broken down into the various TAC components by fuel type, gasoline and diesel, and emission type (i.e., exhaust, evaporative, brake wear and tire wear). The acute non-cancer HI was determined for a worst-case condition that assumed the project would be constructed between 2020 and 2035 and full operation starts in 2040. Based on this information, the maximum acute non-cancer HI found at any receptor within the model domain prior to mitigation was 0.46 during

~~any year of~~ project construction and ~~0.05 during full project operation~~, which ~~are~~ is less than the SCAQMD's non-cancer HI of 1.0, and, therefore, is less than significant without mitigation.

Therefore, the potential for short-term acute and chronic exposure from ~~diesel exhaust~~TAC emissions are considered to be less than significant and no mitigation is required.

**Cancer Risks.** As noted in Section 4.3.3, *Methodology*, the project health risk assessment examined the following condition for impacts to both sensitive/residential and worker receptors:

*Project Development condition which evaluates the impacts of project-related construction and operational traffic diesel PM emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the full build out in 2035.*

This HRA is being provided to allow decision makers to see the cancer-related impacts of the World Logistics Center project in the assumption that new technology diesel exhaust causes cancer, contrary to what was found by the HEI study. The mitigation conditions require that all diesel-fueled haul trucks during construction be 2010 or newer, diesel trucks accessing the project during operation be model year 2010 or newer, and that all on-site equipment greater than 50 horsepower be Tier 4 (see MM 4.3.6.2A[h] and MM 4.3.6.2A[a], respectively).

To be conservative, the HRA relied on EMFAC2014~~17~~ to determine the breakdown of vehicle types and fuel types and did not consider the potential reductions in TACs emissions and health risks from increased penetration of zero emission vehicles (ZEVs). The increased penetration of ZEVs is speculative, but likely given rapid technology advancement and more stringent legislation. For example, this HRA assumed that the 2040~~35~~ heavy duty truck fleet would be made up of ~~94%~~89 percent diesel, ~~6%~~9 percent gasoline, ~~3 percent~~ natural gas, and ~~0%~~ percent electric. According to the WLC Transportation Energy Technical Report (ESA, 2018~~9~~), a High EV Penetration scenario projects that the heavy duty truck fleet would consist of ~~55.7% diesel, 4.3% gasoline, and 40%~~ 30 percent electric by 2035. Therefore, accounting for the High EV Penetration scenario would result in a greatly reduced health risk impact than what has been calculated in this analysis.

### Localized Risk

*Cancer Risk for Sensitive/Residential Receptors.* For reference, a risk level of 1 in a million implies a likelihood that up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration of ~~diesel PM~~TAC emissions over the duration of the exposure. This risk would be an excess cancer risk that is in addition to any cancer risk borne by a person not exposed to these air toxics (USEPA, 2017).

Table 4.3-~~30~~26 presents the estimated cancer risks for the 30-year exposure scenario that starts from the beginning of project construction (Construction + Operation HRA), which uses updated construction and operational emissions values. The results are provided separately for project construction ~~diesel PM~~ emissions, operational ~~diesel PM~~ emissions, and the total project ~~diesel PM~~ emissions prior to the application of emission mitigation. Table 4.3-~~31~~27 shows the estimated cancer risk for the 30-year residential exposure scenario that starts from the beginning of project full operation in 2040~~35~~ (Operational HRA), which used the 2040~~35~~ emission levels to represent the emissions for 2040~~35~~ to 2069~~4~~.

On the basis of the results shown in Table 4.3-30~~26~~, the project would exceed the SCAQMD's cancer risk significance threshold of an incremental increase of 10 in a million prior to the application of mitigation and would represent a significant impact. ~~Construction impacts contribute the greatest proportion of the total impact presented in Table 4.3-30. Table 4.3-31~~27~~ shows that during full project operation, the estimated maximum cancer risk anywhere in the model domain is less than the would exceed 10 in a million threshold, impact will therefore be less than significant without mitigation within and outside of the Project boundary and would represent a significant impact.~~ Overall, without mitigation, the project is expected to have a significant impact mainly due to diesel PM emissions from construction and heavy-duty diesel truck activities.

Figures 4.4-3 and 4.3-4 show the incremental cancer risks for the project location. The figures show the results prior to the application of mitigation.

*Estimates of Cancer Risk for School Site Receptors.* Cancer risk estimates at school sites in the area ~~are provided in Appendix D were prepared assuming a 9-year exposure during construction and operation as well as operation at full buildout.~~ Prior to the application of the mitigation, the maximum cancer risk is at Ridgecrest Elementary School for the construction + operational scenario and would be less than 2 approximately 12.6 in a million. Similarly, the maximum cancer risk for the full operational scenario is 3.54 in one million is at Bear Valley Elementary School. Therefore, maximum impacts at schools are less greater than the 10 in one million significance threshold prior to mitigation and are less than potentially significant without mitigation.

*Estimates of Cancer Risk for Worker Receptors.* Estimates of worker exposures were prepared based on the assumption of a 25-year exposure duration for 250 days per year and 8 hours per day as described in the methodology section above. Note that the OEHHA early-in-life age factors do not apply to worker receptors. The highest worker cancer risk estimates prior to the application of mitigation is less than 5 approximately 10.9 in one million for the construction + operational scenario and 0.63.8 in one million for the full operational scenario, both at one onsite location. Therefore, cancer risk for worker receptors anywhere in the revised HRA's study area is less greater than the 10 in one million significance threshold. Projected impacts are less than potentially significant without mitigation.

~~This analysis is based on the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study and discussed in more detail below.~~

*Estimates of Cancer Burden.* The cancer burden calculation provides an estimate of the increased number of cancer cases as a result of exposures to TAC emissions. The total cancer burden is the product of the number of persons in a population area (such as a census tract) and the estimated individual risk from TACs in that population area and then summed overall over all of the population areas. The SCAQMD indicates that the burden calculation includes those population units having an incremental cancer risk of 1 in a million or greater.

Cancer risks were estimated at the geographical center (centroid) of census tracts that are within the study area of the HRA. For the 30-year exposure duration in accordance with "Current OEHHA Guidance", the cancer burden is estimated to be 0.0964 out of a population of about 63,090176,824 individuals that were estimated to have a cancer risk of 1 in a million or more prior to mitigation. The SCAQMD has established a threshold for cancer burden of 0.5. Therefore, the project would not potentially exceed the SCAQMD's cancer burden significance threshold prior to the application of mitigation.

These analyses are based on the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study and discussed in more detail below.

**Table 4.3-30: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation**

Receptor Location	Incremental Increase in Cancer Risk During Project Construction (risk/million)	Incremental Increase in Cancer Risk During Project Operation (risk/million)	Total Incremental Increase in Cancer Risk <sup>(1)</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>(2)</sup>	54.1	3.9	57.5	10	Yes
Maximum risk within the project boundaries <sup>(3)</sup>	54.1	3.9	57.5	10	Yes
Maximum risk at any area outside of the project boundaries <sup>(4)</sup>	14.9	1.1	16.0	10	Yes

Notes:

<sup>(1)</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the updated construction emission estimate, TIA, EMFAC2014 emission model, SCAQMD HRA guidance and “Current OEHHA Guidance” for estimating cancer risks

<sup>(2)</sup> Location is at the existing residences within the boundaries of the project

<sup>(3)</sup> Location is at the existing residence located at the 13241 World Logistic Parkway (formerly Theodore Street)

<sup>(4)</sup> Location is adjacent to the midwestern boundary of the project

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.*

**Table 4.3-26: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation**

<b><u>Receptor Location</u></b>	<b><u>Incremental Increase in Cancer Risk During Project Construction (risk/million)</u></b>	<b><u>Incremental Increase in Cancer Risk During Project Operation (risk/million)</u></b>	<b><u>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</u></b>	<b><u>SCAQMD Cancer Risk Significance Threshold (risk/million)</u></b>	<b><u>Exceeds Threshold?</u></b>
<u>Maximum risk anywhere in the modeling domain<sup>2</sup></u>	<u>49.5</u>	<u>17.3</u>	<u>66.8</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk within the project boundaries<sup>3</sup></u>	<u>49.5</u>	<u>17.3</u>	<u>66.8</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk at any area outside of the project boundaries<sup>4</sup></u>	<u>46.46</u>	<u>8.76</u>	<u>55.22</u>	<u>10</u>	<u>Yes</u>

**Notes:**

<sup>1</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the updated construction emission estimate, TIA, EMFAC2014 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks.

<sup>2</sup> Location is at the existing residences within the boundaries of the project, located at the 13241 World Logistic Parkway (formerly Theodore Street).

<sup>3</sup> Location is at the existing residences within the boundaries of the project, located at the 13241 World Logistic Parkway (formerly Theodore Street).

<sup>4</sup> Location is adjacent to the southwestern boundary of the project.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 4.3-31: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2040, Without Mitigation**

Receptor Location	Total Incremental Increase in Cancer Risk <sup>(1)</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>(2)</sup>	7.9	10	No
Maximum risk within the project boundaries <sup>(3)</sup>	7.9	10	No
Maximum risk at any area outside of the project boundaries <sup>(4)</sup>	3.4	10	No
Maximum risk along SR 60 freeway <sup>(5)</sup>	3.4	10	No

Notes:

<sup>(1)</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2040 to 2069 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2014 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks

<sup>(2)</sup> Location is at the existing residences within the boundaries of the project.

<sup>(3)</sup> Location is at the existing residence located at 30220 Dracaea Avenue.

<sup>(4)</sup> Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and north of Fir Avenue.

<sup>(5)</sup> Location is south of SR 60 freeway, same as the location in footnote (4), which to the northwest of the project boundary, on the west side of Redlands Boulevard and north of Fir Avenue.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-27: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation**

<u>Receptor Location</u>	<u>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</u>	<u>SCAQMD Cancer Risk Significance Threshold (risk/million)</u>	<u>Exceeds Threshold?</u>
<u>Maximum risk anywhere in the modeling domain<sup>2</sup></u>	<u>34.0</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk within the project boundaries<sup>3</sup></u>	<u>34.0</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk at any area outside of the project boundaries<sup>4</sup></u>	<u>29.9</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk along SR 60 freeway<sup>5</sup></u>	<u>34.0</u>	<u>10</u>	<u>No</u>

**Notes:**

<sup>1</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2040 to 2069 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2014 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks.

<sup>2</sup> Location is at the existing residence immediately to the north of the project boundary at 13241 World Logistics Center Parkway (formerly Theodore Avenue).

<sup>3</sup> Location is at the existing residence located at 30220 Dracaea Avenue.

<sup>4</sup> Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.

<sup>5</sup> Location is south of SR 60 freeway, same as the location in footnote (2).

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

### Regional Freeway Network Risk

As mentioned in the methodology section, the HRA study area was focused on the most extensive emissions from project related activities. Because project activity is highest on-site and surrounding the project boundary, the project's emissions and associated health impact decreases with an increase in distance from the project site. This is, as demonstrated by the cancer risk contours in Figures 4.3-3 and 4.3-4. The HRA study area ~~included~~includes approximately 18 miles of freeway segments along SR60 that extend from north of the project boundary 8.6 miles toward the west (toward Port of Long Beach) and 9 miles toward east (toward Palm Springs), and the HRA receptor grids include receptors along the SR-60 freeway. Based on the results shown in Figure 4.3-3 for the construction plus operation scenario, without mitigation, ~~only a small segment (approximately one mile) along SR-60 that is immediately north of a segment surrounding~~ the project boundary will potentially have an incremental cancer risk exceeding the SCAQMD 10 in one million threshold at an approximate distance of 2.5 miles away from the project boundary, ~~the potential increment cancer risk along SR60 would be less than 2 in one million.~~ Based on results shown in Figure 4.3-4 for 30 years of the full project ~~buildout scenario~~operation, without mitigation, ~~no segment along a similar section surrounding the project boundary out to an approximate distance of 2.5 miles will potentially have an incremental cancer risk exceeding 10 in one million.~~ Some receptors near the SR-60 ~~would~~could also exceed the 10 in one million cancer risk threshold; ~~at a distance of less than two miles from the project boundary, the incremental cancer risk is less than 2 in one million.~~

The project's mitigation conditions require that all construction equipment over 50 horsepower would be Tier 4, all diesel trucks accessing the project during operation be model year 2010 or newer, that all on-site equipment be Tier 4. ~~As shown in Figures 4.3-5 and 4.3-6, with mitigation, the incremental cancer risk along SR-60 will be less than 10 in one million and less than significant. Also, air filtration system meeting ASHRAE Standard 52.2 MERVE-13 standards will be offered to the owners of the houses located at 13100 World Logistics Center Parkway (formerly Theodore Street) and 12400 World Logistics Center Parkway (formerly Theodore Street).~~

Because project-generated vehicle trips and associated impacts decrease with an increase in distance from the project site, the project impact along the regional freeway network ~~that is~~ outside the HRA's study area will be less than those presented in Figures 4.3-3 and 4.3-4. The project's impact to the regional freeway network will be the greatest during project full operation, as shown in Tables 4.3-34~~27 and Tables 4.3-34~~29 and 4.3-30, the maximum cancer risk for receptors along the SR-60 freeway would be 3.4 without mitigation near the project boundary and 3.29.5 in one million with mitigation, which is (less than the 10 in one million threshold). Therefore, the project health impact along the regional freeway network will be less than significant.

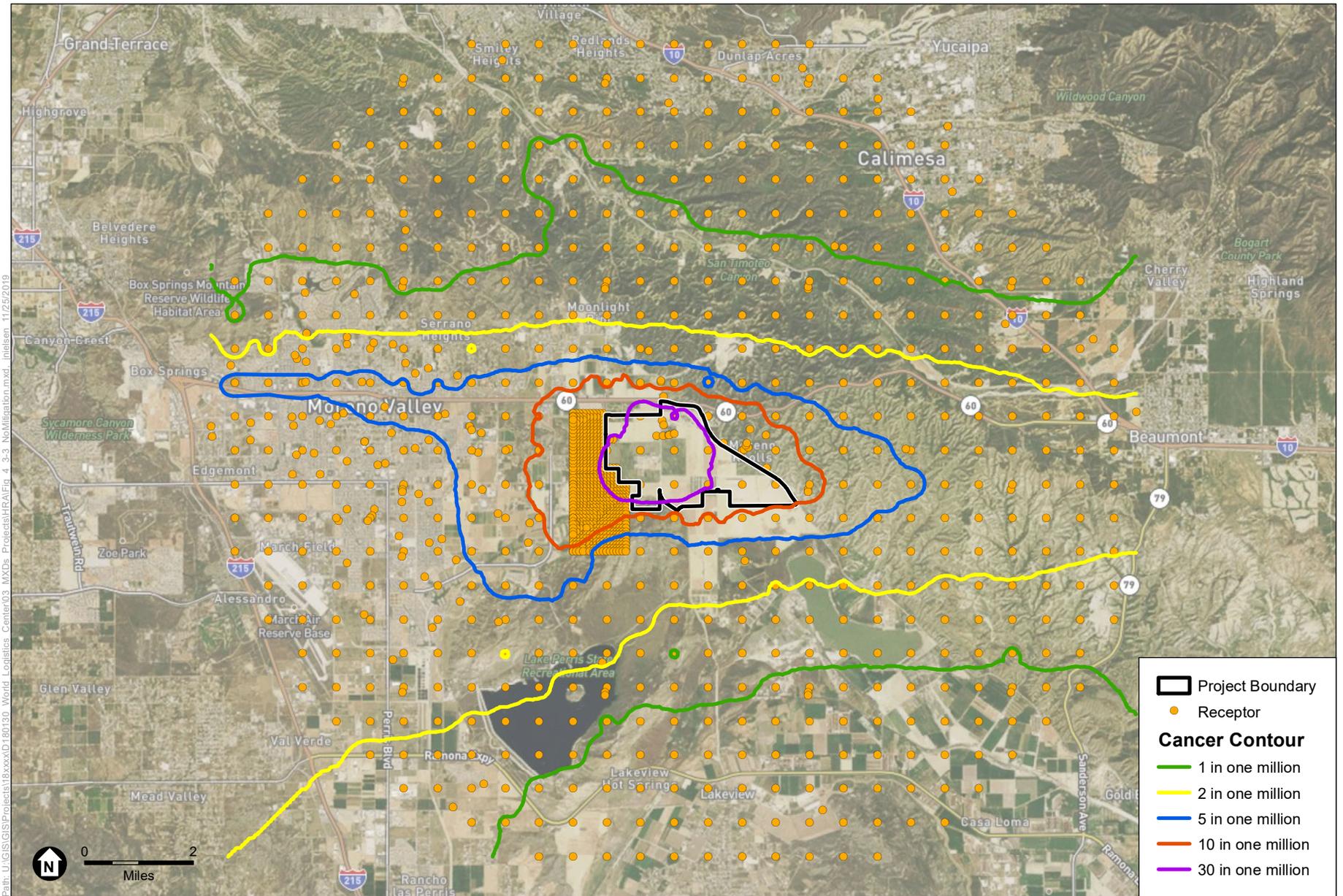
As shown in Figure 4.3-6, with mitigation, the incremental cancer risk along SR-60 may exceed the 10 in one million threshold promulgated by SCAQMD and be greater than significant for the 30 years of full operation. However, Figure 4.3-6 conservatively portrays each and every receptor as residents. This means that the more-conservative residential assumptions were also applied to worker receptors and may show extraneous exceedances of the 10 in one million threshold. The purpose of Figure 4.3-6 is to identify the 1 in one million isopleth in order to determine whether any schools fall within. The isopleth presented in Figure 4.3-6 does not ultimately apply for significance determination, which differentiates between receptor type. The maximum residential cancer risk for significance determination is presented, with mitigation, in Tables 4.3-29 and 4.3-30. As shown in Figure 4.3-5, with mitigation, the incremental cancer risk along SR-60 will be less than 10 in one million and less than significant for the 30 years of combined construction and operation.

Of note, results in Figure 4.3-3 is~~are~~ based on project construction overlapping with project operations (partial project operation since the project is not built out yet) while Figure 4.3-4 is based on full project operation. The difference between the two sets of results indicates that the incremental cancer risk in Figure 4.3-3 is mainly driven by the DPM emissions from onsite construction equipment. Therefore, the impact would be localized near the project site and will disappear once construction completes~~where~~

as the incremental cancer risk in Figure 4.3-4 is primarily driven by DPM emissions from freeway truck travel.

**Informational Purposes: Morbidity and Mortality**

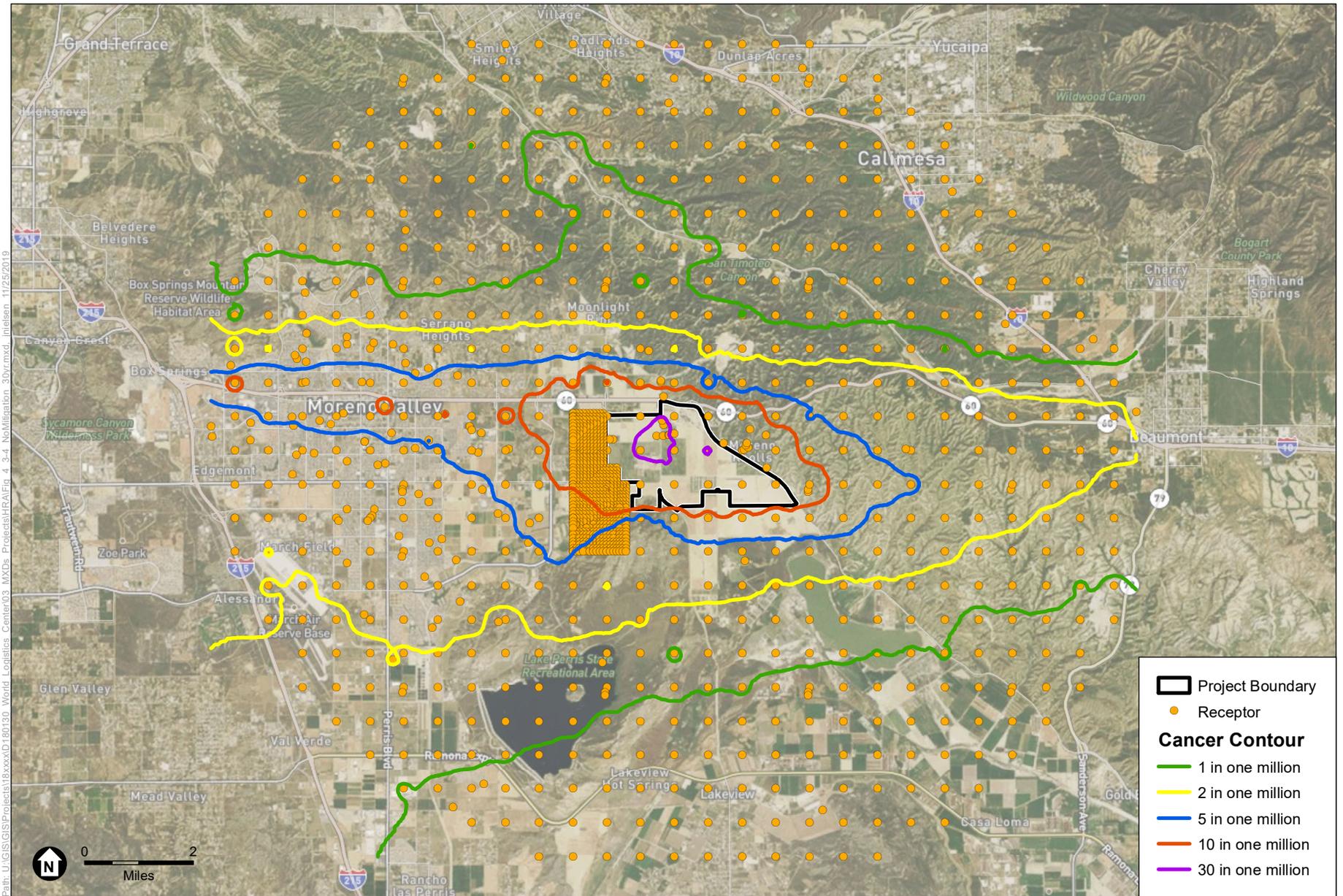
~~There is no established threshold or approved methodology for calculating morbidity and mortality. For purposes of this assessment, morbidity is a term for describing how an external effect such as air pollution would exacerbate an existing illness and other health effect. Mortality is another term for death. The following represents the result of the calculations for long term mortality and various morbidity health endpoints due to DPM for the project prior to the application of mitigation. The locations for the morbidity/mortality estimations were at the location with the highest combined annual DPM concentration and census tract population such that the change in DPM would affect the greatest number of people. A cumulative total of each mortality/morbidity health endpoint was also calculated that totals the number of added cases of an identified health endpoint at each census tract location within the entire region potentially impacted by the project emissions.~~



SOURCE: ESRI 2019; ESA 2019

World Logistics Center

**Figure 4.3.3**  
Incremental Project Cancer Risk – No Mitigation  
(Construction and Operation)



SOURCE: ESRI 2019; ESA 2019.

World Logistics Center

**Figure 4.3-4**  
Incremental Project Cancer Risk – No Mitigation  
(30 Years of Full Operation)

The estimates of mortality and morbidity impacts are based on the application of concentration-response functions (C-R functions) that relate the change in the number of adverse health effect incidences in a population to a change in air pollutant concentration experienced by that population. However, such estimations are subject to great uncertainty. Sources of uncertainty include emission estimates, population exposure estimates, form of C-R functions, baseline rates of mortality and morbidity that are entered into the C-R functions, and occurrence of additional not-quantified adverse health effects. It should be noted that the nature of PM as a complex mixture of various pollutants, as well as the confounding health effects of pollutants such as sulfur dioxide, NO<sub>2</sub>, CO, and ozone that tend to co-occur with PM in ambient air, greatly increase the complexity of deriving accurate PM concentration-response functions.

Exposure to the Project's DPM emissions prior to mitigation would result in an increase in mortality of approximately 0.00011 additional cases per year at the location where the project has its maximum impact from DPM emissions or 0.001 additional cases over all of the census tracts contained in the modeling domain.

Table 4.3-32 summarizes the estimates of the various morbidity health endpoints due to the emissions from the project without mitigation. As shown in these tables, the project would not result in a single new added case of a quantified health endpoint either at location where the impact would be greatest or cumulatively over the entire air dispersion modeling domain examined in this assessment.

**Table 4.3-32: Estimates of Various Morbidity Health Endpoints from Project Emissions Without Mitigation**

<b>Health Endpoint</b>	<b>Maximum Added Occurrences (cases/year)</b>	<b>Cumulative Occurrences over the Entire Modeling Region (cases/year)</b>
Long-term Mortality (Ages 30+)	0.00011	0.001
Chronic Illness: Chronic Bronchitis (Age 27+)	0.00053	0.005
Hospitalization: Chronic Obstructive Pulmonary Disease (Age 65+)	0.000004	0.000008
Hospitalization: Pneumonia (Age 65+)	0.000004	0.00004
Hospitalization: Cardiovascular (Age 65+)	0.000002	0.00002
Hospitalization: Asthma (Age 0-64)	0.0000005	0.000005
Hospitalization: Asthma-related Emergency Visits (Ages 0-64)	0.000002	0.00004

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.

**Mitigation Measures.** The mitigation measures previously identified under other impact sections are required (**Mitigation Measures 4.1.6.1A, 4.3.6.2A, 4.3.6.2B, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.3E**) to reduce construction and operational emissions of criteria pollutants would reduce the estimated cancer risks associated with the project. Additionally, the following mitigation measure is required to ensure that significant health risk does not occur at on-site residential receptor.

- 4.3.6.5A** Prior to the issuance of grading permits, the applicant shall arrange for MERV 13 air filters to be installed at the residence located at 13241 World Logistics Center Parkway.
- (a) The house at 30220 Dracaea Avenue shall be demolished prior to the issuance of the first grading permit for grading within the World Logistics Center.
  - (b) An air filtration system meeting ASHRSE Standard 52.2 MERV-13 standards shall be offered to the owners of the houses located at 13100 World Logistics Center Parkway (formerly Theodore Street) and 12400 World Logistics Center Parkway (formerly

Theodore Street). The developer shall offer to install the air filtration system to the owners of the two properties within two months of the certification of the Final Revised FEIR. Prior to the issuance of the first grading permit within the World Logistics Center, documentation shall be provided to the City confirming that an offer to install the air filtration system has been extended to the owners of each of the two properties. The owners of the two properties shall be under no obligation to accept the offer. Each property owner shall have two years from the receipt of the offer to accept the offer. Upon acceptance of each offer, the developer shall work with each owner to ensure the air filtration system is properly installed within one year of acceptance.

**Mitigation Measure 4.3.6.3B(I)** would require that all diesel trucks that access the project site be model year 2010 or later and limits truck and vehicle idling to 3 minutes. **Mitigation Measure 4.3.6.2A(a)** would require that Tier 4 construction equipment be used on the project site. These mitigation measures would reduce the cancer risk from the project.

**Mitigation Measure 4.3.6.3C** may encourage alternative fueled vehicles and trucks on the project site. As discussed above, a High EV Penetration scenario assumes that up to 4030 percent of the project's heavy duty trucks would be electric-powered; however, no reduction is taken. **Mitigation Measure 4.3.6.3D** may reduce vehicle miles traveled to food establishments; however, no direct reduction is taken. **Mitigation Measure 4.3.6.3E** requires that if transportation refrigeration units are to be used, electrical hookups would be required. In addition, refrigerated space is prohibited unless the impacts do not exceed any environmental impacts identified in this Revised FEIR. Therefore, it is assumed in the unmitigated and mitigated estimates that there would be no transportation refrigeration units. **Mitigation Measure 4.3.6.5A** requires that the Applicant install MERV 13 air filters at the residences located at 13100 Theodore Street and 12400 Theodore Street. The measure also requires that the residence located at 13241 World Logistics Center Parkway30220 Cracaea Avenue be demolishe dprior to the issuance of grading permits. The Applicant currently retains ownership of this property and can arrange for the installation of MERV 13 filters at this residence~~demolition.~~

**Level of Significance after Mitigation for Sensitive Receptor Cancer Risk.** Less than significant. Table 4.3-~~33~~28 and Figure 4.3-5 show the cancer risks for the construction and operation HRA after application of mitigation. As noted, the cancer risks are substantially lower after mitigation, and the SCAQMD cancer risk significance threshold would not be exceeded at any of the onsite or offsite receptors within the study area. The large reduction in cancer risk after mitigation is attributable principally to the reduced diesel PM associated with the commitment to Tier 4 construction equipment. The impact of this mitigation is largely felt during the first 3 to 5 years of construction when the "Current OEHHA Guidance" assigns large age sensitivity factors to the first few years of the 30-year exposure duration. Table 4.3-~~34~~29 and Figure 4.3-6 show the mitigated cancer risk from the 30-year full project buildout. The extent of the modeling domain is shown in Figure 4.3-5 and Figure 4.3-6.

**Table 4.3-33: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation**

Receptor Location	Incremental Increase in Cancer Risk During Project Construction (risk/million)	Incremental Increase in Cancer Risk During Project Operation (risk/million)	Total Incremental Increase in Cancer Risk <sup>(1)</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>(2)</sup>	8.3	1.4	9.7	10	No
Existing residences within the project boundaries					
13241 World Logistics Center Pkwy	8.3	1.4	9.7	10	No
13100 World Logistics Center Pkwy	4.4	2.2	6.6	10	No
13200 World Logistics Center Pkwy	4.3	1.7	6.0	10	No
30220 Dracaea Ave	4.9	2.7	7.6	10	No
29080 Dracaea Ave	2.5	0.9	3.3	10	No
29140 Dracaea Ave	2.9	1.0	3.8	10	No
Maximum risk at any area outside of the project boundaries <sup>(3)</sup>	2.0	0.6	2.6	10	No

Notes:

<sup>\*</sup> Pursuant to Mitigation Measure 4.3.6.5A, the Applicant shall install MERV-13 air filters at the residence located at 13241 World Logistics Center Parkway (formerly Theodore Avenue).

<sup>(1)</sup> Cancer risk calculation conservatively assumed all receptors modeled are residential receptors. 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the EMFAC2014 emission model and "Current OEHHA Guidance" for estimating cancer risks

<sup>(2)</sup> Location is at existing residences within the boundaries of the project

<sup>(3)</sup> Location is adjacent to the midwestern boundary of the project

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018.

**Table 4.3-28: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation**

<b>Receptor Location</b>	<b>Incremental Increase in Cancer Risk During Project Construction (risk/million)</b>	<b>Incremental Increase in Cancer Risk During Project Operation (risk/million)</b>	<b>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</b>	<b>SCAQMD Cancer Risk Significance Threshold (risk/million)</b>	<b>Exceeds Threshold?</b>
<u>Maximum risk anywhere in the modeling domain<sup>2</sup></u>	<u>4.9</u>	<u>4.2</u>	<u>9.1</u>	<u>10</u>	<u>No</u>
<u>Existing residences within the project boundaries</u>					
<u>13241 World Logistics Center Pkwy</u>	<u>4.9</u>	<u>4.2</u>	<u>9.1</u>	<u>10</u>	<u>No</u>
<u>13100 World Logistics Center Pkwy</u>	<u>3.3</u>	<u>4.6</u>	<u>7.9</u>	<u>10</u>	<u>No</u>
<u>13200 World Logistics Center Pkwy</u>	<u>4.0</u>	<u>3.8</u>	<u>7.8</u>	<u>10</u>	<u>No</u>
<u>30220 Dracaea Ave</u>	<u>4.1</u>	<u>4.8</u>	<u>8.9</u>	<u>10</u>	<u>No</u>
<u>29080 Dracaea Ave</u>	<u>2.3</u>	<u>2.5</u>	<u>4.8</u>	<u>10</u>	<u>No</u>
<u>29140 Dracaea Ave</u>	<u>2.5</u>	<u>2.7</u>	<u>5.2</u>	<u>10</u>	<u>No</u>
<u>Maximum risk at any area outside of the project boundaries<sup>3</sup></u>	<u>1.4</u>	<u>4.3</u>	<u>5.7</u>	<u>10</u>	<u>No</u>

**Notes:**

\* Pursuant to Mitigation Measure 4.3.6.5A, the Applicant shall install MERV-13 air filters at the residences located at 13100 World Logistics Center Parkway (formerly Theodore Avenue) and 12400 World Logistics Center Parkway (formerly Theodore Avenue).

<sup>1</sup> Cancer risk calculation conservatively assumed all receptors modeled are residential receptors, 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the EMFAC2014 emission model and "Current OEHHA Guidance" for estimating cancer risks.

<sup>2</sup> Location is at existing residences within the boundaries of the project.

<sup>3</sup> Location is adjacent to the midwestern boundary of the project.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.*

**Table 4.3-34: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2040, With Mitigation**

Receptor Location	Total Incremental Increase in Cancer Risk <sup>(1)</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>(2)</sup>	7.1	10	No
Maximum risk within the project boundaries <sup>(3)</sup>	7.1	10	No
Maximum risk at any area outside of the project boundaries <sup>(4)</sup>	3.2	10	No
Maximum risk along SR60 freeway outside of the project boundaries <sup>(5)</sup>	3.2	10	No

Notes:

<sup>(1)</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2040 to 2069 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2014 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks

<sup>(2)</sup> Location is at the existing residences within the boundaries of the project.

<sup>(3)</sup> Location is at the existing residence located at 30220 Dracaea Avenue.

<sup>(4)</sup> Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and north of Fir Avenue.

<sup>(5)</sup> Location is south of SR 60 freeway, same as the location in footnote (4), which to the northwest of the project boundary, on the west side of Redlands Boulevard and north of Fir Avenue.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018.

**Table 4.3-29: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation**

<b><u>Receptor Location</u></b>	<b><u>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</u></b>	<b><u>SCAQMD Cancer Risk Significance Threshold (risk/million)</u></b>	<b><u>Exceeds Threshold?</u></b>
<u>Maximum risk anywhere in the modeling domain<sup>2</sup></u>	<u>14.2</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk within the project boundaries<sup>3</sup></u>	<u>10.7</u>	<u>10</u>	<u>Yes</u>
<u>Maximum risk at any area outside of the project boundaries<sup>4</sup></u>	<u>9.5</u>	<u>10</u>	<u>No</u>
<u>Maximum risk along SR60 freeway outside of the project boundaries<sup>5</sup></u>	<u>9.5</u>	<u>10</u>	<u>No</u>

**Notes:**

<sup>1</sup> Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2040 to 2069 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2014 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks.

<sup>2</sup> Location is at the existing residence immediately to the north of the project boundary and is owned by the project sponsor.

<sup>3</sup> Location is at the existing residence located at 30220 Dracaea Avenue.

<sup>4</sup> Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.

<sup>5</sup> Location is south of SR 60 freeway, same as the location in footnote (4), which to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

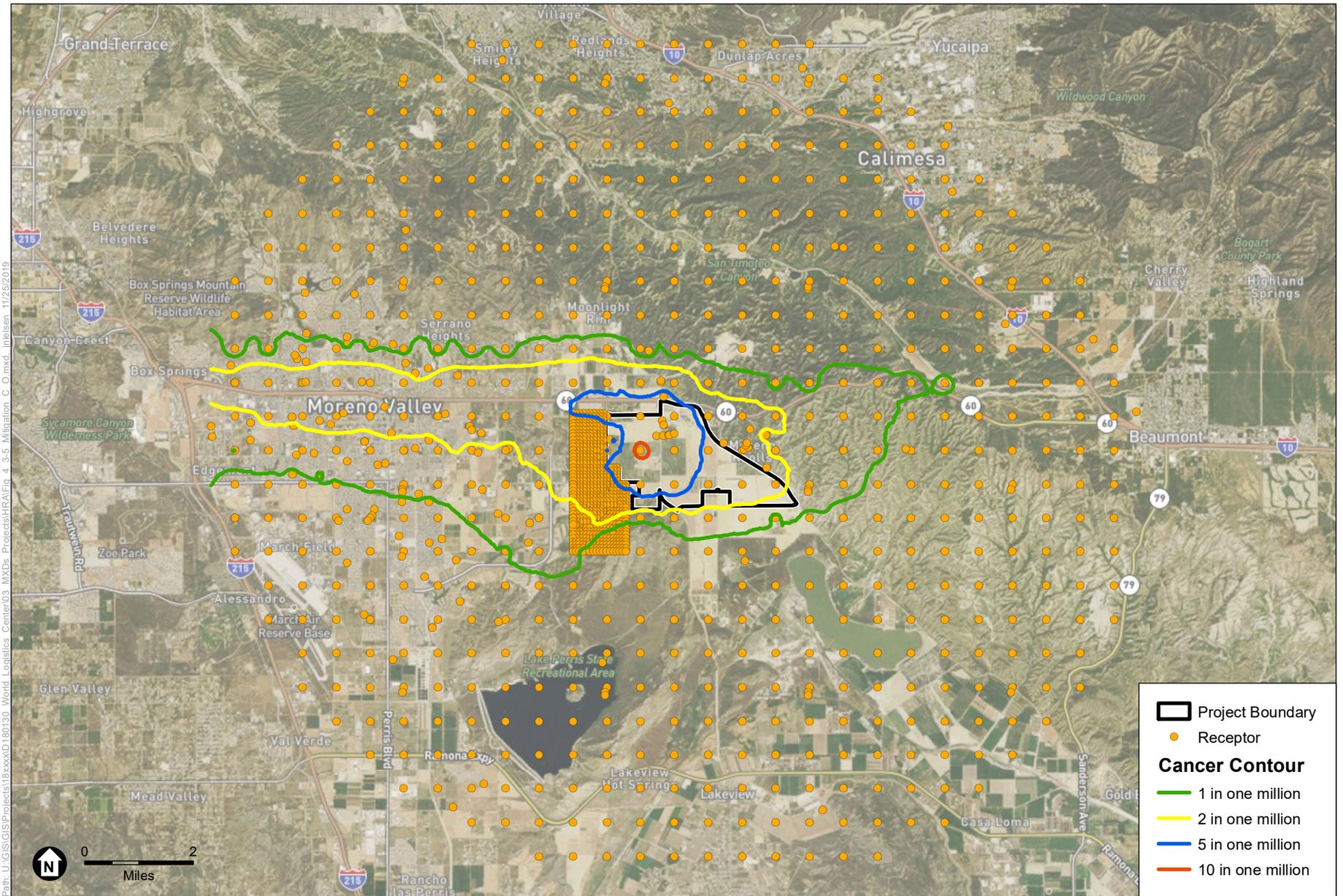
**Table 4.3-30: Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Onsite Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation & Installation of MERV-13 Filters**

<b><u>Receptor Location</u></b>	<b><u>Total Incremental Increase in Cancer Risk<sup>1</sup> (risk/million)</u></b>	<b><u>SCAQMD Cancer Risk Significance Threshold (risk/million)</u></b>	<b><u>Exceeds Threshold?</u></b>
<u>12400 World Logistics Center Parkway</u>	<u>7.1</u>	<u>10</u>	<u>No</u>
<u>30220 Dracaea Avenue</u>	<u>5.35</u>	<u>10</u>	<u>No</u>
<u>13241 World Logistics Center Parkway</u>	<u>4.75</u>	<u>10</u>	<u>No</u>

**Notes:**

<sup>1</sup> DieselNet.com, 2002

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

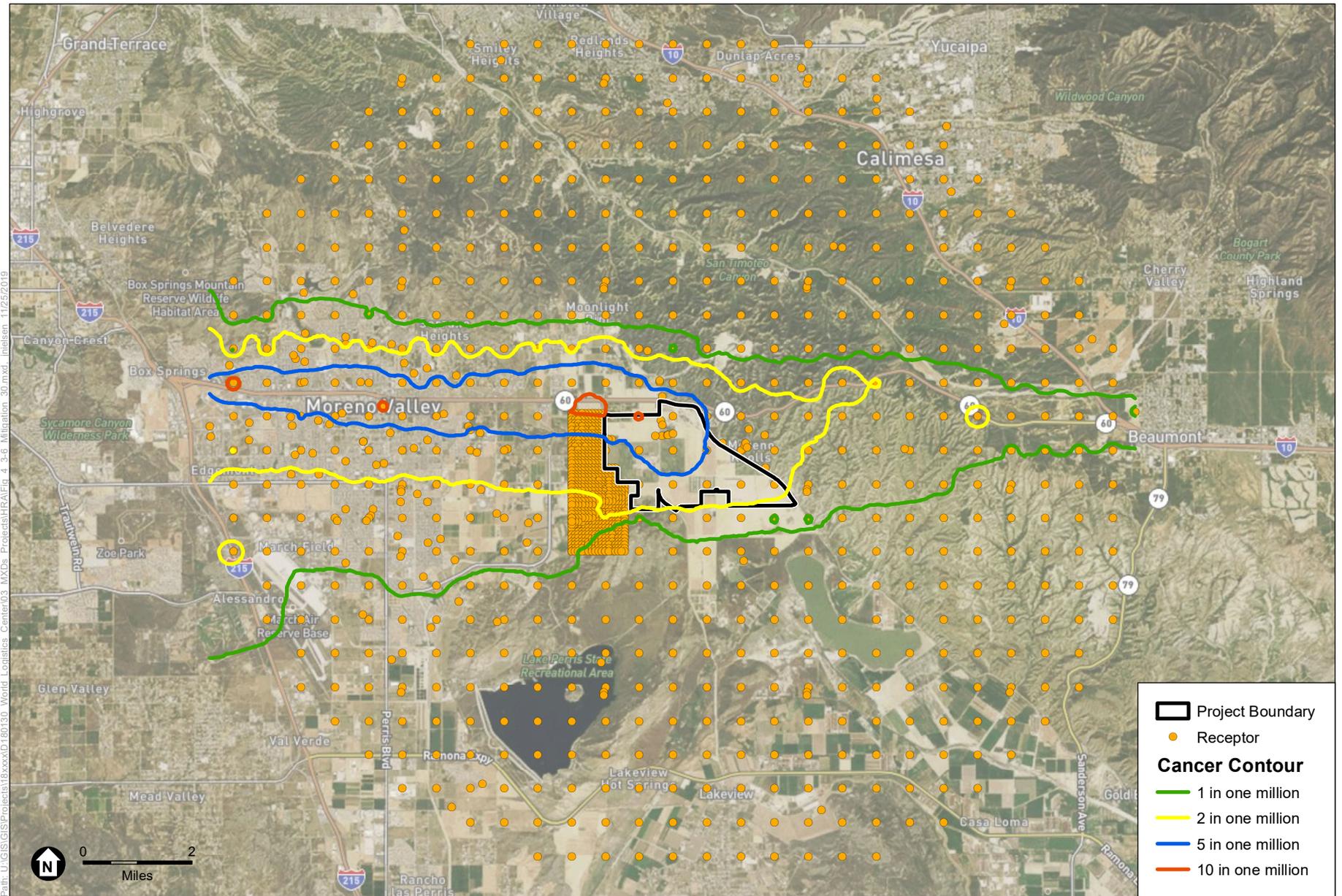


SOURCE: ESRI 2019; ESA, 2019.

World Logistics Center



**Figure 4.3-5**  
Incremental Project Cancer Risk – with Mitigation  
(Construction and Operation)



SOURCE: ESRI 2019; ESA 2019.

World Logistics Center



**Figure 4.3-6**  
Incremental Project Cancer Risk – with Mitigation  
(30 Years of Full Operation)

Through mitigation requirements, new technology diesel engines are required for the WLC project. The mitigation conditions require that all diesel trucks accessing the project during operation be model year 2010 or newer and that all on-site equipment be Tier 4. The results of the HEI Study indicate that the project mitigation requiring the application of Model Year 2010 engines as well as the use of Tier 4-compliant off-road construction equipment are not expected to result in emissions that would be associated with the formation of cancer in exposed individuals. The HEI study clearly demonstrates that the application of new emissions control technology to diesel engines have virtually eliminated the health impacts of diesel exhaust.

Mitigation measures 4.3.6.2A(a) and 4.3.6.3B(l) require 2010-compliant trucks for operation and Tier 4 equipment for construction and require 2010-compliant trucks for operation, respectively, both of which rely on diesel particulate filters similar to those tested in the HEI study. These vehicles reduce emissions by 90%percent when compared to 2006 vehicles and by 99%percent when compared to uncontrolled diesel engines. Recent emissions testing by CARB revealed that these diesel engines are cleaner than originally estimated. ~~These findings, which are reflected in the CARB emissions factor model EMFAC2014, are 70% cleaner than previously estimated.~~

Beginning in 2001, USEPA and CARB began issuing a series of regulations that require new diesel-powered vehicles and equipment to use the latest emissions control technology. This technology relies on two components. The first is a diesel particulate filter, which is capable of reducing particulate matter emissions by over 90%percent (required for new engines beginning in 2007). The second technology is selective catalytic reduction, which reduces emissions of nitrogen oxides by over 90%percent (required for new engines beginning in 2010). Diesel emissions from equipment equipped with this technology is referred to as NTDE. As a result of the advances in emission control technology, USEPA, CARB, and other government and industry stakeholders commissioned a series of studies called the Advanced Collaborative Emissions Study (ACES). ACES has been guided by an ACES Steering Committee consisting of representatives of HEI and the Coordinating Research Council (CRC: a nonprofit organization that directs engineering and environmental studies on the interaction between automotive or other mobility equipment and petroleum products), along with the U.S. Department of Energy, U.S. EPA, engine manufacturers, the petroleum industry, CARB, emission control manufacturers, the National Resources Defense Council, and others. The HEI, funded in part by USEPA, was selected to oversee Phase 3 of ACES.

Phase 3 of ACES evaluated whether emissions from new technology diesel engines cause cancer or other health effects. Specifically, it evaluated the health impacts of a 2007-compliant engine equipped with a diesel particulate filter. HEI found that lifetime exposure to NTDE did not cause carcinogenic lung tumors. The study also confirmed that the concentrations of particulate matter and toxic air pollutants emitted from NTDE are more than 90%percent lower than emissions from traditional older diesel engine.

As a result of the very low emissions from NTDE and the research conducted by HEI, it is projected that the project would not result in a significant increase in cancer health risks from the project's diesel emissions. Therefore, the project would have a less than significant health risk impact.

### Residential Receptors

As discussed above, the HRA analysis assumed DPM emissions from NTDE causes cancer (contrary to the HEI findings) and used a very conservative application of the "Current OEHHA Guidance" to the World Logistics Center project (which was provided for informational purposes). Although air quality significance thresholds have been established for outdoor environments, a significant portion of human exposure to air pollutants occurs indoors where people spend more than 90 percent of their time (USEPA, 2011). One approach to reduce exposure is the installation of high efficiency panel filters inside the HVAC system. Air filters and other air-cleaning devices are designed to remove pollutants from indoor air. Some are installed in the ductwork of a home's central heating, ventilating, and air-conditioning (HVAC) system to clean the air in the entire house. In studies of the effectiveness of air filtration systems in classrooms (SCAQMD, 2003) and by the EPA in residences (USEPA, 2010), the

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

combination of an HVAC system with a high performance panel filter reduced indoor levels of fine particulate matter, PM<sub>2.5</sub> and smaller particles by 70 to 90 percent.

The use of a filtration system consisting of the application of filters with a rating of ASHRSE Standard 52.2 MERV-13, as required by Mitigation Measure 4.3.5.4.A, is sufficient to capture a significant portion of the diesel particulate matter. However, the filtration system would not remove the smallest of particles (less than approximately 0.01 to 0.2 micrometer (μm) in diameter). MERV-13 filters would, however, reduce particles in the range of 0.3 to 1 micrometer (μm) by up to 75 percent and particles larger than 1 micrometer (μm) by 90 percent (see Table 1 of the Addendum to CARB, 2013b). Based on measurement studies of the size distribution of the collected DPM, approximately 0.1 to 10 percent of the total DPM mass includes particles between 0.01 and 0.2 micrometer (μm) in diameter, particles between 0.3 and 1 micrometer (μm) in diameter comprise 70 percent of the total DPM mass, and particles above 1 micrometer (μm) comprise 5 to 20 percent of the total DPM mass (DieselNet.com, 2002).

Since the cancer risk from DPM is calculated from the mass of DPM emitted, the quantity of DPM reduced by the action of air filters would thus equate to a reduction in cancer risk. The application of MERV-13 air filter filtration system would result in a reduction of DPM exposures by approximately 70 percent, as calculated below.

DPM size:	0.01 to 0.2 μm	0.3 to 1 μm	Greater than 1 μm
Calculation:	10% mass x 0% reduction	70% mass x 75%	20% mass x 90%
Reduction:	0% reduction	52.5% reduction	18% reduction

Attributing an adjustment for time that windows might be open, residents would be outside, or for different compounds that result in the cancer risk would reduce the efficacy of the filters by about 20 percent, bringing the total cancer risk reduction from the filters to 50 percent.

The use of the filters would bring the OEHHA-calculated risk below the SCAQMD threshold eliminating any possible risk from the project on any onsite or offsite receptors within the study area. Health risk impacts are less than significant and no further mitigation is required.

### School Site Receptors

With the application of the mitigation measures discussed above, the maximum cancer risk would be approximately 3.0 in one million at Bear Valley Elementary School for both the construction + operational scenario and the full operational scenario. Therefore, maximum impacts at schools are less than the 10 in one million significance threshold with the implementation of mitigation and are less than significant.

### Worker Receptors

The highest worker cancer risk estimates after the application of mitigation is approximately 1.8 in one million for the construction + operational scenario and 1.6 in one million for the full operational scenario. Therefore, cancer risk for worker receptors anywhere in the revised HRA's study area is less than the 10 in one million significance threshold with the implementation of mitigation and are less than significant.

### Cancer Burden

With the application of mitigation measures, the cancer burden is estimated to be 0.48 out of a population of about 142,397 individuals that were estimated to have a cancer risk of 1 in a million or more after mitigation. The is less than the SCAQMD threshold for cancer burden of 0.5. Therefore, the

project would not exceed the SCAQMD's cancer burden significance threshold after the application of mitigation.

In summary, the implementation of all the recommended mitigation measures, including the requirement to use 2010 diesel engine emissions standards, Tier 4 construction equipment, and installation of air filters at the identified on-site residence will reduce the OEHHA-calculated cancer risk to below 10 in one million at all sensitive receptors. Therefore, impacts would be less than significant.

Finally, note further that before mitigation, the cancer risk burden is estimated at 0.09 and is less than the SCAQMD cancer burden significance threshold of 0.5. Therefore, the project would not exceed the SCAQMD's cancer burden significance threshold.

**Summary of Project-Related Air Quality Impacts**

Based on the preceding analyses in Sections 4.3.5.1 through 4.3.6.5, the WLC project will have the following direct air quality impacts:

**Table 4.3-35: Summary of Project-Related Air Quality Impacts**

<b>Impact</b>	<b>Air Quality Topic/Issue</b>	<b>Impact Conclusion</b>
<b>Project Impacts</b>		
4.3.5.1	Odors	Less than Significant No Mitigation Required
4.3.5.2	Long-Term Micro-Scale CO Hotspot Emissions	Less than Significant No Mitigation Required
4.3.6.1	Air Quality Management Plan Consistency	Significant (inconsistent) and Unavoidable with Mitigation
4.3.6.2	Regional Construction Emissions	Significant and Unavoidable with Mitigation (VOC, NO <sub>x</sub> , CO, and PM <sub>10</sub> ; regional health effects from ozone and particulate matter)
4.3.6.3	Localized Construction and Operation (LSTs)	Significant and Unavoidable with Mitigation (PM <sub>10</sub> ) (onsite and offsite)
4.3.6.4	Regional Long-Term Operational Emissions	Significant and Unavoidable with Mitigation (VOC, NO <sub>x</sub> , CO, PM <sub>10</sub> , and PM <sub>2.5</sub> ; regional health effects from ozone, PM <sub>10</sub> , and PM <sub>2.5</sub> )
4.3.6.5	Sensitive Receptors (a) Localized PM <sub>10</sub>	Significant and Unavoidable for PM <sub>10</sub> with Mitigation (onsite) Less than Significant with Mitigation (offsite)
	(b) Non-Cancer Acute and Chronic Health Risks	Less than Significant
	(c) Cancer Risks – Sensitive Receptors	Less than Significant with Mitigation
	(d) Cancer Burden	Less than Significant
	(e) Cancer Risks – Workers	Less than Significant
	(f) Cancer Risks – School Sites	Less than Significant

**Table 4.3-31: Summary of Project-Related Air Quality Impacts**

<b>Impact</b>	<b>Air Quality Topic/Issue</b>	<b>Impact Conclusion</b>
<b>Project Impacts</b>		
4.3.5.1	<u>Odors (addressed in 2015 FEIR)</u>	<u>Less than Significant No Mitigation Required</u>
4.3.5.2	<u>Long-Term Micro-Scale CO Hotspot Emissions</u>	<u>Less than Significant No Mitigation Required</u>
4.3.6.1	<u>Air Quality Management Plan Consistency</u>	<u>Significant (inconsistent) and Unavoidable with Mitigation</u>
4.3.6.2	<u>Regional Construction Emissions</u>	<u>Significant and Unavoidable with Mitigation (VOC, NO<sub>x</sub>, CO, and PM<sub>10</sub>; regional health effects from ozone and particulate matter)</u>
4.3.6.3	<u>Localized Construction and Operation (LSTs)</u>	<u>Significant and Unavoidable with Mitigation (PM<sub>10</sub>) (onsite and offsite)</u>
4.3.6.4	<u>Regional Long-Term Operational Emissions</u>	<u>Significant and Unavoidable with Mitigation (VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; regional health effects from ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>)</u>
4.3.6.5	<u>Sensitive Receptors (a) Localized PM<sub>10</sub></u>	<u>Significant and Unavoidable for PM<sub>10</sub> with Mitigation (onsite and offsite)</u>
	<u>(b) Non-Cancer Acute and Chronic Health Risks</u>	<u>Less than Significant</u>
	<u>(c) Cancer Risks– Sensitive Receptors</u>	<u>Less than Significant with Mitigation</u>
	<u>(d) Cancer Burden</u>	<u>Less than Significant with Mitigation</u>
	<u>(e) Cancer Risks –Workers</u>	<u>Less than Significant with Mitigation</u>
	<u>(f) Cancer Risks – School Sites</u>	<u>Less than Significant with Mitigation</u>

**4.3.6.6 Summary of Health Effects of Air Quality Emissions**

Overall, the estimated health effects from ozone and PM<sub>2.5</sub> are minimal in light of background incidences. **Tables 4.3-32 through 4.3-35** below show the annual percent of background health incidence for PM<sub>2.5</sub> and Ozone health effects associated with the Unmitigated and Mitigated Project, respectively. The “background health incidence” is the actual incidence of health effects (based on available data) as estimated in the local population in the absence of additional emissions from the Project.<sup>32</sup> When taken into context, the small increase in incidences and the very small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment. There are no significance thresholds for health effects, thus this information is provided for background understanding regarding the air quality emissions.

Unmitigated Project Health Effects

**Table 4.3-32: BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.0051%	130,805
Mortality, All Cause [30-99]	0.0047%	325,048

<sup>32</sup> Background health statistics were obtained from data included in the BenMAP model, and the sources are referenced in the BenMAP manual (USEPA, 2018). For example, EPA obtained mortality rates from the Centers for Disease Control (CDC) WONDER database, and hospital admissions rates from the Healthcare Cost and Utilization Project (HCUP).

**Revised Sections of the Final Environmental Impact Report**

Hospital Admissions, Asthma [0-64]	0.0029%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00063%	224,047
Hospital Admissions, All Respiratory [65-99]	0.0016%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0020%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0021%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0020%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0020%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0019%	40,966

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences or “background health incidence”). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential PM<sub>2.5</sub>-related health effects associated with unmitigated Project-related increases in ambient air concentrations include asthma-related emergency room visits (6.63 incidences per year), asthma-related hospital admissions (0.52 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (1.42 incidences per year), all respiratory-related hospital admissions (3.17 incidences per year), mortality (15.19 incidences per year), and nonfatal acute myocardial infarction (less than 0.78 incidences per year for all age groups).

**Table 4.3-33: BenMAP-Estimated Annual Mean Ozone Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00075%	193,354
Mortality, Non-Accidental [0-99]	0.00033%	210,692
Emergency Room Visits, Asthma [0-17]	0.014%	50,722
Emergency Room Visits, Asthma [18-99]	0.010%	80,084

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences, or “background health incidence”). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential ozone-related health effects associated with unmitigated Project-related increases in ambient air concentrations include respiratory-related hospital admissions (1.46 incidences per year), mortality (0.69 incidences per year), and asthma-related emergency room visits for any age range (lower than 8.20 incidences per year for all age groups).

Mitigated Potential Health Effects

**Table 4.3-34: BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.0047%	130,805
Mortality, All Cause [30-99]	0.0044%	325,048
Hospital Admissions, Asthma [0-64]	0.0028%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00059%	224,047
Hospital Admissions, All Respiratory [65-99]	0.0015%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0019%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0020%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0019%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0019%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0018%	40,966

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences or "background health incidence"). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential PM<sub>2.5</sub>-related health effects associated with mitigated Project-related increases in ambient air concentrations include asthma-related emergency room visits (6.2 incidences per year), asthma-related hospital admissions (0.49 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (1.33 incidences per year), all respiratory-related hospital admissions (2.98 incidences per year), mortality (14.17 incidences per year), and nonfatal acute myocardial infarction (less than 0.724 incidences per year for all age groups).

**Table 4.3-35: BenMAP-Estimated Annual Mean Ozone Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00062%	193,354
Mortality, Non-Accidental [0-99]	0.00027%	210,692
Emergency Room Visits, Asthma [0-17]	0.011%	50,722
Emergency Room Visits, Asthma [18-99]	0.0085%	80,084

<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences, or "background health incidence"). Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

Source: Ramboll, 2019

Potential ozone-related health effects associated with mitigated Project-related increases in ambient air concentrations include respiratory-related hospital admissions (1.20 incidences per year), mortality (0.56 incidences per year), and asthma-related emergency room visits for any age range (lower than 6.84 incidences per year for all age groups).

Because the health effects from ozone and PM<sub>2.5</sub> are minimal in light of background incidences, and health effects from other criteria pollutants would be even smaller, the health effects of those other criteria pollutants were not quantified.

**Uncertainty.** Analyses that evaluate the increases in concentrations resulting from individual sources, and the health effects of increases or decreases in pollutants as a result of regulation on a localized basis, are routinely done. This analysis does not tie the increase in concentration to a specific health effect in an individual; however, it does use scientific correlations of certain types of health effects from pollution to estimate increases in effects to the population at large.

Aside from the uncertainty as to the causal basis of the statistical associations in air pollution epidemiology studies of PM and mortality, some epidemiological studies have found no correlation between mortality and increased PM (Enstrom, 2005; 2017; Lipfert et al., 2000; Murray and Nelson, 2000; Greven et al., 2011; You et al., 2018; Zhou et al., 2015). Although there are a greater number of publications reporting a positive PM association for mortality compared to those reporting no association.

There is a degree of uncertainty in these results from a combination of the uncertainty in the emissions themselves, the increase in concentration resulting from the PGM and the uncertainty of the application of the C-R increase. All simulations of physical processes, whether ambient air concentrations, or health effects from air pollution, have a level of uncertainty associated with them, due to simplifying assumptions. The overall uncertainty is a combination of the uncertainty associated with each piece of the modeling study, in this case, the emissions quantification, the emissions model, the PGM, and BenMAP. While these results reflect a level of uncertainty, regulatory agencies, including the USEPA have judged that, even with the uncertainty in the results, the results provide sufficient information to the public to allow them to understand the potential health effects of increases or decreases in air pollution (USEPA 2012).

**NOTE TO READERS:** This portion of the Revised Sections of the FEIR replaces portions of Section 4.7 of the FEIR. The cumulative portion of Section 4.7 has been deleted from the FEIR to allow for its reanalysis to include the impacts expected from other past, present and reasonably foreseeable future projects. The revised cumulative analysis can be found in Section 6.7 of this Revised Sections of the FEIR. Section 4.7, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 4.7 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). The absence of reference to a portion of Section 4.7 means that the corresponding portion of Section 4.7 in the FEIR prepared in 2015 remains unchanged or has been deleted.

## **4.7 GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE, AND SUSTAINABILITY**

~~Although not required by the Judge’s ruling, portions of the Traffic and Circulation analysis have been revised to: (1) Show the effect of using the trip generation rates shown in the most recent edition of the Institute of Transportation Engineer’s Trip Generation Manual. (2) Show the effect of the inclusion of the over 300 projects that cumulatively contribute to traffic impacts. As a result, Section 4.7 Greenhouse Gas Emissions, Climate Change, and Sustainability, Section 6.7 Greenhouse Gas Emissions, Climate Change, and Sustainability Cumulative, along with Appendix A, Air Quality, Greenhouse Gas, and Health Risk Assessment Report, have also been revised to show the effect of incorporating the applicable data from the revised traffic analysis.~~

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and an analysis of greenhouse gas (GHG) emissions associated with the World Logistics Center project. This analysis examines the short-term construction and long-term operational impacts and evaluates the effectiveness of measures incorporated as part of the project design.

This section analyzes the World Logistics Center project’s potential climate impacts based on the following technical studies:

*Air Quality, Greenhouse Gas, and Health Risk Assessment Report World Logistics Center Specific Plan (ESA, 2018) (Environmental Science Associates, dated November 2019) contained in Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR.*

*World Logistics Center (WLC) Transportation Energy Technical Study May 2018 (Environmental Science Associates and CALSTART, dated November 2019) contained in Appendix E.1 of this Draft Recirculated Revised Sections of the FEIR.*

*World Logistics Center (WLC) Comparison of Renewable Energy Technologies Report (WSP USA, Inc., dated May 2018) contained in Appendix E.2 of the Revised Sections of the FEIR.*

### **4.7.1 Existing Setting**

#### **4.7.1.1 Global Climate Change**

Global climate change is the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The term “global climate change” is often used interchangeably with the term “global warming,” but “global climate change” is preferred by some scientists and policy makers to “global warming” because it helps convey the notion that there are other changes in addition to rising temperatures.

Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind, lasting for decades or longer (U.S. Environmental Protection Agency [EPA], 2007). Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

The primary observed effect of global climate change has been a rise in the average global tropospheric<sup>1</sup> temperature of 0.36 degrees Fahrenheit (°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold and increased intensity of tropical cyclones (hurricanes). Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Delta.

Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO<sub>2</sub>) and other compounds, cumulatively termed greenhouse gases (GHGs). GHGs are effective in trapping infrared radiation that otherwise would have escaped the atmosphere, thereby warming the atmosphere, the oceans, and earth's surface (USEPA, 2007). Many scientists believe that "most of the warming observed over the last 50 years is attributable to human activities" (Intergovernmental Panel on Climate Change [IPCC], 2007d). The increased amounts of CO<sub>2</sub> and other GHGs are alleged to be the primary causes of the human-induced component of warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>). In the last 200 years, substantial quantities of GHGs have been released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, enhancing the natural greenhouse effect, which is believed to be causing global climate change. While human-made GHGs include CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere.

GHGs vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO<sub>2</sub>, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one-unit mass of the GHG to the ratio of heat trapped by one unit mass of CO<sub>2</sub> over a specified time period. GHG emissions are typically measured in terms of metric tons of "CO<sub>2</sub> equivalents" (mt CO<sub>2</sub>e or MTCO<sub>2</sub>e).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Human-made sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. As for CO<sub>2</sub>, the major removal process of atmospheric CH<sub>4</sub>—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH<sub>4</sub> concentrations in the atmosphere are increasing.

Worldwide emissions of GHGs in 2010 were approximately 47,351 million mt CO<sub>2</sub>e (World Resources Institute [WRI], 2018). Emissions from the top five countries and the European Union accounted for approximately 57 percent of the total global GHG emissions, according to the most recently available

---

<sup>1</sup> The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

data. The United States was the number two producer of GHG emissions, contributing 13 percent of the emissions. The primary GHG emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 82 percent of total GHG emissions. CO<sub>2</sub> from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 85 percent of the GHG emissions (WRI, 2018).

In 2016, the United States emitted approximately 5.3 billion mt CO<sub>2</sub>e or approximately 16.5 tons per year (tpy) per person. Of the six major sectors nationwide (electric power industry, transportation, industry, agriculture, commercial, and residential), the electric power industry and transportation sectors combined account for approximately 72 percent of the GHG emissions; the majority of the electrical power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2016, total United States GHG emissions rose approximately 2.8 percent (USEPA, 2018b).

World carbon dioxide emissions are expected to increase by 1.9 percent annually between 2001 and 2025 (USEIA, 2017). Much of the increase in these emissions is expected to occur in the developing world where emerging economies, such as China and India, fuel economic development with fossil energy. Developing countries' emissions are expected to grow above the world average at 2.7 percent annually between 2001 and 2025; and surpass emissions of industrialized countries near 2018.

The California Air Resources Board (CARB) is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the State of California and supports the Assembly Bill (AB) 32 Climate Change Program. The most recent inventory of GHG emissions in California estimated 440.4 million mt CO<sub>2</sub>e in 2015 (CARB, 2017d). This is a 2.2 percent increase in GHG emissions from 1990. The top contributor of emissions in 2015 was transportation, which contributed 37 percent of the emissions. The second highest sector was industrial (21 percent), which includes sources from refineries, general fuel use, oil and gas extraction, and cement plants. According to CARB, California is on track to meet the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32) (CARB, 2016a).

#### **4.7.1.2 Effects of Global Climate Change**

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use these data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The International Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean surface temperature change for 2081-2100 relative to the period from 1986 to 2005, given six scenarios, could range from 0.3 degrees Celsius (°C) to 4.8 °C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC, 2007c). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many of the aspects of global warming or climate change, including actual temperature changes during the 20<sup>th</sup> century, the accuracy of the IPCC report, and contributions of human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may

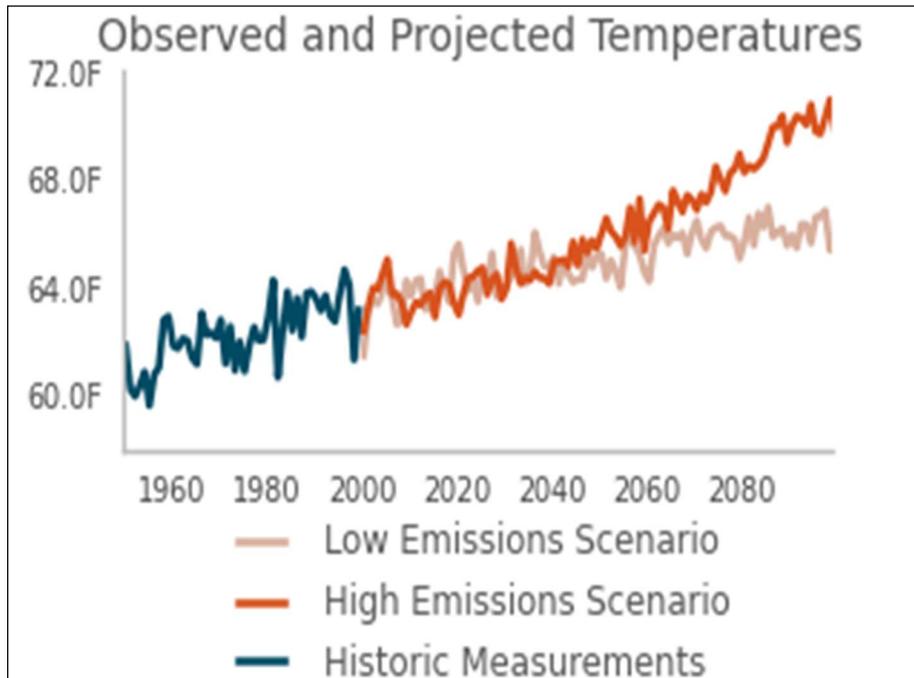
increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

Additionally, the following climate change effects, which are based on trends established by the IPCC, can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply. If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier.
- A rise in sea levels resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the project area as it is a significant distance away from coastal areas.)
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Precipitation, winds, temperature, and vegetation influence wildfire risk; therefore, wildfire risk is not uniform throughout the state. Changes in current precipitation patterns could influence that risk. As an example, wildfires in the grasslands and chaparral ecosystems of *southern* California are estimated to increase by approximately 30 percent toward the end of the 21<sup>st</sup> century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more *northern* California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas (see below).
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

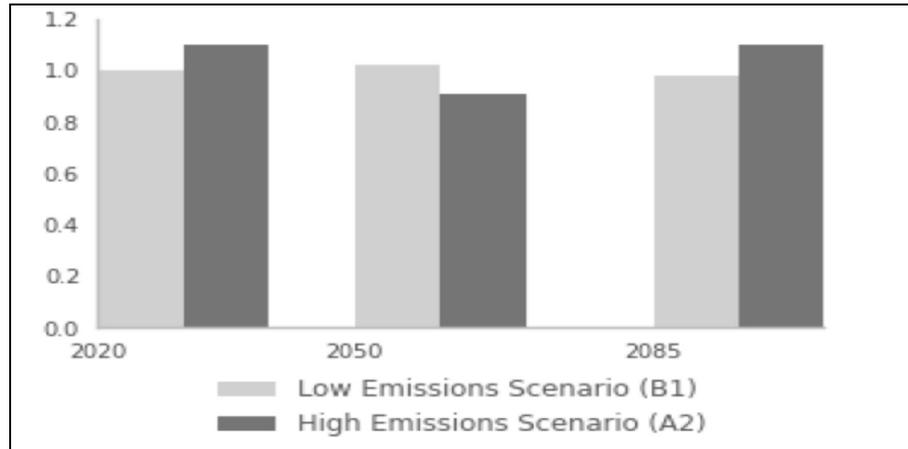
**Consequences of Climate Change in Moreno Valley.** The figure below displays a chart of measured historical and projected annual average temperatures in the Moreno Valley area. As shown in the figure, temperatures are expected to rise in the low and high GHG emissions scenarios.

Water for the project would be provided by the Eastern Municipal Water Department (EMWD). The EMWD 2015 Urban Water Management Plan considered the impact of climate change on water supplies as part of its long-term strategic planning. One of the outcomes of climate change could be more frequent limitations on imported supplies. To limit the impact of climate change, EMWD’s long-term planning focuses on the development of reliable local resources and the implementation of water use efficiency. This includes the full utilization of recycled water and the recharge of local groundwater basins to increase supply reliability during periods of water shortage. EMWD is also focused on reducing demand for water supplies, especially outdoors. Increasing the use of local resource and reducing the need for imported water has the dual benefit of not only improving water quality reliability, but reducing the energy required to import water to EMWD’s service area.



The figure below displays the fire risk in Moreno Valley relative to 2010 levels. The figure displays the projected increase in potential area burned given three different 30-year averaging periods ending in 2020, 2050, and 2085 and two different scenarios (A2, B1). The data are modeled solely on climate projections and do not take landscape and fuel sources into account (there is very little combustible material in the project area). The data modeled the ratio of additional fire risk for an area as compared to the expected burned area. The data are shown in the figure below and indicate that under the low-emissions scenario, the additional wildfire risk is about 1, which means that wildfire risk is expected to remain about the same. Under the high-emission scenario, additional risk is variable with a slight increase.

Wildfire Risk in Moreno Valley



## 4.7.2 Regulatory Setting

### 4.7.2.1 Federal Regulations/Standards

**Clean Vehicles.** Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation’s Highway Traffic and Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The vehicles had to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards were designed to cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO<sub>2</sub> per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (EPA 2012).

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses (also known as “Phase 1”). For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and up to a 15 percent reduction for diesel vehicles by 2018 model year (12% and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles (includes other vehicles like buses, refuse trucks, concrete mixers; everything except for combination tractors and heavy-duty pickups and vans), the agencies are proposing engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by the 2018 model year. Building on the success of the standards, the EPA and U.S. Department of Transportation jointly finalized additional standards (called “Phase 2”) for medium- and heavy-duty vehicles through

model year 2027 that will improve fuel efficiency and cut carbon pollution. The final standards are expected to lower CO<sub>2</sub> emissions by approximately 1.1 billion metric tons.

#### **4.7.2.2 State Regulations/Standards**

**California Code of Regulations Title 24, Part 6.** The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include mandatory requirements for efficiency and design of energy systems, including space conditioning (cooling and heating), water heating, and indoor and outdoor lighting systems and equipment, and appliances. California's Building Energy Efficiency Standards are updated on an approximately three-year cycle as technology and methods have evolved. The 2016 Standards, effective January 1, 2017, focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, and include requirements that will enable both demand reductions during critical peak periods and future solar electric and thermal system installations. The next code update (2019) is expected to focus on integrating solar photovoltaic (PV) and other renewables with energy storage, taking Title 24 another step closer toward the state's zero net energy (ZNE) goals as spelled out in the California Energy Efficiency Strategic Plan (CEC, 2011), calling for all new residential construction to be ZNE by 2020 and all new commercial construction to be ZNE by 2030.

**California Code of Regulations Title 24, Part 11.** The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

**Renewable Electricity Standards.** There have been several renewable electricity senate bills in California. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard (RPS) target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the CARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. Senate Bill X1-2 (2011) codifies the Renewable Electricity Standard into law.

**Senate Bill 100.** On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by December 31, 2030. Incrementally, these energy providers must also have a renewable energy supply of 44 percent by December 31, 2024, and 52 percent by December 31, 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

**Senate Bill 350.** The Clean Energy and Pollution Reduction Act of 2015 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator (ISO) into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the Legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

**Pavley Regulation, Advanced Clean Cars (ACC), and the California Mobile Source Strategy.** Assembly Bill 1493 (2002) requires CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In setting these standards, CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The federal Clean Air Act ordinarily preempts state regulation of motor vehicle emission standards; however, California is allowed to set its own standards with a federal waiver from the USEPA, granted in 2009. Known as the Pavley Clean Car Standards, AB 1493 regulated GHG emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for model years 2015 through 2025. The program includes components to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. The zero emissions vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEV) in the 2018 to 2025 model years (CARB, 2017f).

In May 2016, CARB released the updated Mobile Source Strategy that demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years, through a transition to zero-emission vehicles (ZEVs), cleaner transit systems and reduction of vehicle miles traveled. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 “last mile” delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels (CARB, 2016c).

**Executive Order B-16-2012 (Zero-Emission Vehicles).** This executive order indicates that all State entities under the Governor’s control support and facilitate the rapid commercialization of zero-emission vehicles. The order contains a target similar to Executive Order S-3-05, but for the transportation sector instead of all sectors: that California target for 2050 a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels. Executive order B-16-2012 also indicates that the CARB, the California Energy Commission, the Public Utilities Commission and other relevant agencies are ordered to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following:

- By 2015: The State’s major metropolitan areas able to accommodate zero-emission vehicles, each with infrastructure plans and streamlined permitting; the State’s manufacturing sector expend zero-emission vehicle and component manufacturing; an increase in the private sector’s investment in zero-emission vehicle infrastructure; and the State’s academic and research institutions contributing to zero-emission vehicle research, innovation and education.

- By 2020: The State's zero-emission vehicle infrastructure ability to support up to one million vehicles; the costs of zero-emission vehicles competitive with conventional combustion vehicles; zero-emission vehicles accessible to mainstream consumers; widespread use of zero-emission vehicles for public transportation and freight transport; and a decrease in transportation sector GHG emissions as a result of the switch to zero-emission vehicles; electric vehicle charging integrated into the electricity grid.
- By 2025: over 1.5 million zero-emission vehicles on California roads; easy access to zero-emission vehicle infrastructure in California; the zero-emission vehicle industry strong and sustainable part of California's economy; and California's vehicles displace at least 1.5 billion gallons of petroleum fuels per year.

**Sustainable Freight Action Plan.** Executive Order B-32-15 directed the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California's freight transport system. The targets are not mandates, but rather aspirational measures of progress towards sustainability for the State to meet and try to exceed. The targets include:

- System Efficiency Target: Improve freight system efficiency by 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030.
- Transition to Zero Emission Technology Target: Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
- Increased Competitiveness and Economic Growth Targets: Establish a target or targets for increased State competitiveness and future economic growth within the freight and goods movement industry based on a suite of common-sense economic competitiveness and growth metrics and models developed by a working group comprised of economists, experts, and industry. These targets and tools will support flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes and jobs, while working with industry to mitigate potential negative economic impacts. The targets and tools will also help evaluate the strategies proposed under the Action Plan to ensure consideration of the impacts of actions on economic growth and competitiveness throughout the development and implementation process.

**California Transportation Plan 2040.** The California Transportation Plan (CTP) 2040 provides a long-range policy framework to meet future mobility needs and reduce GHG emissions. The CTP defines goals, performance-based policies, and strategies to achieve maximum feasible emission reductions in order to attain a statewide reduction in GHG emissions.

The CTP 2040 recognizes that the Governor is committed to reduce by one-half current petroleum use in cars and trucks; increase from one-third to one-half the electricity derived from renewable sources; double the efficiency savings of existing buildings and make heating fuels cleaner; reduce the release of methane, black carbon, and other short-lived climate pollutants; and manage farm and rangelands, forests, and wetlands to store more carbon.

Transportation GHG reduction strategies within the CTP 2040 include demand management (including telecommuting/working at home, increased carpoolers, and increase car sharing), mode shift (including transit service improvements, high-speed rail, bus rapid transit, expanded bike and pedestrian facilities, carpool land occupancy requirements, and increased HOV lanes), travel cost (implement expanded pricing policies), and operational efficiency (incident/emergency management, Caltrans' Master Plan, ITS/TSM, and eco-driving).

**Low Carbon Fuel Standard, Executive Order S-01-07.** The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandated that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental

Protection to coordinate the actions of the California Energy Commission (CEC), the CARB, the University of California, and other agencies to develop and propose protocols for measuring the “life-cycle carbon intensity” of transportation fuels. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. The Low Carbon Fuel Standard requires producers of petroleum based fuels to reduce the carbon intensity of their products, beginning with a quarter of a percent in 2011, ending in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS Credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas or hydrogen. The Low Carbon Fuel Standard was challenged in the United States District Court in Fresno in 2011. The court’s ruling issued on December 29, 2011, included a preliminary injunction against the CARB’s implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the CARB to continue to implement and enforce the regulation and vacated the injunction on September 18, 2013, and remanded the case to the district court for further consideration. With the adoption of the 2017 Scoping Plan Update, the Low Carbon Fuel Standard has been increased to an 18 percent reduction in carbon intensity by 2030.

**Senate Bill 1383.** This bill creates goals for short-lived climate pollutant (SLCP) reductions in various industry sectors. The SLCPs included under this bill – including methane, fluorinated gases, and black carbon – are GHGs that are much more potent than carbon dioxide and can have detrimental effects on human health and climate change. SB 1383 requires the CARB to adopt a strategy to reduce methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030. The methane emission reduction goals include a 75% reduction in the level of statewide disposal of organic waste from 2014 levels by 2025. **Executive Order S-3-05.** Executive Order S-3-05 was signed by Governor Schwarzenegger in 2005 proclaiming California is vulnerable to the impacts of climate change. It states that increased temperatures could reduce the Sierra Nevada’s snowpack, worsen California’s air quality problems, and potentially cause a rise in sea levels. The Executive Order establishes total GHG emission targets including emissions reductions to the 2000 level by 2010, and the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target.

**Assembly Bill 32 (AB 32).** California’s major initiative for reducing GHG emissions is outlined in AB 32, the “Global Warming Solutions Act,” passed by the California State legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. The original 2020 GHG emissions limit was 427 million mt CO<sub>2</sub>e. The current 2020 GHG emissions limit is 431 million mt CO<sub>2</sub>e. AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change.

The Scoping Plan was approved by the CARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures (CARB, 2008b). The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, even after Board approval, remains a recommendation. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process. The CARB rule-making process includes preparation and release of each of the draft measures, public input through workshops and a public comment period, followed by a CARB hearing and rule adoption.

Pursuant to AB 32, the CARB and the Climate Action Team (CAT)<sup>2</sup> did the following:

- Adopted a list of discrete early action measures;

---

<sup>2</sup> CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of CARB’s jurisdiction.

- Established a statewide GHG emissions cap for 2020 based on 1990 emissions and adopted mandatory reporting rules for significant sources of GHG;
- Indicated how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions; and
- Adopted regulations to achieve the maximum technologically feasible and cost-effective reductions in GHG, including provisions for using both market mechanisms and alternative compliance mechanisms.

In June 2007, the CARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The CARB adopted additional early action measures in October 2007 (CARB, 2007a) that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and sulfur hexafluoride (SF<sub>6</sub>) reductions from the non-electricity sector. The combination of early action measures was estimated to reduce statewide GHG emissions by nearly 16 million mt CO<sub>2</sub>e (CARB, 2007b).

AB 32 codifies Executive Order S-3-05's<sup>3</sup> year 2020 goal by requiring that statewide GHG emissions be reduced to 1990 levels by the year 2020.

The first AB 32 Scoping Plan, published in 2008, identified a future cap-and-trade program covering refineries, power plants, industrial facilities, and transportation fuels as a central element of California's overall strategy to reduce GHG emissions to 1990 levels. More information on the Scoping Plan and California's Cap and Trade program is provided below.

**Amendments to California Global Warming Solutions Act of 2006: Emission Limit (Senate Bill 32):** Signed into law on September 8, 2016, Senate Bill (SB) 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit) amends HSC Division 25.5 and codifies the 2030 target in the recent Executive Order B-30-15 (40 percent below 1990 levels by 2030). The 2030 target is intended to ensure that California remains on track to achieve the goal set forth by Executive Order B-30-15 to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels. SB 32 states the intent of the legislature to continue to reduce GHGs for the protection of all areas of the state and especially the state's most disadvantaged communities, which are disproportionately impacted by the deleterious effects of climate change on public health (California Legislative Information Website 2017). SB 32 was passed with companion legislation AB 197, which provides additional direction for developing the Scoping Plan. In 2016, the California State Legislature adopted SB 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030, while AB 197 includes provisions to ensure the benefits of state climate policies reach into disadvantaged communities.

**California Cap and Trade Program.** Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is a core strategy that California is using to meet its statewide GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020 (CA, 2013a). Under the Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production, fuel suppliers, and large industrial

---

<sup>3</sup> Executive Order S-3-05 establishes greenhouse gas emission reduction targets for California.

facilities that emit more than 25,000 metric tons CO<sub>2</sub>e per year) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program's duration (CA, 2013b). On July 17, 2017 the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through 2030.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are assured on a State-wide basis.

Since 2015, fuels, such as gasoline, diesel, and natural gas, have been covered under the Cap-and-Trade Program. Fuel suppliers are required to reduce GHG emissions by supplying low carbon fuels or purchasing pollution permits, called "allowances," to cover the GHGs produced when the conventional petroleum-based fuel they supply is combusted.

**2008 Scoping Plan.** The California State Legislature adopted AB 32 in 2006 which focuses on reducing greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an "ambitious but achievable" reduction in California's greenhouse gas emissions, cutting approximately 30 percent from BAU emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman, and child in California down to about 10 tons per person by 2020.

The Scoping Plan (CARB, 2008b) contains the following 18 strategies to reduce the State's emissions:

1. *California Cap-and-Trade Program Linked to Western Climate Initiative.* Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
2. *California Light-Duty Vehicle Greenhouse Gas Standards.* Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. *Energy Efficiency.* Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.
4. *Renewable Portfolio Standard.* Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.
5. *Low Carbon Fuel Standard.* Develop and adopt the Low Carbon Fuel Standard.
6. *Regional Transportation-Related Greenhouse Gas Targets.* Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.
7. *Vehicle Efficiency Measures.* Implement light-duty vehicle efficiency measures.
8. *Goods Movement.* Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. *Million Solar Roofs Program.* Install 3,000 MW of solar-electric capacity under California's existing solar programs.

10. *Medium/Heavy-Duty Vehicles.* Adopt medium and heavy-duty vehicle efficiency measures.
11. *Industrial Emissions.* Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. *High Speed Rail.* Support implementation of a high-speed rail system.
13. *Green Building Strategy.* Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. *High Global Warming Potential Gases.* Adopt measures to reduce high global warming potential gases.
15. *Recycling and Waste.* Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.
16. *Sustainable Forests.* Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.
17. *Water.* Continue efficiency programs and use cleaner energy sources to move and treat water.
18. *Agriculture.* In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

**2014 Scoping Plan Update.** This First Update to California's Climate Change Scoping Plan (2014 Scoping Plan Update) was developed by the CARB in collaboration with the Climate Action Team and reflects the input and expertise of a range of state and local government agencies. The Update reflects public input and recommendations from business, environmental, environmental justice, utilities and community-based organizations provided in response to the release of prior drafts of the Update, a Discussion Draft in October 2013, and a draft Proposed Update in February 2014.

This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The First Update includes recommendations for establishing a mid-term emissions limit that aligns with the State's long-term goal of an emissions limit 80 percent below 1990 levels by 2050 and sector-specific discussions covering issues, technologies, needs, and ongoing State activities to significantly reduce emissions throughout California's economy through 2050. The focus areas include energy, transportation, agriculture, water, waste management, and natural and working lands (CARB, 2014a). With respect to the transportation sector, California has outlined several steps in the State's zero emission vehicle (ZEV) Action Plan to further support the market and accelerate its growth. Committed implementation of the actions described in the plan will help meet Governor Brown's 2012 Executive Order (EO) B-16-2012, which—in addition to establishing a more specific 2050 GHG target for the transportation sector of 80 percent from 1990 levels—called for 1.5 million ZEVs on California's roadways by 2025.

Achieving such an aggressive 2050 target will require innovation and unprecedented advancements in energy demand and supply (CARB, 2014a). Emissions from 2020 to 2050 will have to decline at more than twice the rate of that which is needed to reach the 2020 statewide emissions limit. In addition to our climate objectives, California also must meet federal clean air standards. Emissions of criteria air pollutants, including ozone precursors (primarily oxides of nitrogen, or NOX) and particulate matter, must be reduced by an estimated 90 percent by 2032 to comply with federal air quality standards. The scope and scale of emission reductions necessary to improve air quality is similar to that needed to meet long-term climate targets. Achieving both objectives will align programs and investments to leverage limited resources for maximum benefit.

**2017 Scoping Plan Update.** On December 14, 2017, CARB approved the final version of California's 2017 Climate Change Scoping Plan (2017 Scoping Plan Update), which outlines the proposed

framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels (CARB, 2017e). The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target Statewide 2030 emissions limit is 260 MMTCO<sub>2e</sub>, and that further commitments will need to be made to achieve an additional reduction of 50 MMTCO<sub>2e</sub> beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by E.O. B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030. These include:

- Extending the low carbon fuel standard (LCFS) beyond 2020 and increasing the carbon intensity reduction requirement to 18 percent by 2030;
- SB 350, which increase renewables portfolio standard (RPS) to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030;
- The 2016 Mobile Source Strategy is estimated to reduce emissions from mobile sources including an 80 percent reduction in smog-forming emissions and a 45 percent reduction in diesel particulate matter from 2016 level in the South Coast Air Basin, a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels;
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies (described in more detail below);
- SB 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- Assembly Bill 398, which extends the state Cap-and-Trade Program through 2030.

With respect to project-level GHG reduction actions and thresholds for individual development projects, the 2017 Scoping Plan Update Indicates,

*Beyond plan-level goals and actions, local governments can also support climate action when considering discretionary approvals and entitlements of individual projects through CEQA. Absent conformity with an adequate geographically-specific GHG reduction plan as described in the preceding section above, CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development (CARB, 2017e).*

#### **4.7.2.3 Regional Regulations**

Southern California Association of Governments (SCAG) Sustainable Communities Strategy (SCS) within Regional Transportation Plan (RTP) demonstrates the region's ability to attain and exceed the GHG emission reduction targets set by the CARB. The SCS outlines the plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as evidenced by several Compass Blueprint Demonstration Projects and various county transportation improvements. The SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network, which

emphasizes system preservation, active transportation, and transportation demand management measures.

The RTP/SCS exceeds its greenhouse gas emission-reduction targets set by the CARB by achieving an 8 percent reduction by 2020, an 18 percent reduction by 2035, and a 21 percent reduction by 2040 compared to the 2005 level on a per capita basis. Table 4.7-1 shows the assumptions regarding Moreno Valley that SCAG used in its 2016 analysis.

**Table 4.7-1: SCAG Assumptions for Moreno Valley**

<b>Year</b>	<b>Population</b>	<b>Households</b>	<b>Employment</b>
2012	197,600	51,800	31,400
2040	256,600	73,000	83,200

Source: Southern California Association of Governments 2016  
 ([http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf))

The RTP also includes an appendix on Goods Movement, which describes a process to develop and deploy needed technologies for improving efficiency of goods movement, along with key action steps for public sector agencies to help move the region to that objective. The 2016 RTP/SCS reaffirms zero- and near zero-emission technologies as a priority, and establishes the regional path forward towards improving the goods movement system.

**4.7.2.4 City of Moreno Valley Climate Action Strategy**

The City of Moreno Valley approved the Energy Efficiency and Climate Action Strategy (Strategy) in October 2012. The Strategy identifies ways that the City can reduce energy and water consumption and greenhouse gas emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and greenhouse gas emissions. The Strategy contains the following policies to reduce greenhouse gas emissions in 2010 by 15 percent by 2020:

- R2-T1 *Land Use Based Trips and VMT Reduction Policies.* Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3 *Employment-Based Trip Reductions.* Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1 *New Construction Residential Energy Efficiency Requirements.* Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.
- R2-E2 *New Construction Residential Renewable Energy.* Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off site.
- R2-E5 *New Construction Commercial Energy Efficiency Requirements.* Require energy efficient design for all new commercial buildings to be 10 percent beyond the current Title 24 standards.
- R3-E1 *Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining.* Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy-efficient projects.

- R3-L2      *Heat Island Plan.* Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.
- R2-W1      *Water Use Reduction Initiative.* Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1      *Water Efficiency Training and Education.* Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1      *City Diversion Program.* For solid waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

### **4.7.3 Methodology**

Bearing in mind that CEQA does not require “perfection” but instead “adequacy, completeness, and a good faith effort at full disclosure,” the analysis of project GHG emissions and climate change is based on methodologies and information available at the time the Revised Sections of the FEIR was prepared. Many uncertainties exist regarding the precise relationship between specific levels of GHG emissions and the ultimate impact on global climate. Significant uncertainties also exist regarding the reduction potential of mitigation strategies. Thus, while information is presented below to assist the public and the City’s decision-makers in understanding the project’s potential contribution to global climate change impacts, the information available to the City is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

The recommended approach for GHG analysis included in the California Governor’s Office of Planning and Research (OPR’s) June 2008 release is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance (Governor’s Office of Planning and Research, 2008). Neither the CEQA statute nor Guidelines prescribe quantitative thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the lead agency.

The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: “CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of General Plan policies and certification of General Plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews.”

Pursuant to SB 97, the OPR must develop guidelines for analysis of the effects of GHG emissions. As part of this process, the OPR asked CARB technical staff to recommend statewide interim thresholds of significance for GHGs. The CARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for significance criteria related to industrial, commercial, and residential projects. However, CARB’s staff did not adopt or suggest any new statewide thresholds. The OPR finalized its revised *CEQA Guidelines* without reference to CARB’s draft proposal.

In March 2010, *CEQA Guidelines* amendments were adopted and include the following direction regarding determination of significant impacts from GHG emissions (Section 15064.4):

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
- (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or
  - (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:
- (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
  - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
  - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

*CEQA Guidelines* Section 15064(b) provides that the “determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data,” and further, states that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

The updated analysis takes into account the following:

- ~~CalEEMod. The latest version of CalEEMod (Version 2016.3.2) was utilized to calculate GHG emissions from the following source categories: construction energy, waste, land use change, architectural coatings and water. For a detailed description of the assumptions used to estimate the GHG emissions, refer to the Air Quality, Greenhouse Gas, and Health Risk Assessment Report.~~
- *Operational Mobile Assumptions.* Operational mobile GHG emissions were estimated using the same procedures for the air quality analysis (which includes using EMFAC2014 EMFAC2017), which is consistent with updated Traffic Impact Analysis. Please refer to Section 4.3.3.2 in the Air Quality Section of this Revised Draft Recirculated Sections of the FEIR or the revised Air Quality, Greenhouse Gas, and Health Risk Assessment ~~(2018)-(2019)~~ for a list of those changes.
- *Vehicle Fuel Assumptions:* Mobile emissions in this analysis utilizes EMFAC2014 EMFAC2017's projected vehicle fuel mix for Phase 1 buildout year 2025 and project buildout year 2040 2035. ~~EMFAC2014 does not include population assumptions for electric or natural gas-fueled trucks.~~ Section 4.17, Energy, of this Revised Recirculated Sections of the Revised Sections of the FEIR addresses the potential penetration of electric trucks and potential use in association with the

project. Although the State has set targets for zero-emission vehicles, it would be speculative to assume that the High Penetration scenario discussed in Section 4.17 would be practicable or feasible by 2025 or by 2040 2035. The Low and Medium Penetration scenarios discussed in Section 4.17 are possible; however, as a worst-case analysis, the greenhouse gas analysis included herein does not factor in any potential emissions reductions provided by electric or natural gas-fueled trucks. For informational purposes only, emissions associated with the Medium Penetration scenario has been taken into account to show further emissions reduction potential.

For a detailed discussion of GHG emissions source and methodology, refer to Appendix A of this Recirculated Sections of the Revised Sections of the FEIR.

#### **4.7.4 Thresholds of Significance**

Based on Appendix G of the *CEQA Guidelines*, climate change/greenhouse gas emissions impacts would occur if the World Logistics Center project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., exceeds the SCAQMD's 10,000 mt CO<sub>2</sub>e emissions screening threshold of significance); and/or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Global climate change may result in significant adverse effects to the environment that will be experienced worldwide, with some specific effects observed in California. AB 32 requires statewide GHG emissions reductions to 1990 levels by 2020, and SB 32 requires statewide GHG emissions reductions to 40 percent below 1990 levels by 2030. Although these statewide reductions are now mandated by law, no generally applicable GHG emission threshold has yet been established.

*State CEQA Guidelines Section 15064(b)* provides that "...the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting." The *State CEQA Guidelines* further indicate that even when thresholds are established, they may include "identifiable quantitative, qualitative or performance level of a particular environmental effect" (*State CEQA Guidelines*, Section 15064.7).

Some policymakers and regulators suggest that a zero emissions threshold would be appropriate when evaluating GHGs and their potential effect on climate change. Such a rule appears inconsistent with the State's approach to mitigation of climate change impacts. AB 32 and SB 32 do not prohibit all new GHG emissions; rather, they require a reduction in statewide emissions to a given level. Thus, AB 32 and SB 32 recognize that GHG emissions will continue to occur; increases will result from certain activities, but reductions must occur elsewhere.

Individual projects incrementally contribute toward the potential for global climate change (GCC) on a cumulative basis in concert with all other past, present, and probable future projects. While individual projects are unlikely to measurably affect GCC, each of these projects incrementally contributes toward the potential for GCC on a cumulative basis, in concert with all other past, present, and probable future projects. This analysis examines whether the project's emissions should be considered cumulatively significant.

In order to evaluate the significance of a proposed project's environmental impacts related to GHG emissions, it is necessary to identify quantitative or qualitative thresholds which, if exceeded, would constitute a finding of significance. As previously described, while project-related GHG emissions can be estimated the direct impact of such emissions on climate change and global warming cannot be determined on the basis of available science. There is no evidence at this time that the World Logistics Center project would directly affect GCC. The SCAQMD has adopted a quantitative GHG emission

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

significance threshold to assess direct impacts from industrial projects where the SCAQMD is the lead agency. The SCAQMD and other air quality agencies agree that GHG and GCC should be assessed as a potentially significant cumulative impact rather than a project-specific impact.

The following is an excerpt from the SCAQMD (Draft Guidance Document – Interim CEQA Greenhouse Gas [GHG] Significance Threshold, October 2008):

*“The overarching policy objective with regard to establishing a GHG significance threshold for the purposes of analyzing GHG impacts pursuant to CEQA is to establish a performance standard or target GHG reduction objective that will ultimately contribute to reducing GHG emissions to stabilize climate change. Full implementation of the Governor’s Executive Order S-3-05 would reduce GHG emissions 80 percent below 1990 levels or 90 percent below current levels by 2050. It is anticipated that achieving the Executive Order’s objective would contribute to worldwide efforts to cap GHG concentrations at 450 ppm, thus, stabilizing global climate.*

*As described below, staff’s recommended interim GHG significance threshold proposal uses a tiered approach to determining significance. Tier 3, which is expected to be the primary tier by which the AQMD will determine significance for projects where it is the lead agency, uses the Executive Order S-3-05 goal as the basis for deriving the screening level.”*

This project utilizes Tier 3 of the SCAQMD’s draft threshold and compares the project’s ~~uncapped~~ greenhouse gas emissions to the SCAQMD’s threshold for industrial projects, 10,000 mt CO<sub>2</sub>e per year. Therefore, the threshold used for this project was based on the goal in Executive Order S-3-05. If the project’s emissions are under the threshold, then the project would be in compliance with Executive Order S-3-05.

In September 2013, the SCAQMD adopted two Negative Declarations stating that GHG emissions subject to the ARB Cap-and-Trade Program (so called “capped” emissions) do not count against the 10,000 MT CO<sub>2</sub>e significance threshold the SCAQMD applies when acting as a lead agency. In addition, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has recently taken this one issue a step further and adopted a policy: “CEQA Determinations of Significance for Projects Subject to ARB’s GHG Cap-and-Trade Regulation.” This policy applies when the SJVAPCD is the lead agency and when it is a responsible agency. In short, the SJVAPCD “has determined that GHG emissions increases that are covered under ARB’s Cap-and-Trade regulation cannot constitute significant increases under CEQA...” The SJVAPCD classifies ARB’s Cap-and-Trade Program as an approved GHG emission reduction plan or GHG mitigation program under CEQA Guidelines Section 15064(h) (3). Here are some other pertinent excerpts from that policy:

- “Consistent with CCR §15064(h)(3), the District finds that compliance with ARB’s Cap-and-Trade regulation would avoid or substantially lessen the impact of project-specific GHG emissions on global climate change.”
- “The District therefore concludes that GHG emissions increases subject to ARB’s Cap-and-Trade regulation would have a less than significant individual and cumulative impact on global climate change.”
- “[I]t is reasonable to conclude that implementation of the Cap-and-Trade program will and must fully mitigate project-specific GHG emissions for emissions that are covered by the Cap-and-Trade regulation.”
- “[T]he District finds that, through compliance with the Cap-and-Trade regulation, project-specific GHG emissions that are covered by the regulation will be fully mitigated.”

The policy acknowledges that “combustion of fossil fuels including transportation fuels used in California (on and off road including locomotives), not directly covered at large sources, are subject to

Cap-and-Trade requirements, with compliance obligations starting in 2015.” As such, the SJVAPCD concludes that GHG emissions associated with vehicle miles traveled (VMT) cannot constitute significant increases under CEQA. ~~This regulatory conclusion is therefore directly applicable to the WLC project because VMT is by far the largest source of project GHG emissions.~~ The consideration of only uncapped GHG emissions to determine the significance of those emissions under CEQA used by the SCAQMD and the SJVAPCD was validated in *Association of Irrigated Residents v. Kern County Board of Supervisors*, 17 Cal. App. 5th 708 (2017). The EIR’s GHG analysis properly relied on compliance with California’s cap-and-trade program to conclude that GHG emissions would be less than significant.

Table 4.7-4 shows project emissions separated into capped and uncapped sectors, as defined by California’s cap-and-trade program. California’s cap-and-trade program is enforceable and meets the requirements of AB 32 and SB 32. The program began on January 1, 2012, placing GHG emissions limits on capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 MT CO<sub>2</sub>e per year), and enforcing compliance obligations beginning with 2013 emissions. Vehicle fuels were placed under the cap in 2015, and with the passage of AB 398, the program was extended through 2030. The Cap-and-Trade Program allocates emissions permits across covered entities in each sector.

This regulatory conclusion is therefore directly applicable to the WLC project because VMT is by far the largest source of project GHG emissions. The analysis considers both the inclusion and exclusion of capped emissions, notably with the inclusion of mitigation measure 4.7.6.1E-1 and 4.7.6.1E-2 in Section 4.7.6, below. The applicable mitigation measure taken relies on the outcome of *Paulek v. Moreno Valley Community Services District*, Case No. E071184, in the Fourth District Court of Appeal, Second Division.

#### **4.7.5 Less than Significant Impacts**

Due to the size of the project, all potential impacts related to greenhouse gas emissions are considered to be potentially significant.

#### **4.7.6 Significant Impacts**

##### **4.7.6.1 Greenhouse Gas Emissions**

Impact	Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
--------	---

Future development that could occur within the World Logistics Center project site could generate GHG emissions during both construction and operation activities. The following activities are associated with the World Logistics Center project and could directly or indirectly contribute to the generation of GHG emissions:

- **Removal of Vegetation (Land Use Change) and Sequestration:** Carbon sequestration is the process of capture and storage of carbon dioxide; trees, vegetation, and soil store carbon in their tissues and wood. The net removal of vegetation for construction from land use change results in a loss of the carbon sequestration in plants. However, planting additional vegetation (sequestration) would result in additional carbon sequestration and would lower the carbon footprint of the project.
- **Construction Activities:** During construction of the World Logistics Center project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Leaks from installation of refrigeration equipment for air conditioning may occur.

- **Gas, Electric, and Water Use:** Natural gas use results in the emissions of CH<sub>4</sub> (the major component of natural gas) and CO<sub>2</sub> from the combustion of natural gas. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. Conveying water to the project and treating wastewater also uses electricity.
- **Solid Waste Disposal:** Solid waste generated by the World Logistics Center project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH<sub>4</sub> from the anaerobic decomposition of organic materials. CH<sub>4</sub> is approximately 21 times more potent than CO<sub>2</sub>. Landfill CH<sub>4</sub> can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use:** Transportation associated with the World Logistics Center project would result in GHG emissions from the combustion of fossil fuels and the use of electricity in daily automobile and truck trips.
- **On-site Equipment:** During operation of the World Logistics Center project, there would be on-site equipment operating, including yard trucks, emergency generators, and forklifts.

**Construction Emissions.** The World Logistics Center project would emit GHGs mainly from direct sources such as combustion of fuels from worker vehicles and construction equipment, as shown in Table 4.7-2. The GHG emissions are from all phases of construction. The SCAQMD recommends that construction emissions be averaged over a 30-year period.

**Table 4.7-2: Construction Greenhouse Gas Emissions (without mitigation)**

<b>Year</b>	<b>Annual Emissions (mt CO<sub>2</sub>e)</b>
2020	11,783
2021	11,447
2022	15,056
2023	11,036
2024	20,704
2025	12,384
2026	14,241
2027	11,982
2028	14,057
2029	12,930
2030	15,605
2031	11,894
2032	17,188
2033	15,872
2034	11,839
2035	14,082
<b>Total</b>	<b>222,098</b>
<b>Averaged over 30 years</b>	<b>7,403</b>
<b>Capped: Fuel-Based Emission Sources Averaged over 30 years</b>	<b>7,334</b>
<b>Uncapped: Refrigerant Installation and Construction Waste Averaged over 30 years</b>	<b>34</b>

**Table 4.7-2: Construction Greenhouse Gas Emissions (without mitigation)**

Year	Annual Emissions (mt CO <sub>2</sub> e)
------	---

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents.

Note: The SCAQMD recommends that construction emissions be averaged over a 30-year period.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018*

Sources include onsite construction equipment, worker trips, haul trips, vendor trips, refrigerant installation for the air conditioning in the offices, construction waste, and water use. Values presented in the table may not equal the sum due to rounding.

**Table 4.7-2: Construction Greenhouse Gas Emissions (without mitigation)**

Year	Annual Emissions (mt CO <sub>2</sub> e)
<u>2020</u>	<u>18,770</u>
<u>2021</u>	<u>22,198</u>
<u>2022</u>	<u>23,363</u>
<u>2023</u>	<u>23,511</u>
<u>2024</u>	<u>22,113</u>
<u>2025</u>	<u>16,408</u>
<u>2026</u>	<u>12,424</u>
<u>2027</u>	<u>11,692</u>
<u>2028</u>	<u>12,000</u>
<u>2029</u>	<u>11,452</u>
<u>2030</u>	<u>12,311</u>
<u>2031</u>	<u>10,610</u>
<u>2032</u>	<u>9,993</u>
<u>2033</u>	<u>7,451</u>
<u>2034</u>	<u>7,430</u>
<b><u>Total</u></b>	<b><u>221,727</u></b>
<b><u>Averaged over 30 years</u></b>	<b><u>7,391</u></b>

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents.

Note: The SCAQMD recommends that construction emissions be averaged over a 30-year period.

Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019*

Sources include onsite construction equipment, worker trips, haul trips, vendor trips, refrigerant installation for the air conditioning in the offices, construction waste, and water use. Values presented in the table may not equal the sum due to rounding.

**Total Emissions, Worst-Case Scenario.** Operational or long-term emissions occur over the life of the project. Included for informational purposes, operational emissions for a worst-case buildout condition are shown in Table 4.7-3. This is a worst-case analysis because it assumes that the entire project would be built-out in 2018 2020. The emissions are presented by greenhouse gas (in tons per year), which was also converted to metric tons of carbon dioxide equivalents (mt CO<sub>2</sub>e). The vehicle emissions in the table represent travel within the South Coast Air Basin. The emissions do not take into account mitigation measures to reduce emissions, such as the use of model year 2010 and later diesel trucks on the project site. As shown in the table, the project's uncapped emissions are over the SCAQMD's significance threshold of 10,000 mt CO<sub>2</sub>e per year. Therefore, emissions are potentially significant.

The analysis presented in Table 4.7-3 also represents a worst-case analysis because the emission factors do not take into account implementation of California's Mobile Source Strategy and the full reductions expected from newer trucks and cars as a result of the Pavley regulations, the Low Carbon Fuel Standard, and California's Advanced Clean Car program. The emissions are estimated using emission factors from EMFAG2014 EMFAC2017, CARB's emission factor model, for the year 2018 2020.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 4.7-3: Annual Project Operational GHG Emissions (Worst-Case 2018 Analysis at Buildout)**

Source	Individual Emissions (tons)					Greenhouse Gas Emissions (mt CO <sub>2</sub> e)
	Carbon Dioxide	Methane	Nitrous Oxide	Hydrofluoro-carbons	Black Carbon	
<b>AB 32/SB 32 Capped Emissions</b>						
— Mobile (net)	285,523	3.17	1.56	0.00	6.27	263,840
— Other	81,599	71.50	185.20	0.00	0.70	126,199
— Total	367,122	74.67	186.77	0.00	6.97	390,039
<b>Uncapped Emissions</b>	<b>9,804</b>	<b>504.67</b>	<b>0.00</b>	<b>1.95</b>	<b>0.00</b>	<b>22,974</b>
					<b>Threshold</b>	<b>10,000</b>
					<b>Significant?</b>	<b>Yes</b>

Notes:

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

The “other” emissions include the non-mobile capped emissions as presented in Table 4.7-4. below.

Source: ESA, 2018

**Table 4.7-3: Annual Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout)**

Source	Emissions (metric tons per year)					GHG Emissions (mt CO <sub>2</sub> e) <sup>1</sup>
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b>Capped Emissions</b>						
Construction	7,382	0.00	0.00	0.00	0.01	7,391
Net Mobile	245,516	6.84	31.06	0.00	8.10	261,099
Yard trucks	7,172	0.00	0.00	0.00	0.00	7,172
Generator	242	0.01	0.00	0.00	0.03	267
Forklifts	250	0.00	0.00	0.00	0.01	257
Electricity <sup>2</sup>	34,147	=	=	=	=	34,147
Water	2,548	=	=	=	=	2,548
Natural gas <sup>2</sup>	4,483	2.15	24.49	=	0.00	4,689
<b>Total Capped</b>	<b>300,931</b>	<b>44.13</b>	<b>144.66</b>	<b>0.00</b>	<b>8.16</b>	<b>317,570</b>
<b>Uncapped Emissions</b>						
Construction Refrigerants and Waste	104	0.00	0.00	0.05	0.00	166
Waste	7,747	457.83	0.00	=	=	19,193
Refrigerants	0	0.00	0.00	1.71	0.00	2,572
Land use change	1,154	0.00	0.00	0.00	0.00	1,154
Sequestration	-111	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>8,894</b>	<b>457.83</b>	<b>0.00</b>	<b>1.77</b>	<b>0.00</b>	<b>22,974</b>
Threshold	=	=	=	=	=	10,000
Significant impact?	=	=	=	=	=	Yes

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<sup>1</sup> mt CO<sub>2</sub>e is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072. <0.01 = less than 0.01.

<sup>2</sup> – Electricity and natural gas emissions estimates are based on minimum compliance with 2019 Title 24 building standards and compliance with RPS.

Source: ESA, 2019

**Total Project Emissions.** Table 4.7-4 shows the unmitigated capped and uncapped project emissions at buildout, including estimates of the project’s mobile emissions estimates for future years based on EMFAC<sub>2017</sub> emission factors for the actual year assessed, which take into account the Pavley regulations, the Low Carbon Fuel Standard, and California’s Advanced Clean Car program. Emissions are shown by individual GHG (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, and black carbon) and totaled used the common unit of metric tons CO<sub>2</sub>e based on the global warming potential of each gas. Emissions estimates for electricity and natural gas do not account for Project Design Features (described in Energy Section 4.17.5) that improve building energy efficiency and maximize the use of on-site renewable energy.

~~Table 4.7-4 shows project emissions separated into capped and uncapped sectors, as defined by California’s cap and trade program. California’s cap and trade program is enforceable and meets the requirements of AB 32 and SB 32. The program began on January 1, 2012, placing GHG emissions limits on capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 MT CO<sub>2</sub>e per year), and enforcing compliance obligations beginning with 2013 emissions. Vehicle fuels were placed under the cap in 2015, and with the passage of AB 398, the program was extended through 2030. The Cap and Trade Program allocates emissions permits across covered entities in each sector.~~

~~As shown in Table 4.7-4, the majority of the project’s GHG emissions are from sources that are subject to the requirements of the Cap and Trade Program. AB 32/SB 32 capped emissions are shown for informational purposes, as these emissions are not compared with the SCAQMD’s significance threshold.~~

**Table 4.7-4: Project GHG Emissions at Buildout by GHG (Unmitigated)**

Source	Emissions (tons per year)					GHG Emissions (mt CO <sub>2</sub> e)
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b><i>AB 32/SB 32 Capped Emissions</i></b>						
<i>On-road vehicles</i>	231,254	1.05	1.70	0.00	0.63	210,708
<i>Electricity<sup>1</sup></i>	60,348	62.33	158.06	0.00	0.00	54,947
<i>Construction<sup>2</sup></i>	7,550	1.36	<0.01	0.00	0.66	7,334
<i>Yard trucks</i>	5,634	0.00	0.00	0.00	0.00	5,109
<i>Electricity-convey water</i>	2,664	5.43	0.15	0.00	0.00	2,580
<i>Natural gas<sup>1</sup></i>	4,942	2.37	26.99	0.00	0.12	4,510
<i>Generator</i>	267	0.01	0.00	0.00	0.04	267
<i>Forklifts</i>	197	0.00	0.00	0.00	0.01	183
<b>Total AB 32/SB 32 Capped</b>	<b>312,853</b>	<b>72.55</b>	<b>186.90</b>	<b>0.00</b>	<b>1.33</b>	<b>285,639</b>
<i>Significant?</i>	–	–	–	–	–	No
<b><i>Uncapped Emissions</i></b>						
<i>Waste</i>	8,540	504.67	0.00	0.00	0.00	19,193

**Table 4.7-4: Project GHG Emissions at Buildout by GHG (Unmitigated)**

Source	Emissions (tons per year)					GHG Emissions (mt CO <sub>2</sub> e)
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
Land use change	1,272	0.00	0.00	0.00	0.00	1,154
Refrigerants	0	0.00	0.00	1.89	0.00	2,572
Construction*	115	0.00	0.00	0.06	0.00	166
Sequestration	-122	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>9,804</b>	<b>504.67</b>	<b>0.00</b>	<b>1.95</b>	<b>0.00</b>	<b>22,974</b>
Threshold	--	--	--	--	--	40,000
Significant impact?	--	--	--	--	--	Yes

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760) and converted to metric tons by multiplying by 0.0072. <0.01 = less than 0.01

1 – Electricity and natural gas emissions estimates are based on minimum compliance with 2016 Title 24 building standards

2 – Capped construction emissions are from on-road and off-road vehicles, electricity use for equipment, and water use. Uncapped construction emissions are from refrigerants and construction waste. Construction emissions are amortized over 30 years.

Source: ESA, 2018

**Table 4.7-4: Project GHG Emissions at Buildout (Unmitigated)**

Source	Emissions (metric tons per year)					GHG Emissions (mt CO <sub>2</sub> e) <sup>1</sup>
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b>Capped Emissions</b>						
Construction	7,382	0.00	0.00	0.00	0.02	7,391
Net Mobile	172,164	7.23	19.61	0.00	1.53	179,355
Yard trucks	7,172	0.00	0.00	0.00	0.00	7,172
Generator	242	0.01	0.00	0.00	0.03	267
Forklifts	250	0.00	0.00	0.00	0.01	257
Electricity <sup>2</sup>	34,147	=	=	=	=	34,147
Water	2,548	=	=	=	=	2,548
Natural gas <sup>2</sup>	4,483	2.15	24.49	=	0.00	4,689
<b>Total Capped</b>	<b>227,579</b>	<b>44.53</b>	<b>133.21</b>	<b>0.00</b>	<b>9.64</b>	<b>235,826</b>
<b>Uncapped Emissions</b>						
Construction Refrigerants and Waste	104	0.00	0.00	0.05	0.00	166
Waste	7,747	457.83	0.00	=	=	19,193
Refrigerants	0	0.00	0.00	1.71	0.00	2,572
Land use change	1,154	0.00	0.00	0.00	0.00	1,154
Sequestration	-111	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>8,894</b>	<b>457.83</b>	<b>0.00</b>	<b>1.77</b>	<b>0.00</b>	<b>22,974</b>
Threshold	=	=	=	=	=	10,000
Significant impact?	=	=	=	=	=	Yes

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

<sup>1</sup> - mt CO<sub>2</sub>e is calculated from the emissions (metric tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760)

<sup>2</sup> – Electricity and natural gas emissions estimates are based on minimum compliance with 2019 Title 24 building standards and compliance with RPS.

Source: ESA, 2019

---

The total emissions estimate for the project, summarized in Table 4.7-5, include both construction and operations emissions, and do not account for Project Design Features (described in Energy Section 4.17.5) that improve building energy efficiency and maximize the use of on-site renewable energy; nor do they account for the project's mitigation measures. ~~Table 4.7-5 shows a summary of AB 32/SB 32 capped and uncapped project emissions (unmitigated) for each year between 2020 and buildout.~~ Table 4.7-5 shows a summary of project emissions (unmitigated) for each year between 2020 and 2064. The analysis assumes the gradual phasing in of structures until buildout (2035) and the gradual phasing out of structures as they reach their presumed lifetime of 30 years. Therefore, the lifetime of the Project extends until 2064 when the final structures are presumed to have reached their 30-year lifetime. As shown in the table, the annual uncapped emissions in the year 2026 and after are over the SCAQMD's significance threshold of 10,000 mt CO<sub>2</sub>e per year for a majority of the years presented. Therefore, emissions are potentially significant, and mitigation is required.

**Table 4.7-5: Project GHG Emissions (Year by Year without Mitigation)**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)								
	2020	2021	2022	2023	2024	2025	2026	2027	
<b>AB 32/SB 32 Capped Emissions</b>									
On-road vehicles	0	14,688	29,376	48,960	68,544	104,914	126,417	137,770	
Electricity <sup>1</sup>	0	4,696	9,393	15,654	21,916	33,545	37,895	40,192	
Construction <sup>2</sup>	11,669	11,334	14,916	10,896	20,473	12,153	14,103	11,885	
Yard trucks	0	264	528	881	1,233	1,887	2,541	2,887	
Electricity to convey water	0	133	267	445	623	953	1,283	1,458	
Natural gas	0	381	763	1,271	1,779	2,723	3,087	3,278	
Generator	0	14	28	46	64	99	133	151	
Forklifts	0	9	19	32	44	68	91	104	
<b>Total AB 32 Capped Emissions</b>	<b>11,669</b>	<b>31,520</b>	<b>55,289</b>	<b>78,184</b>	<b>114,676</b>	<b>156,342</b>	<b>185,550</b>	<b>197,724</b>	
<b>Uncapped Emissions</b>									
Waste	0	992	1,985	3,308	4,632	7,089	9,547	10,844	
Land use change	0	60	119	199	279	426	574	652	
Refrigerants	0	133	266	443	621	950	1,279	1,453	
Construction refrigerants and waste <sup>2</sup>	114	114	140	140	231	234	198	132	
Sequestration	0	-6	-11	-19	-27	-41	-55	-63	
<b>Total Uncapped Emissions</b>	<b>114</b>	<b>1,293</b>	<b>2,499</b>	<b>4,072</b>	<b>5,735</b>	<b>8,656</b>	<b>11,543</b>	<b>13,019</b>	
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	
Significant impact?	No	No	No	No	No	No	Yes	Yes	

**Table 4.7-5: Project GHG Emissions (Year by Year without Mitigation)**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)															
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
<b>Capped Emissions</b>																
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430	
Net Mobile	0	22,089	42,984	62,716	81,169	97,097	103,414	113,746	123,988	133,464	142,515	151,159	159,397	167,226	174,639	
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924	

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Generator</u>	<u>0</u>	<u>30</u>	<u>61</u>	<u>91</u>	<u>121</u>	<u>151</u>	<u>163</u>	<u>175</u>	<u>187</u>	<u>199</u>	<u>211</u>	<u>222</u>	<u>234</u>	<u>246</u>	<u>258</u>
<u>Forklifts</u>	<u>0</u>	<u>29</u>	<u>58</u>	<u>87</u>	<u>117</u>	<u>145</u>	<u>157</u>	<u>168</u>	<u>180</u>	<u>191</u>	<u>203</u>	<u>214</u>	<u>226</u>	<u>237</u>	<u>248</u>
<u>Electricity</u>	<u>0</u>	<u>6,097</u>	<u>11,672</u>	<u>18,583</u>	<u>24,799</u>	<u>36,149</u>	<u>40,666</u>	<u>41,689</u>	<u>41,168</u>	<u>40,436</u>	<u>40,169</u>	<u>39,884</u>	<u>39,257</u>	<u>38,288</u>	<u>36,329</u>
<u>Water</u>	<u>0</u>	<u>133</u>	<u>267</u>	<u>445</u>	<u>623</u>	<u>953</u>	<u>1,283</u>	<u>1,458</u>	<u>1,562</u>	<u>1,667</u>	<u>1,817</u>	<u>1,986</u>	<u>2,156</u>	<u>2,326</u>	<u>2,437</u>
<u>Natural gas</u>	<u>0</u>	<u>0</u>	<u>545</u>	<u>1,089</u>	<u>1,634</u>	<u>2,723</u>	<u>3,080</u>	<u>3,259</u>	<u>3,438</u>	<u>3,617</u>	<u>3,795</u>	<u>3,974</u>	<u>4,153</u>	<u>4,331</u>	<u>4,510</u>
<u>Solar</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b><u>Total Capped</u></b>	<b><u>18,770</u></b>	<b><u>51,390</u></b>	<b><u>80,574</u></b>	<b><u>108,959</u></b>	<b><u>133,825</u></b>	<b><u>157,680</u></b>	<b><u>165,558</u></b>	<b><u>176,875</u></b>	<b><u>187,539</u></b>	<b><u>196,360</u></b>	<b><u>206,672</u></b>	<b><u>214,020</u></b>	<b><u>221,703</u></b>	<b><u>226,711</u></b>	<b><u>232,775</u></b>
<b>Uncapped Emissions</b>															
<u>Construction Refrigerants and Waste</u>	<u>209</u>	<u>209</u>	<u>209</u>	<u>209</u>	<u>206</u>	<u>102</u>	<u>141</u>	<u>144</u>	<u>141</u>	<u>141</u>	<u>141</u>	<u>141</u>	<u>141</u>	<u>141</u>	<u>118</u>
<u>Waste</u>	<u>0</u>	<u>2,175</u>	<u>4,349</u>	<u>6,524</u>	<u>8,698</u>	<u>10,847</u>	<u>11,698</u>	<u>12,549</u>	<u>13,423</u>	<u>14,274</u>	<u>15,125</u>	<u>15,976</u>	<u>16,827</u>	<u>17,678</u>	<u>18,529</u>
<u>Refrigerants</u>	<u>0</u>	<u>291</u>	<u>583</u>	<u>874</u>	<u>1,166</u>	<u>1,454</u>	<u>1,568</u>	<u>1,682</u>	<u>1,799</u>	<u>1,913</u>	<u>2,027</u>	<u>2,141</u>	<u>2,255</u>	<u>2,369</u>	<u>2,483</u>
<u>Land use change</u>	<u>0</u>	<u>131</u>	<u>262</u>	<u>392</u>	<u>523</u>	<u>652</u>	<u>704</u>	<u>755</u>	<u>807</u>	<u>858</u>	<u>910</u>	<u>961</u>	<u>1,012</u>	<u>1,063</u>	<u>1,114</u>
<u>Sequestration</u>	<u>0</u>	<u>-13</u>	<u>-25</u>	<u>-38</u>	<u>-50</u>	<u>-63</u>	<u>-68</u>	<u>-72</u>	<u>-77</u>	<u>-82</u>	<u>-87</u>	<u>-92</u>	<u>-97</u>	<u>-102</u>	<u>-107</u>
<b><u>Total Uncapped</u></b>	<b><u>209</u></b>	<b><u>2,793</u></b>	<b><u>5,377</u></b>	<b><u>7,961</u></b>	<b><u>10,543</u></b>	<b><u>12,992</u></b>	<b><u>14,043</u></b>	<b><u>15,057</u></b>	<b><u>16,093</u></b>	<b><u>17,104</u></b>	<b><u>18,116</u></b>	<b><u>19,127</u></b>	<b><u>20,138</u></b>	<b><u>21,149</u></b>	<b><u>22,137</u></b>
<u>Threshold</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
<u>Significant impact?</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>										

<b>GHG Unmitigated Emissions (mt CO<sub>2</sub>e/year)</b>								
<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>	<b>2032</b>	<b>2033</b>	<b>2034</b>	<b>2035</b>	<b>Buildout</b>
<b>AB 32/SB 32 Capped Emissions</b>								
144,593	151,416	161,152	172,192	183,233	194,274	201,510	208,747	210,708
41,572	42,952	44,922	47,155	49,389	51,622	53,086	54,550	54,947
13,960	12,806	15,470	11,759	17,052	15,772	11,739	14,029	7,334
3,094	3,302	3,598	3,934	4,270	4,606	4,826	5,046	5,109
1,562	1,667	1,817	1,986	2,156	2,326	2,437	2,548	2,580
3,394	3,509	3,673	3,860	4,046	4,233	4,355	4,478	4,510
162	173	188	206	223	241	252	264	267
111	118	129	141	153	165	173	181	183
208,448	215,943	230,949	241,233	260,523	273,238	278,378	289,842	285,638
<b>Uncapped Emissions</b>								
11,624	12,404	13,517	14,779	16,040	17,302	18,129	18,956	19,193
699	746	813	889	965	1,041	1,090	1,140	1,154
1,558	1,662	1,811	1,980	2,149	2,319	2,429	2,540	2,572
132	174	193	193	193	138	138	64	166
-67	-72	-78	-85	-93	-100	-105	-109	-111
<b>13,946</b>	<b>14,915</b>	<b>16,256</b>	<b>17,756</b>	<b>19,255</b>	<b>20,700</b>	<b>21,683</b>	<b>22,591</b>	<b>22,974</b>

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Yes									

**Notes:**

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1—Electricity and natural gas emissions estimates are based on minimum compliance with 2016 Title 24 building standard; includes electricity use by on-site EV chargers.

2—Capped construction emissions are from on-road and off-road vehicles, electricity use for equipment, and water use. Uncapped construction emissions are from refrigerants and construction waste. Construction would not occur at buildout; however, according to SCAQMD recommendations, it is included at buildout as the average over 30 years.

Source: *ESA, 2018*

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Mobile	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	34,147	29,379	26,115	22,850	19,586	16,322	13,057	9,793	6,529	3,264	0	0	0	0	0
Water	2,548	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	0	0	0	0	0
Natural gas	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>228,435</b>	<b>223,699</b>	<b>220,435</b>	<b>217,170</b>	<b>213,906</b>	<b>210,642</b>	<b>207,377</b>	<b>204,113</b>	<b>200,849</b>	<b>197,584</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	166	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193
Refrigerants	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Land use change	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Sequestration	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Total Uncapped</b>	<b>22,974</b>	<b>22,808</b>													
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	Yes														

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)															
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	Total (2020-2064)
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Net Mobile	154,246	132,651	107,890	87,750	57,330	45,453	40,481	37,820	35,334	32,020	28,614	25,570	22,850	21,257	19,775	5,114,971
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	230	198	161	131	85	68	60	56	53	48	43	38	34	32	29	7,620
Forklifts	221	190	155	126	82	65	58	54	51	46	41	37	33	30	28	7,340
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	636,226
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44,876
Natural gas	4,032	3,468	2,820	2,294	1,499	1,188	1,058	989	924	837	748	668	597	556	517	132,674
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>164,897</b>	<b>141,811</b>	<b>115,340</b>	<b>93,810</b>	<b>61,289</b>	<b>48,592</b>	<b>43,277</b>	<b>40,432</b>	<b>37,774</b>	<b>34,231</b>	<b>30,590</b>	<b>27,336</b>	<b>24,428</b>	<b>22,725</b>	<b>21,141</b>	<b>6,369,995</b>
<b>Uncapped Emissions</b>																
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,559
Waste	16,506	14,195	11,545	9,390	6,135	4,864	4,332	4,047	3,781	3,426	3,062	2,736	2,445	2,275	2,116	547,418
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
<b>Total Uncapped</b>	<b>19,615</b>	<b>16,869</b>	<b>13,720</b>	<b>11,159</b>	<b>7,291</b>	<b>5,780</b>	<b>5,148</b>	<b>4,809</b>	<b>4,493</b>	<b>4,072</b>	<b>3,639</b>	<b>3,252</b>	<b>2,906</b>	<b>2,703</b>	<b>2,515</b>	<b>653,096</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	450,000
Significant impact?	Yes	Yes	Yes	Yes	No	Yes										

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 – 2036 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 – Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: ESA, 2019

**Project Design Features.** The WLCSP incorporates site and building designs (Project Design Features) that emphasize conservation of water and energy, which in turn help reduce greenhouse gas emissions (WLCSP September 2014, Section 1.3.2, Green Building-Sustainable Development). The revised Project Design Features, as outlined in the *Comparison of Renewable Energy Technologies* report (WSP, 2018) and explained in detail in Energy Section 4.17.5, go substantially beyond that previous commitment with energy conservation measures (ECMs) that exceed minimal compliance with current (2016) Title 24 requirements by about 17 percent at Phase 1 and 16 percent at full buildout, and a commitment to maximize the use of onsite rooftop solar PV generation.

**Mitigation Measures.** The following mitigation measures would reduce the GHG emissions impact of the WLC project. Mitigation measures 4.7.6.1B, 4.7.6.1C, and 4.7.5.1D were previously included in the 2015 FEIR as Utilities Mitigation Measures 4.16.4.6.1A, 4.16.4.6.1B, and 4.16.4.6.1C to address building energy, but energy impacts have now been removed from the Utilities section and considered in the standalone Energy section of the Recirculated RSFEIR (Section 4.17).

**4.7.6.1A** The World Logistics Center project shall implement the following requirements to reduce solid waste and greenhouse gas emissions from construction and operation of project development:

- a) Prior to January 1, 2020, divert a minimum of 50 percent of landfill waste generated by operation of the project. After January 1, 2020, development shall divert a minimum of 75 percent of landfill waste. In January of each calendar year after project approval the developer and/or Property Owners Association shall certify the percentage of landfill waste diverted on an annual basis.
- b) Prior to January 1, 2020, recycle and/or salvage at least 50 percent of non-hazardous construction and demolition debris. After January 1, 2020, recycle and/or salvage at least 75 percent of non-hazardous construction and demolition debris. In January of each calendar year after project approval the developer and/or Property Owners Association shall certify the percentage of landfill waste diverted on an annual basis.

Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled. Calculations can be done by weight or volume, but must be consistent throughout.

- c) The applicant shall submit a Recyclables Collection and Loading Area Plan for construction related materials prior to issuance of a building permit with the Building Division and for operational aspects of the project prior to the issuance of the occupancy permit to the Public Works Department. The plan shall conform to the Riverside County Waste Management Department's Design Guidelines for Recyclable Collection and Loading Areas.
- d) Prior to issuance of certificate of occupancy, the recyclables collection and loading area shall be constructed in compliance with the Recyclables Collection and Loading Area plan.
- e) Prior to issuance of certificate of occupancy, documentation shall be provided to the City confirming that recycling is available for each building.
- f) Within six months after occupancy of a building, the City shall confirm that all tenants have recycling procedures set in place to recycle all items that are recyclable, including but not limited to paper, cardboard, glass, plastics, and metals.
- g) The property owner shall advise all tenants of the availability of community recycling and composting services.
- h) Existing onsite street material shall be recycled for new project streets to the extent feasible.

**4.7.6.1B** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1A for building energy). Each application for a building permit shall include energy calculations to demonstrate compliance with California Energy Efficiency Standards (Title 24, Part 6). Plans shall show the following:

- Energy-efficient roofing systems, such as “cool” roofs, that reduce roof temperatures significantly during the summer and therefore reduce the energy requirement for air conditioning.
- Cool pavement materials such as lighter-colored pavement materials, porous materials, or permeable or porous pavement, for all roadways and walkways not within the public right-of-way, to minimize the absorption of solar heat and subsequent transfer of heat to its surrounding environment.
- Energy-efficient appliances that achieve the 2016 California Appliance Energy Efficiency Standards (e.g. EnergyStar® Appliances) and use of sunlight-filtering window coatings or double-paned windows

**4.7.6.1C** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1B building energy). Prior to the issuance of any building permits within the WLC site, each project developer shall submit energy calculations used to demonstrate compliance with the performance approach to the California Energy Efficiency Standards, for each new structure. Plans may include but are not necessarily limited to implementing the following as appropriate:

- High-efficiency air-conditioning with electronic management system (computer) control.
- Isolated High-efficiency air-conditioning zone control by floors/separable activity areas.
- Use of Energy Star ® exit lighting or exit signage.

**4.7.6.1D** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1C building energy; now modified). Prior to the issuance of a building permit, new development shall demonstrate that each building has implemented the following:

- Install solar panels with a capacity equal to the peak daily demand for the ancillary office uses in each warehouse building or up to the limit allowed by MVU’s restriction on distributed solar PV connecting to their grid, whichever is greater;
- Increase efficiency for buildings by implementing either 10 percent over the 2019 Title 24’s energy saving requirements or the Title 24 requirements in place at the time the building permit is approved, whichever is more strict; and
- Require the equivalent of “Leadership in Energy and Environmental Design Certified” for the buildings constructed at the World Logistics Center based on Leadership in Energy and Environmental Design Certified standards in effect at the time of project approval.

This measure shall be implemented to the satisfaction of the Building and Safety and Planning Divisions.

Additionally, the following mitigation measures from other sections of the Revised Sections of the FEIR help reduce GHG emissions. The complete air quality and utilities mitigation measures can be found in the executive summary.

**Air Quality Mitigation Measure 4.3.6.2A (construction fuel)** would require that construction equipment greater than 50 horsepower be USEPA Tier 4 emissions compliant and limits on-site idling of all diesel-powered construction equipment, delivery vehicles, and delivery trucks to three minutes in any one hour.

**AQ Mitigation Measure 4.3.6.3B (long haul trucks).** Require the operation of model year 2010 diesel trucks or later.

**AQ Mitigation Measure 4.3.6.4A:** The following measures shall be incorporated as conditions to any Plot Plan approval within the Specific Plan:

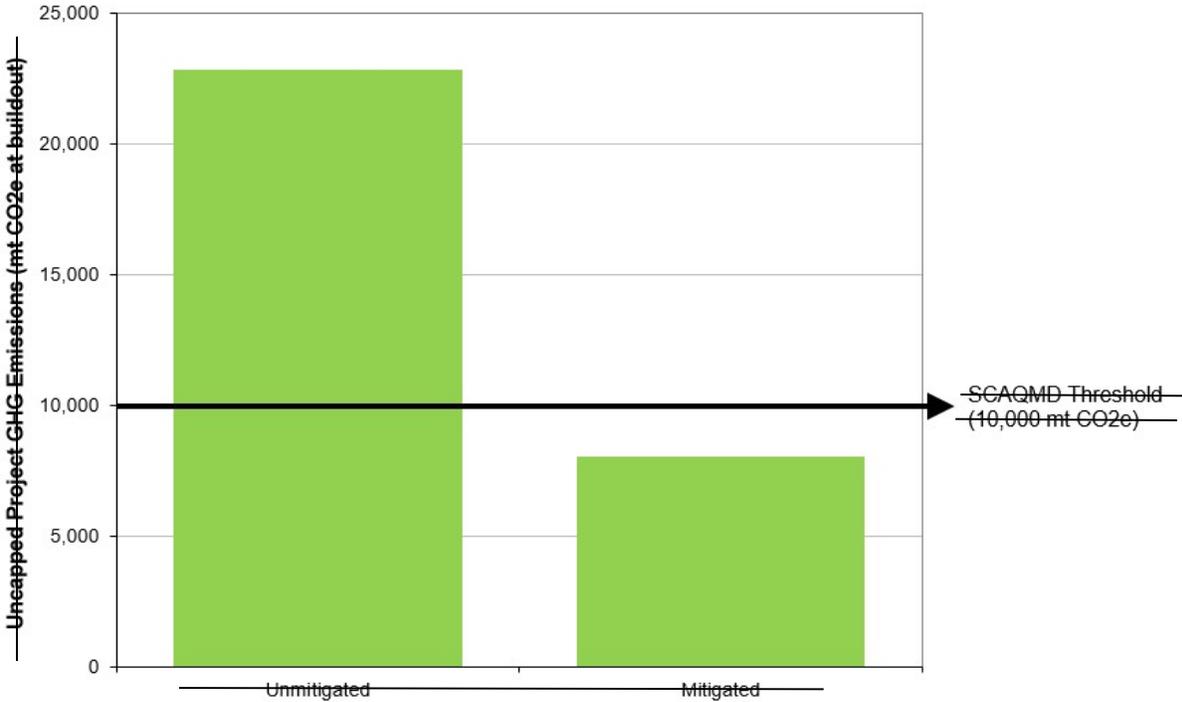
- All tenants shall be required to participate in Riverside County's Rideshare Program.
- Storage lockers shall be provided in each building for a minimum of three percent of the full-time equivalent employees based on a ratio of 0.50 employees per 1,000 square feet of building area. Lockers shall be located in proximity to required bicycle storage facilities.
- Class II bike lanes shall be incorporated into the design for all project streets.
- The project shall incorporate pedestrian pathways between on-site uses.
- Site design and building placement shall provide pedestrian connections between internal and external facilities.
- The project shall provide pedestrian connections to residential uses within 0.25 mile from the project site.
- A minimum of two electric vehicle-charging stations for automobiles or light-duty trucks shall be provided at each building. In addition, parking facilities with 200 parking spaces or more shall be designed and constructed so that at least six percent of the total parking spaces are capable of supporting future electric vehicle supply equipment (EVSE) charging locations. Sizing of conduit and service capacity at the time of construction shall be sufficient to install Level 2 Electric Vehicle Supply Equipment (EVSE) or greater.
- Each building shall provide indoor and/or outdoor - bicycle storage space consistent with the City Municipal Code and the California Green Building Standards Code. Each building shall provide a minimum of two shower and changing facilities for employees.
- Each building shall provide preferred and designated parking for any combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles equivalent to the number identified in California Green Building Standards Code Section 5.106.5.2 or the Moreno Valley Municipal Code whichever requires the higher number of carpool/vanpool stalls.
- The following information shall be provided to tenants: onsite electric vehicle charging locations and instructions, bicycle parking, shower facilities, transit availability and the schedules, telecommunicating benefits, alternative work schedule benefits, and energy efficiency.

**Utilities Mitigation Measure 4.16.1.6.1A** would reduce outdoor water usage which in turn reduces energy use associated with the conveyance of that water.

**Utilities Mitigation Measure 4.16.1.6.1B** would reduce interior water usage, including low flow fittings, fixtures and equipment.

**Utilities Mitigation Measure 4.16.1.6.1C** would allow reclaimed water to be used for irrigation.

Figure 4.7.1 displays the unmitigated and mitigated uncapped GHG emissions. As shown in the figure, the mitigated uncapped emissions are less than the significance threshold and are therefore less than significant.



**Figure 4.7.1: Uncapped Project GHG Emissions at Buildout**

Table 4.7-6 evaluates to what degree the mitigation measures (including the various PDFs of the project as described in Energy Section 4.17.5) will reduce potential GHG emissions.

Table 4.7-7 shows the project GHG emissions with implementation of Project Design Features and mitigation measures, at buildout only.

Table 4.7-8 shows the mitigated GHG emissions for each year between from 2020 and buildout through construction and 30-years operation of all Project facilities. Total uncapped GHG emissions are below the threshold of significance for every year and are therefore less than significant after mitigation.

~~AB 32/SB 32 capped emissions are shown for informational purposes, as those emissions are not compared with the SCAQMD's significance threshold. The tables indicate that with mitigation, the uncapped emissions would not exceed the significance threshold. GHG emissions are less than significant after mitigation.~~

**Level of Impact After Mitigation.** Less than significant.

**Table 4.7-6: Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
Construction Fuel	<b>Mitigation Measure 4.3.6.2A</b> would require that construction equipment be Tier 4.	This reduction was estimated in CalEEMod. Tier 4 construction equipment would have fewer PM2.5 emissions, and therefore black carbon emissions.
Construction Waste	Regulation in the California Green Building Standards require that projects divert (reduce or recycle) at least 50 percent of waste.	This reduction was estimated using the U.S. EPA's Waste Reduction Model (WARM) version 13.
On-road Vehicles: Local	<i>Project Design Feature:</i> Local bus service to the area is provided by the Riverside Transit Agency. Local bus routes would typically be extended into the project area when adequate demand is generated from this employment center. Future bus routes could circulate on available looped routes with adequate right-of-way along the major arterial roadways of Redlands Boulevard, Theodore Street, and Alessandro Boulevard. Likewise, the industrial collector roadways provide access to locations nearest building front entrances. Due to building scale, bus stops may be spread out by grouped entrances or centralized gateway drive areas as compared to individual business entries.	The California Air Pollution Control Officer's Association (CAPCOA) report's reduction measure TRT-1 indicates a 5.2 percent reduction in commute vehicle miles traveled for low-density suburbs for inclusion of a commute trip reduction program. However, this reduction is not used in this analysis.  In this Revised Sections of the FEIR, no reductions are taken for these measures in order to provide a conservative analysis.
	<b>Mitigation Measure 4.3.6.4A:</b> Class II bike lanes.	
	<b>Mitigation Measure 4.3.6.4A:</b> Participate in Riverside County's rideshare program	
	<b>Mitigation Measure 4.3.6.4A:</b> Lockers for employees.	
	<b>Mitigation Measure 4.3.6.4A:</b> Bicycle storage and changing rooms	
	<i>Project Design Features:</i> The project would have pedestrian circulation, sidewalks, and a multiuse trail.	
	<b>Mitigation Measure 4.3.6.4A:</b> Safe pedestrian connections	
<b>Mitigation Measure 4.3.6.4A:</b> Parking for fuel-efficient vehicles		
On-road Vehicles: Long haul trucks	<b>Mitigation Measure 4.3.6.3B:</b> Require model year 2010 diesel trucks or later.	This was implemented by utilizing the emission factors for medium-heavy duty and heavy-heavy duty trucks from <u>EMFAC2014</u> <u>EMFAC2017</u> for year 2010 and after.
On-road Vehicles: all	<p><i>Pavley-I Regulation:</i> A clean-car standard to reduce greenhouse gas emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.</p> <p><i>Low Carbon Fuel Standard:</i> A fuel standard that requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.</p> <p><i>California Mobile Source Strategy:</i> This 2016 plan includes targets for zero emission vehicles (ZEVs) that exceed assumptions included in EMFAC2017.</p> <p>Project design includes supporting infrastructure to accommodate future EV populations consistent with targets in the Mobile Source Strategy.</p>	<u>EMFAC2014</u> <u>EMFAC2017</u> provides emission factors for carbon dioxide that include these regulations. Therefore, both the unmitigated and mitigated emissions account for these regulations.

**Table 4.7-6: Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
Electricity and Natural Gas: Title 24	<p><b>Mitigation Measures 4.7.6.1B</b> and <b>4.7.6.1C</b> would reduce electricity related emissions. In addition, the project would be LEED certified for buildings and Mitigation Measure 4.7.6.1D would require buildings to exceed Title 24 (2019 version) by 10 percent or comply with the current version in place.</p> <p>Project design includes energy conservation measures that would enable the project to exceed 2019 Title 24 energy standards by lowering electrical demand with implementation of sustainability measures such as high efficiency appliances and skylights.</p>	Reductions from exceeding the requirements of Title 24 (2019) were accounted for in calculations.
Electricity: Lighting	<p><b>Mitigation Measures 4.7.6.1C</b> (lighting efficiency) and <b>4.7.6.1D</b> (Title 24) would reduce electricity from lighting.</p> <p>Project design includes energy conservation measures that lower electrical demand with implementation of sustainability measures such as high efficiency lighting and motion sensors.</p>	Reductions due to efficient lighting were accounted for in calculations.
Electricity: Solar	<p><b>Mitigation Measure 4.7.6.1D</b> requires that the project install solar panels.</p> <p>Project design includes on-site solar panel installation.</p>	The estimated electricity generation from onsite solar is 24,083 MWh per year, which is 5.0 percent of the electricity demand at buildout. Therefore, 5.0 percent of the unmitigated electricity-related GHG emissions are reduced by solar generation.
Water	<b>Mitigation Measure 4.16.1.6.1A</b> would reduce outdoor water usage	CalEEMod mitigation for water-efficient irrigation systems (6.1% reduction, CalEEMod default)
	<b>Mitigation Measure 4.16.1.6.1B</b> would reduce interior water usage, including low flow fittings, fixtures and equipment.	CalEEMod mitigation for: - low-flow toilet (20% reduction in flow, CalEEMod default) - low flow bathroom faucet (32% reduction in flow, CalEEMod default) - low-flow kitchen faucet (18% reduction in flow, CalEEMod default) - low-flow shower (20% reduction in flow, CalEEMod default)
	<b>Mitigation Measure 4.16.1.6.1C</b> would allow reclaimed water to be used for irrigation.	No reductions are taken for the potential use of reclaimed water.
Waste	<b>Mitigation Measure 4.7.6.1A:</b> Recycling and composting to divert construction and operational waste by at least 50 percent before 2020 and 75 percent thereafter.	The project would commit to reducing construction and operational waste by 50 percent prior to 2020 and 75 percent after; therefore, a 75 percent reduction is applied.
	<i>Project Design Feature:</i> Specific Plan (Section 5.1.6) requires that all development within the project provide enclosures or compactors for trash and recyclable materials.	

<sup>1</sup> Project design features are from the WLC Project Description and WLC Sustainable Energy Plan (WSP, 2018); mitigation measures are shown in Section 1.0, Table 1.B. Source: *Air Quality, Greenhouse Gas, and Health Risk Assessment Report*, 2018

**Table 4.7-7: GHG Reductions at Buildout (with Mitigation)**

Type of Emissions	Source	GHG Emissions (mt CO <sub>2</sub> e) at Buildout		
		Unmitigated	Reductions from Mitigation	With Reductions (Mitigated)
AB 32/SB 32 Capped Emissions	On-road vehicles	210,708	-112	210,596
	Electricity <sup>1</sup>	54,947	-4,579	50,368
	Construction <sup>2</sup>	7,334	0	7,334
	Yard trucks	5,109	0	5,109
	Electricity to convey water	2,580	-271	2,308
	Natural Gas <sup>1</sup>	4,510	-4,510	0
	Generator	267	19	286
	Forklifts	183	0	183
	Solar PV	0	-3,386	-3,386
	<b>Total</b>	<b>285,638</b>	<b>-12,840</b>	<b>272,799</b>
	Significant?	No	—	—
Uncapped Emissions	Waste	19,193	-14,395	4,798
	Land use change	1,154	0	1,154
	Refrigerants	2,572	0	2,572
	Construction waste and refrigerants <sup>2</sup>	166	-17	149
	Sequestration	-111	0	-111
	<b>Total</b>	<b>22,974</b>	<b>-14,412</b>	<b>8,563</b>
	Threshold	10,000	—	10,000
	Significant?	Yes	—	No

Notes:  
 mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide — 1, methane — 21, nitrous oxide — 310, hydrofluorocarbons — 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1—Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2—Capped construction emissions are from on-road and off-road vehicles, electricity use for equipment, and water use. Uncapped construction emissions are from refrigerants and construction waste. Construction would no longer occur at buildout; however, according to SCAQMD recommendations, construction emissions are included as amortized over 30 years.

Source: ESA, 2018

**Table 4.7-7: GHG Reductions at Buildout (with Mitigation)**

Source	GHG Emissions (mt CO <sub>2</sub> e) at Buildout		
	Unmitigated	Reductions from Mitigation	With Reductions (Mitigated)
<b>Capped Emissions</b>			
Construction	7,391	0	7,391
Net Mobile	179,355	-557	178,798
Yard trucks	7,172	0	7,172
Generator	267	19	286
Forklifts	257	0	257
Electricity	34,147	-4,715	29,432
Water	2,548	-268	2,280
Natural gas	4,689	-4,689	0
Solar	0	-3,386	-3,386
<b>Total Capped</b>	<b>238,686</b>	<b>-13,596</b>	<b>222,230</b>
<b>Uncapped Emissions</b>			
Construction Refrigerants and Waste	166	-17	149
Waste	19,193	-14,395	4,798
Refrigerants	2,572	0	2,572
Land use change	1,154	0	1,154
Sequestration	-111	0	-111
<b>Total Uncapped</b>	<b>22,974</b>	<b>-14,412</b>	<b>8,562</b>
<b>Threshold</b>	<b>10,000</b>	=	<b>10,000</b>
<b>Significant Impact?</b>	<b>Yes</b>	=	<b>No</b>

**Notes:**

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers. Electricity-based emissions result in an increase due to the inclusion of EV charging stations and electric outlets for electrical property maintenance equipment.

2 - Construction would no longer occur at buildout; however, according to SCAQMD recommendations, construction emissions are included as amortized over 30 years.

Source: ESA, 2019

**Table 4.7-8: Project GHG Emissions (Year by Year with Mitigation)**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)							
	2020	2021	2022	2023	2024	2025	2026	2027
<b>AB 32/SB 32 Capped Emissions</b>								
On-road vehicles	0	14,604	29,202	48,670	68,138	104,293	125,899	137,307
Electricity <sup>1</sup>	0	4,235	8,469	14,116	19,762	30,248	34,337	36,496
Construction <sup>2</sup>	11,669	11,334	14,916	10,896	20,473	12,153	14,103	11,885
Yard trucks	0	264	528	881	1,233	1,887	2,541	2,887
Electricity to convey water	0	119	239	398	557	853	1,148	1,304
Natural gas <sup>1</sup>	0	0	0	0	0	0	0	0
Generator	0	15	30	49	69	106	142	161
Forklifts	0	9	19	32	44	68	91	104
Solar PV	0	-179	-357	-595	-834	-1,276	-1,705	-1,931
<b>Total AB 32/SB 32 Capped Emissions</b>	<b>11,669</b>	<b>30,399</b>	<b>53,046</b>	<b>74,446</b>	<b>109,443</b>	<b>148,331</b>	<b>176,557</b>	<b>188,213</b>
<b>Uncapped Emissions</b>								
Waste	0	248	496	827	1,158	1,772	2,387	2,711
Land use change	0	60	119	199	279	426	574	652
Refrigerants	0	133	266	443	621	950	1,279	1,453
Construction waste and refrigerants <sup>2</sup>	97	97	123	123	214	214	181	115
Sequestration	0	-6	-11	-19	-27	-41	-55	-63
<b>Total Uncapped Emissions</b>	<b>97</b>	<b>532</b>	<b>993</b>	<b>1,574</b>	<b>2,245</b>	<b>3,322</b>	<b>4,366</b>	<b>4,869</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	No	No	No	No	No	No	No	No

**Table 4.7-8: Project GHG Emissions (Year by Year with Mitigation)**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Net Mobile	0	20,982	41,248	60,829	79,602	96,308	102,643	112,971	123,218	132,710	141,787	150,466	158,748	166,632	174,108
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	32	65	97	130	162	174	187	200	213	225	238	251	263	276
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	5,487	10,505	16,725	22,319	32,535	36,088	36,779	36,207	35,461	35,096	34,716	34,056	33,116	31,366
Water	0	119	239	398	557	853	1,148	1,304	1,398	1,492	1,626	1,778	1,929	2,081	2,181
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	0	-179	-357	-595	-834	-1,276	-1,705	-1,931	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203
<b>Total Capped</b>	<b>18,770</b>	<b>49,483</b>	<b>76,746</b>	<b>103,490</b>	<b>127,254</b>	<b>149,188</b>	<b>155,300</b>	<b>165,860</b>	<b>176,151</b>	<b>184,649</b>	<b>194,501</b>	<b>201,374</b>	<b>208,653</b>	<b>213,328</b>	<b>219,330</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	192	192	192	192	190	85	124	127	124	124	124	124	124	124	101
Waste	0	544	1,087	1,631	2,175	2,712	2,924	3,137	3,356	3,569	3,781	3,994	4,207	4,419	4,632
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>192</b>	<b>1,145</b>	<b>2,098</b>	<b>3,051</b>	<b>4,003</b>	<b>4,840</b>	<b>5,252</b>	<b>5,628</b>	<b>6,009</b>	<b>6,382</b>	<b>6,755</b>	<b>7,128</b>	<b>7,501</b>	<b>7,874</b>	<b>8,223</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)								
	2028	2029	2030	2031	2032	2033	2034	2035	Buildout
<b>AB 32/SB 32 Capped Emissions</b>									
On-road vehicles	144,163	151,018	160,801	171,895	182,989	194,083	201,354	208,625	210,596
Electricity <sup>1</sup>	37,794	39,094	40,943	43,043	45,143	47,242	48,619	49,995	50,368
Construction <sup>2</sup>	13,960	12,806	15,470	11,759	17,052	15,772	11,739	14,029	7,334
Yard trucks	3,094	3,302	3,598	3,934	4,270	4,606	4,826	5,046	5,109
Electricity to convey water	1,398	1,492	1,626	1,778	1,929	2,081	2,181	2,280	2,308
Natural gas <sup>1</sup>	0	0	0	0	0	0	0	0	0
Generator	173	185	201	220	239	258	270	282	286
Forklifts	111	118	129	141	153	165	173	181	183
Solar PV	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203	-3,347	-3,386
<b>Total AB 32/SB 32 Capped Emissions</b>	<b>198,626</b>	<b>205,810</b>	<b>220,371</b>	<b>230,152</b>	<b>248,938</b>	<b>261,149</b>	<b>265,958</b>	<b>277,092</b>	<b>272,799</b>
<b>Uncapped Emissions</b>									
Waste	2,906	3,101	3,379	3,695	4,010	4,326	4,532	4,739	4,798
Land-use change	699	746	813	889	965	1,041	1,090	1,140	1,154
Refrigerants	1,558	1,662	1,811	1,980	2,149	2,319	2,429	2,540	2,572
Construction refrigerants and waste <sup>2</sup>	115	147	176	176	176	121	121	47	149
Sequestration	-67	-72	-78	-85	-93	-100	-105	-109	-111
<b>Total Uncapped Emissions</b>	<b>5,211</b>	<b>5,595</b>	<b>6,102</b>	<b>6,655</b>	<b>7,208</b>	<b>7,706</b>	<b>8,069</b>	<b>8,357</b>	<b>8,563</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide — 1, methane — 21, nitrous oxide — 310, hydrofluorocarbons — 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1—Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2—Capped construction emissions are from on-road and off-road vehicles, electricity use for equipment, and water use. Uncapped construction emissions are from refrigerants and construction waste. Estimated construction emissions are included prior to buildout; at buildout, the total construction averaged over 30 years is shown.

Source: ESA, 2018

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Source</b>	<b>GHG Mitigated Emissions (mt CO<sub>2</sub>e/year)</b>														
	<b>2035 (Buildout)</b>	<b>2036</b>	<b>2037</b>	<b>2038</b>	<b>2039</b>	<b>2040</b>	<b>2041</b>	<b>2042</b>	<b>2043</b>	<b>2044</b>	<b>2045</b>	<b>2046</b>	<b>2047</b>	<b>2048</b>	<b>2049</b>
<b>Capped Emissions</b>															
<u>Construction</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Net Mobile</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>	<u>178,798</u>
<u>Yard trucks</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>
<u>Generator</u>	<u>286</u>	<u>286</u>	<u>267</u>												
<u>Forklifts</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>
<u>Electricity</u>	<u>29,432</u>	<u>26,712</u>	<u>23,744</u>	<u>20,776</u>	<u>17,808</u>	<u>14,840</u>	<u>11,872</u>	<u>8,904</u>	<u>5,936</u>	<u>2,968</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Water</u>	<u>2,280</u>	<u>2,308</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>								
<u>Natural gas</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Solar</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>
<b><u>Total Capped</u></b>	<b><u>214,839</u></b>	<b><u>212,148</u></b>	<b><u>209,161</u></b>	<b><u>206,193</u></b>	<b><u>203,225</u></b>	<b><u>200,257</u></b>	<b><u>197,289</u></b>	<b><u>194,321</u></b>	<b><u>191,353</u></b>	<b><u>188,385</u></b>	<b><u>183,109</u></b>	<b><u>183,109</u></b>	<b><u>183,109</u></b>	<b><u>183,109</u></b>	<b><u>183,109</u></b>
<b>Uncapped Emissions</b>															
<u>Construction Refrigerants and Waste</u>	<u>149</u>	<u>0</u>													
<u>Waste</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>
<u>Refrigerants</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>
<u>Land use change</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>
<u>Sequestration</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>
<b><u>Total Uncapped</u></b>	<b><u>8,563</u></b>	<b><u>8,414</u></b>													
<u>Threshold</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
<u>Significant Impact?</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)															
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	Total (2020-2064)
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Net Mobile	153,767	132,239	107,555	87,478	57,152	45,312	40,356	37,703	35,225	31,920	28,525	25,491	22,779	21,191	19,714	5,090,636
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	230	198	161	131	85	68	60	56	53	48	43	38	34	32	29	7,821
Forklifts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,122
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	563,449
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,159
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	-2,912	-2,505	-2,037	-1,657	-1,082	-858	-764	-714	-667	-605	-540	-483	-431	-401	-373	-92,091
<b>Subtotal, capped</b>	<b>157,252</b>	<b>135,237</b>	<b>109,993</b>	<b>89,461</b>	<b>58,448</b>	<b>46,339</b>	<b>41,270</b>	<b>38,557</b>	<b>36,023</b>	<b>32,644</b>	<b>29,172</b>	<b>26,068</b>	<b>23,295</b>	<b>21,671</b>	<b>20,161</b>	<b>6,042,384</b>
<b>Uncapped Emissions</b>																
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,289
Waste	4,126	3,549	2,886	2,348	1,534	1,216	1,083	1,012	945	857	765	684	611	569	529	136,855
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
<b>Subtotal, uncapped</b>	<b>7,236</b>	<b>6,223</b>	<b>5,061</b>	<b>4,116</b>	<b>2,689</b>	<b>2,132</b>	<b>1,899</b>	<b>1,774</b>	<b>1,658</b>	<b>1,502</b>	<b>1,342</b>	<b>1,199</b>	<b>1,072</b>	<b>997</b>	<b>928</b>	<b>242,263</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	450,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 – 2036 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 – Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: FSA, 2019

**Operational Emissions, Scoping Plan Scenario (Included for informational purposes only).** The emissions presented under the Scoping Plan scenario (Table 4.7-10) assume successful implementation of the 2017 Scoping Plan Update, which included the Mobile Source Strategy in addition to the Pavley regulations, the Low Carbon Fuel Standard, and California’s Advanced Clean Car program. The mobile emissions estimates for future years are based on emission factors that account for higher penetrations of electric vehicles (EVs) than assumed by EMFAC2017.

The Scoping Plan Scenario assumes that California’s 2016 Mobile Source Strategy (MSS) would be implemented as a key strategy in the 2017 Scoping Plan Update for meeting the state’s 2030 GHG target (presented in the Energy section as Vehicle Scenario B: Medium EV Penetration). The MSS has a target of 4.2 million zero emission vehicles (ZEVs) in operation statewide by 2030. As explained in the Energy Section, after 2025 the sales and penetration of ZEVs under the MSS start to exceed the numbers assumed by EMFAC2014 EMFAC2017. Table 4.7-9 shows that under the MSS approximately 8.4 5.2 percent of the passenger vehicle (LDA, LDT1, and LDT2) and light truck (LDT) (MDV) fleet is expected to be powered by electricity or other zero emission engines by 2025 in the South Coast AQMD region, compared to 6.2 2.5 percent of passenger vehicles and 1.6 percent of light trucks using EMFAC2014 EMFAC2017 assumptions. By 2040 2035, 42.2 21 percent of cars passenger vehicles and 22.5 percent of light trucks are expected to be ZEVs in the South Coast AQMD region, compared to 13.7 4.7 percent of passenger vehicles and 3.9 percent of light trucks using EMFAC2014 EMFAC2017 assumptions.

**Table 4.7-9: California and SCAQMD Electric Vehicle (EV) Penetration Estimates**

Jurisdiction	Year	EMFAC 2014				Mobile Source Strategy	
		Total LDA + LDT Population	EV Population	% EV	EV Sales in-year as % of total	EV Population	% EV
SCAQMD	2020	6,970,018	139,875	2.0%	4.9%	139,875	2.0%
	2025	7,700,136	475,480	6.2%	9.6%	646,695	8.4%
	2030	8,467,075	841,664	9.9%	9.6%	1,797,448	21.2%
	2040	9,634,507	1,316,666	13.7%	9.6%	4,064,551	42.2%
Statewide	2020	16,052,322	307,181	1.9%	4.9%	307,181	1.9%
	2025	17,860,364	1,075,826	6.0%	9.9%	1,500,000	8.4%
	2030	19,784,562	1,959,302	9.9%	9.6%	4,200,000	21.2%
	2040	22,755,593	3,133,990	13.8%	9.6%	9,600,000	42.2%

LDA = Passenger cars (EMFAC category)

LDT = Light Duty Trucks (EMFAC category)

Sources: CARB, 2014b – based on EMFAC2011 Categories, and EMFAC2014 Volume III – Technical Documentation

**Table 4.7-9: California and SCAQMD Electric Vehicle (EV) Penetration Estimates**

		Passenger Vehicles			Light Trucks		
		Total	EVs	% EVs	Total	EVs	% EVs
<b>South Coast Air Basin using EMFAC2017 Model</b>	2020	<u>9,125,366</u>	<u>103,722</u>	<u>1.1%</u>	<u>1,539,990</u>	<u>3,852</u>	<u>0.3%</u>
	2025	<u>10,034,980</u>	<u>252,889</u>	<u>2.5%</u>	<u>1,627,185</u>	<u>26,375</u>	<u>1.6%</u>
	2030	<u>10,907,401</u>	<u>417,413</u>	<u>3.8%</u>	<u>1,733,368</u>	<u>51,603</u>	<u>3.0%</u>
	2035	<u>11,642,018</u>	<u>546,208</u>	<u>4.7%</u>	<u>1,849,556</u>	<u>72,433</u>	<u>3.9%</u>
<b>South Coast Air Basin with Governor's order and MSS</b>	2020	<u>9,125,366</u>	<u>103,722</u>	<u>1.1%</u>	<u>1,539,990</u>	<u>3,852</u>	<u>0.3%</u>
	2025	<u>10,034,980</u>	<u>517,550</u>	<u>5.2%</u>	<u>1,627,185</u>	<u>83,921</u>	<u>5.2%</u>
	2030	<u>10,907,401</u>	<u>1,444,602</u>	<u>13.2%</u>	<u>1,733,368</u>	<u>229,571</u>	<u>13.2%</u>
	2035	<u>11,642,018</u>	<u>2,447,659</u>	<u>21.0%</u>	<u>1,849,556</u>	<u>416,980</u>	<u>22.5%</u>

LDA, LDT1, and LDT2 = Passenger cars (EMFAC category)

MDV = Light Duty Trucks (EMFAC category)

Sources: CARB, 2017b - based on EMFAC2011 Categories, and EMFAC2017 Volume III - Technical Documentation

For informational purposes only, emissions associated with the Scoping Plan Scenario (the Medium EV Penetration scenario) are shown in Table 4.7-10.

**Table 4.7-10: Project GHG Emissions (Year by Year with Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)							
	2020	2021	2022	2023	2024	2025	2026	2027
<b>AB 32/SB 32 Capped Emissions</b>								
On-road vehicles	0	14,622	29,245	48,744	68,238	104,445	124,584	135,216
Electricity <sup>1</sup>	0	4,302	8,605	14,341	20,078	30,731	37,945	41,815
Construction <sup>2</sup>	11,669	11,334	14,916	10,896	20,473	12,153	14,103	11,885
Yard trucks	0	264	528	884	1,233	1,887	2,541	2,887
Electricity to convey water	0	119	239	398	557	853	1,148	1,304
Natural gas <sup>1</sup>	0	0	0	0	0	0	0	0
Generator	0	15	30	49	69	106	142	161
Forklifts	0	9	19	32	44	68	91	104
Solar PV	0	-179	-357	-595	-834	-1,276	-1,705	-1,931
<b>Total AB 32/SB 32 Capped Emissions</b>	<b>11,669</b>	<b>30,488</b>	<b>53,224</b>	<b>74,742</b>	<b>109,858</b>	<b>148,966</b>	<b>178,890</b>	<b>191,441</b>
<b>Uncapped Emissions</b>								
Waste	0	248	496	827	1,158	1,772	2,387	2,711
Land-use change	0	60	119	199	279	426	574	652
Refrigerants	0	133	266	443	621	950	1,279	1,453
Construction refrigerants and waste <sup>2</sup>	97	97	123	123	214	214	181	115
Sequestration	0	-6	-11	-19	-27	-41	-55	-63
<b>Total Uncapped Emissions</b>	<b>97</b>	<b>532</b>	<b>993</b>	<b>1,573</b>	<b>2,245</b>	<b>3,321</b>	<b>4,366</b>	<b>4,868</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 4.7-10: Project GHG Emissions (Year by Year with Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Mobile	0	20,982	41,248	60,829	79,602	94,618	102,528	112,913	123,228	132,810	141,992	150,778	159,165	167,154	174,742
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	32	65	97	130	162	174	187	200	213	225	238	251	263	276
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	5,634	10,785	17,172	22,915	33,404	40,224	42,353	42,411	42,184	42,583	42,956	42,870	42,326	40,453
Water	0	119	239	398	557	853	1,148	1,304	1,398	1,492	1,626	1,778	1,929	2,081	2,181
Natural gas	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Solar	0	-179	-357	-595	-834	-1,276	-1,705	-1,931	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203
<b>Total Capped</b>	<b>18,770</b>	<b>49,629</b>	<b>77,027</b>	<b>103,937</b>	<b>127,851</b>	<b>148,367</b>	<b>159,322</b>	<b>171,376</b>	<b>182,365</b>	<b>191,474</b>	<b>202,194</b>	<b>209,926</b>	<b>217,884</b>	<b>223,060</b>	<b>229,051</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	192	192	192	192	190	85	124	127	124	124	124	124	124	124	101
Waste	0	544	1,087	1,631	2,175	2,712	2,924	3,137	3,356	3,569	3,781	3,994	4,207	4,419	4,632
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>192</b>	<b>1,145</b>	<b>2,098</b>	<b>3,051</b>	<b>4,003</b>	<b>4,840</b>	<b>5,252</b>	<b>5,628</b>	<b>6,009</b>	<b>6,382</b>	<b>6,755</b>	<b>7,128</b>	<b>7,501</b>	<b>7,874</b>	<b>8,223</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)								
	2028	2029	2030	2031	2032	2033	2034	2035	Buildout
<b>AB 32/SB 32 Capped Emissions</b>									
On-road vehicles	141,606	147,996	157,114	167,455	177,795	188,135	194,912	201,689	203,526
Electricity <sup>1</sup>	44,117	46,418	49,703	53,427	57,152	60,877	63,318	65,759	66,421
Construction <sup>2</sup>	13,960	12,806	15,470	11,759	17,052	15,772	11,739	14,029	7,334
Yard trucks	3,094	3,302	3,598	3,934	4,270	4,606	4,826	5,046	5,109
Electricity to convey water	1,398	1,492	1,626	1,778	1,929	2,081	2,181	2,280	2,308
Natural gas <sup>1</sup>	0	0	0	0	0	0	0	0	0
Generator	173	185	201	220	239	258	270	282	286
Forklifts	111	118	129	141	153	165	173	181	183
Solar PV	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203	-3,347	-3,386
<b>Total AB 32/SB 32 Capped Emissions</b>	<b>202,392</b>	<b>210,115</b>	<b>225,444</b>	<b>236,096</b>	<b>255,753</b>	<b>268,835</b>	<b>274,216</b>	<b>285,920</b>	<b>281,781</b>
<b>Uncapped Emissions</b>									
Waste	2,906	3,101	3,379	3,695	4,010	4,326	4,532	4,739	4,798
Land use change	699	746	813	889	965	1,041	1,090	1,140	1,154
Refrigerants	1,558	1,662	1,811	1,980	2,149	2,319	2,429	2,540	2,572
Construction refrigerants and waste <sup>2</sup>	115	157	176	176	176	121	121	47	149
Sequestration	-67	-72	-78	-85	-93	-100	-105	-109	-111
<b>Total Uncapped Emissions</b>	<b>5,211</b>	<b>5,594</b>	<b>6,101</b>	<b>6,655</b>	<b>7,207</b>	<b>7,707</b>	<b>8,067</b>	<b>8,357</b>	<b>8,562</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 – Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 – Capped construction emissions are from on-road and off-road vehicles, electricity use for equipment, and water use. Uncapped construction emissions are from refrigerants and construction waste. Estimated construction emissions are included prior to buildout; at buildout, the total construction averaged over 30 years is shown.

Source: ESA, 2018

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Source</b>	<b>GHG Mitigated Emissions (mt CO<sub>2</sub>e/year)</b>														
	<b>2035 (Buildout)</b>	<b>2036</b>	<b>2037</b>	<b>2038</b>	<b>2039</b>	<b>2040</b>	<b>2041</b>	<b>2042</b>	<b>2043</b>	<b>2044</b>	<b>2045</b>	<b>2046</b>	<b>2047</b>	<b>2048</b>	<b>2049</b>
<b>Capped Emissions</b>															
<u>Construction</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Mobile</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>	<u>172,356</u>
<u>Yard trucks</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>	<u>7,172</u>
<u>Generator</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>	<u>286</u>
<u>Forklifts</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>	<u>257</u>
<u>Electricity</u>	<u>38,279</u>	<u>34,818</u>	<u>30,949</u>	<u>27,080</u>	<u>23,212</u>	<u>19,343</u>	<u>15,475</u>	<u>11,606</u>	<u>7,737</u>	<u>3,869</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Water</u>	<u>2,280</u>	<u>2,308</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>								
<u>Natural gas</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>Solar</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>	<u>-3,386</u>
<b>Total Capped</b>	<b><u>217,245</u></b>	<b><u>213,812</u></b>	<b><u>209,943</u></b>	<b><u>206,075</u></b>	<b><u>202,206</u></b>	<b><u>198,337</u></b>	<b><u>194,469</u></b>	<b><u>190,600</u></b>	<b><u>186,731</u></b>	<b><u>182,863</u></b>	<b><u>176,686</u></b>	<b><u>176,686</u></b>	<b><u>176,686</u></b>	<b><u>176,686</u></b>	<b><u>176,686</u></b>
<b>Uncapped Emissions</b>															
<u>Construction Refrigerants and Waste</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Waste</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>	<u>4,798</u>
<u>Refrigerants</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>	<u>2,572</u>
<u>Land use change</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>	<u>1,154</u>
<u>Sequestration</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>	<u>-111</u>
<b>Total</b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>	<b><u>8,414</u></b>
<u>Threshold</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
<u>Significant Impact?</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)															Total (2020-2064)
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Mobile	148,226	127,475	103,680	84,326	55,093	43,680	38,902	36,344	33,956	30,770	27,497	24,572	21,958	20,428	19,003	4,963,844
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	246	211	172	140	91	72	65	60	56	51	46	41	36	34	32	8,152
Forklifts	221	190	155	126	82	65	58	54	51	46	41	37	33	30	28	7,340
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	680,637
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,159
Natural gas	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Solar	-2,912	-2,505	-2,037	-1,657	-1,082	-858	-764	-714	-667	-605	-540	-483	-431	-401	-373	-92,091
<b>Total Capped</b>	<b>151,950</b>	<b>130,677</b>	<b>106,284</b>	<b>86,444</b>	<b>56,477</b>	<b>44,777</b>	<b>39,879</b>	<b>37,257</b>	<b>34,808</b>	<b>31,543</b>	<b>28,188</b>	<b>25,189</b>	<b>22,510</b>	<b>20,941</b>	<b>19,481</b>	<b>6,034,349</b>
<b>Uncapped Emissions</b>																
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,140
Waste	4,126	3,549	2,886	2,348	1,534	1,216	1,083	1,012	945	857	765	684	611	569	529	136,855
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
<b>Total Uncapped</b>	<b>7,236</b>	<b>6,223</b>	<b>5,061</b>	<b>4,116</b>	<b>2,689</b>	<b>2,132</b>	<b>1,899</b>	<b>1,774</b>	<b>1,658</b>	<b>1,502</b>	<b>1,342</b>	<b>1,199</b>	<b>1,072</b>	<b>997</b>	<b>928</b>	<b>242,114</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	450,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 – 2035 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 – Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: ESA, 2019

4.7.6.2 Greenhouse Gas Plan, Policy, Regulation Consistency

Impact	Would the proposed project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?
--------	--

This impact assesses whether the project would conflict with any applicable plans, policies, or regulations, as discussed below.

**Federal and State Reduction Strategies.** Table 4.7-11 evaluates the consistency of the World Logistics Center project with the various Federal and State energy conservation strategies and other regulations related to GHG emissions.

**Table 4.7-11: Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<b>Mandatory Codes</b>	
<b>California Green Building Code.</b> The Cal Green Code (Title 24, Part 11) prescribes a wide array of measures that would directly and indirectly result in reduction of GHG emissions from the Business as Usual Scenario (California Building Code). The mandatory measures that are applicable to nonresidential projects include site selection, energy efficiency, water efficiency, materials conservation and resource efficiency, and environmental quality measures.	<b>Consistent.</b> The project will be required to adhere to the non-residential mandatory measures as required by the Cal Green Code.
<b>Energy Efficiency Measures</b>	
<b>Energy Efficiency.</b> Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).	<b>Consistent with Mitigation Incorporated.</b> The project will comply with current California Building Code (CBC) requirements for building construction. <b>Mitigation Measures 4.7.6.1B</b> and <b>4.7.6.1C</b> would increase energy efficiency. <b>Mitigation Measure 4.7.6.1D</b> would require that the project exceed Title 24 (2019 version) by 10 percent or comply with the current version. The WLC Project Design Features (explained in detail in Energy Section 4.17.5) go further by committing the project to energy conservation measures that will enable the project to exceed the more rigorous 2019 Title 24 requirements by approximately 17 percent at Phase 1 and 16 percent at full buildout.
<b>Renewables Portfolio Standard.</b> Achieve a 50 percent renewable energy mix statewide by 2050. Qualifying renewable energy sources under the RPS include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	<b>Not Applicable.</b> The project is not part of the State's power generation grid, but would install solar photovoltaic panels on project roofs pursuant to <b>Mitigation Measure 4.7.6.1D</b> . The solar PV would reduce the project's electricity related emissions by approximately 5.0 percent. In addition, Moreno Valley Electric Utility is subject to the Renewable Portfolio Standard.

**Table 4.7-11: Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<b>Water Conservation and Efficiency Measures</b>	
<p><b>Water Use Efficiency.</b> Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. The CalGreen Code, including the California Plumbing Code (Part 5), promotes water conservation. Title 20 and includes appliance and fixture efficiency standards that promote water conservation.</p>	<p><b>Consistent with Mitigation Incorporated.</b> The project will be required to adhere to the non-residential mandatory measures as required by the Cal Green Code and the Specific Plan outlines a number of water conservation measures, and <b>Mitigation Measures 4.16.1.6.1A</b> through <b>4.16.1.6.1C</b> will help reduce potential water use even further.</p>
<b>Solid Waste Reduction Measures</b>	
<p><b>Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste.</b> AB 341 mandates commercial recycling and sets a goal that 75 percent of the state's solid waste generated be reduced, recycled, or composted by 2020. AB 1826 adds requirements regarding mandatory commercial organics recycling. SB 1383 requires methane emissions reduction from landfills and sets statewide disposal targets to reduce landfilling of organic waste by 50 percent from the 2014 level by 2020, and 75 percent from the 2014 level by 2025.</p>	<p><b>Consistent with Mitigation Incorporated.</b> Data available from the California Integrated Waste Management Board (CIWMB) indicate that the City of Moreno Valley has not achieved the 50 percent diversion rate. The project will comply with <b>Mitigation Measure 4.7.6.1A</b> to help increase solid waste diversion, composting, and recycling. The measure would also require 50 percent diversion of construction waste prior to 2020 and 75 percent diversion starting in 2020.</p>
<b>Transportation and Motor Vehicle Measures</b>	
<p><b>Pavley Regulations and Vehicle Fuel Efficiency Standards.</b> AB 1493 (Pavley) and the Advanced Clean Car (ACC) program require the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light-duty trucks. Regulations were adopted by the CARB in September 2004 and expanded with the ACC program in 2012.</p>	<p><b>Consistent.</b> The project does not involve the manufacture of vehicles or production of vehicle fuels. However, vehicles that are purchased and used within the project site would comply with any vehicle and fuel standards that the CARB adopts or has adopted. In addition, the project would require that all diesel trucks be 2010 or newer (<b>Mitigation Measure 4.3.6.3B</b>) and would be built to support the charging of future electric-powered vehicles anticipated by the Mobile Source Strategy. The Project design also includes supporting infrastructure to accommodate future EV populations consistent with targets in the Mobile Source Strategy.</p>
<p><b>Light-Duty Vehicle Efficiency Measures.</b> Implement additional measures that could reduce light-duty vehicle GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency.</p>	
<p><b>Heavy- and Medium-Duty Fuel and Engine Efficiency Measures.</b> Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles.</p>	
<p><b>Mobile Source Strategy.</b> This 2016 plan includes a target of 4.2 million zero emission vehicles (ZEVs) by 2030, and GHG reductions from medium-duty and heavy-duty vehicles, and transit. It also includes reductions in GHGs from medium-duty and heavy-duty vehicles via the Phase 2 Medium and Heavy-Duty GHG Standards.</p>	

**Table 4.7-11: Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<p><b>Low Carbon Fuel Standard.</b> The CARB identified this measure as a Discrete Early Action Measure in the 2008 Scoping Plan. As included in the Mobile Source Strategy, this measure would reduce the carbon intensity of California’s transportation fuels by at least 18 percent by 2030.</p>	
<p><b>Sustainable Freight Action Plan.</b> The 2016 plan directs the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California’s freight transport system.</p>	
<p><b>Regional Transportation-Related GHG Targets.</b> Develop regional GHG emissions reduction targets for passenger vehicles, as required by SB 375. Local governments will play a significant role in the regional planning process to reach passenger vehicle GHG emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces GHGs associated with vehicle travel.</p>	<p><b>Not Applicable.</b> Specific regional emission targets for transportation emissions do not directly apply to the WLC project; regional GHG reduction target development is outside the scope of this project. The project will comply with any plans developed by the City of Moreno Valley.</p>
<p><b>Measures to Reduce High Global Warming Potential (GWP) Gases.</b></p>	
<p><b>Short-Lived Climate Pollutant Strategy.</b> SB 1383 (2016) requires the CARB to approve and implement Short-Lived Climate Pollutant strategy to reduce high GWP GHGs to achieve a statewide reduction in methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030.</p>	<p><b>Not Applicable.</b> New products used or serviced on the WLC project site (after implementation of the reduction of GHG gases) would comply with future CARB rules and regulations, as would vehicles (with their refrigerants used in air conditioning systems) visiting the site.</p>

AB = Assembly Bill CARB = California Air Resources Board  
 GHG = greenhouse gas  
 Source: based on analysis in the *Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2018*

With implementation of applicable strategies/measures, project design features, and mitigation measures, the project’s contribution to cumulative GHG emissions would be reduced. In order to ensure that the World Logistics Center project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32 and SB 32, the Mitigation Measures and Project design Features listed in the above table shall be implemented.

The project will comply with existing State and Federal regulations regarding the energy efficiency of buildings, appliances, and lighting. The warehouse buildings will be built in compliance with the California Building Code to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices. In addition, **Mitigation Measure 4.7.6.1D** requires that the project will exceed the Title 24 energy conservation standards (2019 version) by 10 percent or comply with the current version, while the WLC Project Design Features go even further by committing the project to energy conservation measures that will enable the project to exceed the more rigorous 2016 2019 Title 24 requirements by approximately 17 percent at Phase 1 and 16 percent at full buildout.

**CARB Scoping Plan and the California Cap and Trade Program.** AB 32 focuses on reducing GHG emissions to 1990 levels by the year 2020, while SB 32 has a target of 40 percent below

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

1990 levels by 2030. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which contains a variety of strategies to reduce the State’s emissions. The First Update to the Scoping Plan was approved in 2014 and the Second Update was approved in 2017 following the passage of SB 32. As described in Section 4.7.2.2—State Regulations/Standards, AB 398 extended California’s cap and trade program through 2030 and the program is adopted as a core strategy in the 2017 Scoping Plan Update for meeting the state’s GHG reduction targets for 2020 and 2030. The 2017 Scoping Plan Update incorporates all of the state’s GHG reduction strategies included in Table 4.7-11. Table 4.7-12 considers the strategies in 2017 Scoping Plan Update that are not included in Table 4.7-11, indicating that all are either consistent with or not applicable to the project; therefore, the project does not conflict with the Scoping Plan.

**Table 4.7-12: Analysis of Additional Measures in the 2017 Scoping Plan Update**

Scoping Plan Reduction Measure	Consistency Analysis
<p><del>1. <b>California Cap and Trade Program Linked to Western Climate Initiative.</b> Implement a broad-based California Cap and Trade program to provide a firm limit on emissions. Link the California cap and trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California’s program meets all applicable AB 32 requirements for market based mechanisms.</del></p>	<p><del><b>Not Applicable.</b> California’s cap and trade system covers products or services (such as electricity) and the cost of the cap and trade system would be transferred to the consumers. Large industrial uses are the most likely source of participants for this program, and it is not likely individual logistics warehousing will be an active participant in this program. Under AB 32 and SB 32, emissions from natural gas use, transportation fuel use, and electricity generation are covered under the cap and trade program and subject to the program’s emission reduction requirements.</del></p>
<p><del>16. <b>Carbon Sequestration in Natural and Working Lands.</b> Natural and working lands—including forests and agricultural lands—are a key sector in the State’s climate change strategy. Storing carbon in trees, other vegetation, soils, and aquatic sediment is an effective way to remove carbon dioxide from the atmosphere. The 2017 Scoping Plan Update describes policies and programs that prioritize protection and enhancement of California’s landscapes, and commits the State to finalizing a carbon sequestration and GHG emissions reduction goal for natural and working lands by September 2018</del></p>	<p><del><b>Not Applicable.</b> No forested lands exist on site. As reported in the Agriculture and Forestry Resources section 4.2.1, approximately 2,200 acres of the 2,610-acre Specific Plan area is currently dry farmed, mainly with winter wheat. However, the state’s Natural and Working Lands Climate Change Implementation Plan has not been adopted, and there is no protection currently in place to preserve the site for agriculture. Further, as described in the Agriculture and Forestry Resources section, the conversion of the existing agricultural lands to urban uses is supported by the City’s General Plan policies, and the entire project site and adjacent lands have been designated for urban uses for nearly 20 years by the City. The Agriculture and Forestry Resources section concludes that project implementation will result in less than significant impacts to conversion of Farmland of Local Importance.</del></p>

Source: CARB, 2017e

**Table 4.7-12: Analysis of Additional Measures in the 2017 Scoping Plan Update**

<u>Scoping Plan Reduction Measure</u>	<u>Consistency Analysis</u>
<u>16. Carbon Sequestration in Natural and Working Lands. Natural and working lands – including forests and agricultural lands – are a key sector in the State’s climate change strategy. Storing carbon in trees, other vegetation, soils, and aquatic sediment is an effective way to remove carbon dioxide from the atmosphere. The 2017 Scoping Plan Update describes policies and programs that prioritize protection and enhancement of California’s landscapes, and commits the State to finalizing a carbon sequestration and GHG emissions reduction goal for natural and working lands by September 2018</u>	<u><b>Not Applicable.</b> No forested lands exist on site. As reported in the Agriculture and Forestry Resources section 4.2.1, approximately 2,200 acres of the 2,610-acre Specific Plan area is currently dry farmed, mainly with winter wheat. However, the state’s Natural and Working Lands Climate Change Implementation Plan has not been adopted, and there is no protection currently in place to preserve the site for agriculture. Further, as described in the Agriculture and Forestry Resources section, the conversion of the existing agricultural lands to urban uses is supported by the City’s General Plan policies, and the entire project site and adjacent lands have been designated for urban uses for nearly 20 years by the City. The Agriculture and Forestry Resources section concludes that project implementation will result in less than significant impacts to conversion of Farmland of Local Importance.</u>

Source: CARB, 2017e

**City General Plan Policies.** The project must also be evaluated against the City’s General Plan policies that relate to greenhouse gas emissions, as shown in Table 4.7-13. This analysis shows that the project is consistent with the applicable General Plan objectives and policies, or the particular objective or policy is not applicable to the proposed WLC project.

**Table 4.7-13: Consistency with City General Plan Air Quality Policies**

<u>Objective or Policy</u>	<u>Project Consistency</u>
<b>Objective 6.6.</b> Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	<b>Consistent.</b> The project is providing employment opportunities to Moreno Valley and the surrounding area.
<b>Policy 6.6.1.</b> Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.	<b>Not Applicable.</b> The project does not propose the development of neighborhood commercial facilities or residential dwellings.
<b>Policy 6.6.2.</b> Provide multifamily residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.	<b>Not Applicable.</b> The project is industrial and does not propose the development of residential uses.
<b>Policy 6.6.3.</b> Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.	<b>Not Applicable.</b> The project is industrial and does not propose the development of residential uses.
<b>Objective 6.7.</b> Reduce mobile and stationary source air pollutant emissions.	<b>Consistent.</b> The project would be implementing feasible Mitigation Measures to reduce mobile and stationary emissions ( <b>Mitigation Measures 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.4A</b> ).
<b>Policy 6.7.1.</b> Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.	<b>Not Applicable.</b> This measure is beyond the scope of the project; the City will continue to work with the SCAQMD in regional planning efforts.
<b>Policy 6.7.2.</b> Encourage the financing and construction of park-and-ride facilities.	<b>Not Applicable.</b> The project consists of industrial uses; a park and ride on the project would not be feasible.

**Table 4.7-13: Consistency with City General Plan Air Quality Policies**

Objective or Policy	Project Consistency
<b>Policy 6.7.3.</b> Encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange and Los Angeles Counties.	<b>Not Applicable.</b> No express mass transit facilities are designated on the project site or planned on the project site; therefore, this measure is beyond the scope of the project.
<b>Policy 6.7.6.</b> Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.	<b>Consistent.</b> The project will comply with Title 24 requirements.

Policies 6.7.4 and 6.7.5 are discussed in the air quality EIR section, Section 4.3).  
 Source of objectives and policies: Moreno Valley General Plan (2006).

**City Climate Action Strategy.** Finally, Table 4.7-14 evaluates the consistency of the World Logistics Center project with the policies of the City’s Climate Action Strategy approved in October 2012. As shown below, the project is consistent with the requirements of the Strategy for non-residential development with implementation of project design features and mitigation measures.

**Table 4.7-14: Consistency with City Climate Action Strategy**

Strategy Items	Project Consistency
<b>R2-T1:</b> Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.	<b>Not Applicable.</b> A Transit Priority Project is one that has at least 50 percent residential use based on area, at least 20 units per acre and is within a ½ mile of a major transit stop or High Quality Transit Corridor. A High Quality Transit Corridor is defined as one with 15-minute frequencies during peak commute hours. The project does not include a residential component and is not along a High Quality Transit Corridor nor are there any High Quality Transit Corridors or major transit stops in the vicinity of the project area. As a result, the strategy is not applicable.
<b>R2-T3:</b> Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.	<b>Consistent</b> with implementation of <b>Mitigation Measure 4.3.6.4A.</b>
<b>R2-E1:</b> New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.	<b>Not Applicable.</b> This measure applies to residential projects.
<b>R2-E2:</b> New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.	<b>Not Applicable.</b> This measure applies to residential projects.
<b>R2-E5:</b> New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards.	<b>Consistent</b> with <b>Mitigation Measure 4.7.6.1D.</b>

**Table 4.7-14: Consistency with City Climate Action Strategy**

Strategy Items	Project Consistency
<b>R3-E1:</b> Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.	<b>Not Applicable.</b> This refers to updating building and zoning codes and does not apply to this warehousing development plan.
<b>R3-L2:</b> Heat Island Plan. Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.	<b>Consistent.</b> The Specific Plan indicates that vehicle parking areas are to be landscaped to provide a shade canopy (50 percent coverage at maturity).
<b>R2-W1:</b> Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.	<b>Consistent.</b> California Green Building Standards Code, Chapter 5, Division 5.3, Section 5.303.2 requires that indoor water use be reduced by 20 percent. Section 5.304.3 requires irrigation controllers and sensors. The Specific Plan also contains a variety of water conservation features. <b>Mitigation Measures 4.16.1.6.1A, B, and C</b> also provide water reduction measures.
<b>R3-W1:</b> Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.	<b>Consistent.</b> Tenants and owners within the WLC site will provide water conservation information from EMWD and other sources to workers on a regular basis.
<b>R2-S1:</b> City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.	<b>Consistent.</b> The project would incorporate standard City waste reduction features and <b>Mitigation Measure 4.7.6.1A</b> (has a target to reduce waste by 75 percent by 2020).
<b>C11:</b> Require that developer recycle existing street material for use as base for new streets.	<b>Consistent.</b> Project will implement <b>Mitigation Measure 4.7.6.1A</b> where feasible.

**Executive Order S-3-05.** As discussed in Section 4.7.4, the SCAQMD developed its thresholds based on consistency with California Executive Order S-3-05. As shown in Impact 4.7.6.1, the project’s ~~uncapped~~ GHG emissions would not exceed the SCAQMD’s industrial threshold. ~~Therefore, the project would not conflict with Executive Order S-3-05. However, with mitigation implemented, the Project would be reduced to levels less than 10,000 MTCO<sub>2</sub>e and, therefore, the project would not conflict with Executive Order S-3-05.~~ This impact is less than significant with mitigation.

**Specific Plan Design Features.** The WLCSP contains a sustainability section that emphasizes water and energy conservation throughout the project design, which in turn will help reduce GHG emissions (Section 1.3.2, Green Building-Sustainable Development). The revised WLC Project Design Features (described in detail in Energy Section 4.17.5) go beyond the WLSCP with energy conservation measures that exceed minimal compliance with current (2019) Title 24 requirements by about 17 percent at Phase 1 and 16 percent and full buildout.

**Mitigation Measures.** Implementation of previously referenced Mitigation Measures 4.3.6.3B, 4.3.6.4A, 4.3.6.3C, 4.3.6.3D, 4.7.6.1A, 4.16.1.6.1A, 4.16.1.6.1B, 4.16.1.6.1C, 4.16.4.6.1A, 4.16.4.6.1B, and 4.16.4.6.1C will help reduce project-related GHG emissions and therefore make it more consistent with GHG reduction plans, policies, and/or regulations.

As previously identified, implementation of the WLC project could result in the development of an approximately 40.6 million square foot high cube-logistics distribution logistics. The project includes

a variety of physical attributes and operational programs that would help reduce operational-source pollutant emissions from worker commuting, including GHG emissions. Future development that would occur under the project would be consistent with greenhouse gas emission reduction strategies and policies, including the City's Climate Change Strategy. The project would implement the Mitigation Measures listed above to reduce its contribution to GHG emissions and to ensure it does not conflict with or impede implementation of reduction goals identified in AB 32, SB 32, Governor's Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, the project would not conflict with any applicable plan, program, policy, or regulation related to the reduction of GHG emissions. Impacts are considered less than significant.

Similar to the discussion of cumulative air quality impacts, the project may employ workers locally from the City. This has the benefit of improving the local jobs/housing balance leading to air quality benefits in terms of shorter trip lengths, which lead to lower emissions than if the workforce was derived from distant locations.

The State of California has adopted a number of policies, including AB 32, SB 32, Governor's Executive Order S-3-05, the Pavley vehicle standards, the Advanced Clean Car program, and the Mobile Source Strategy, which collectively provide the structure and commitment to address California's contribution to global climate change. Since the project is consistent with these policies, including being below the SCAQMD threshold for greenhouse gases that was structured in accordance with these State policies, the project is consistent with greenhouse gas plans, policies, and regulations and impacts are less than significant after mitigation.

**Level of Impact After Mitigation.** Less than significant.

**NOTE TO READERS:** This portion of the Revised Sections of the FEIR entirely replaces the energy discussion in Section 4.16.4, *Energy Consumption*, of the FEIR. The portion of Section 4.16.4.7, *Cumulative Impact to Energy Facilities*, has been deleted from the FEIR to allow for its reanalysis to include the impacts expected from other past, present and reasonably foreseeable future projects. The revised cumulative analysis can be found in Section 6.17 of this Revised Sections of the FEIR. The Renewable Energy technical report is included in Appendix E. Section 4.17, below, of this Draft Recirculated Sections of the FEIR replaces Section 4.17 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 4.17 replaces the energy discussion in Section 4.16.4, *Energy Consumption*, of the FEIR prepared in 2015.

## **4.17 ENERGY**

Pursuant to Appendix F of the CEQA Guidelines, this section discusses the energy requirements of the WLC project and addresses the court’s ruling that “*the FEIR must provide a comparison of feasible, cost-effective renewable energy technologies in the Energy Impacts analysis.*” This section discusses existing regulations pertaining to energy and provides an analysis of energy use associated with the project, with an emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. This analysis examines the short-term construction and long-term operational impacts and evaluates the effectiveness of Energy Conservation Measures (ECMs) incorporated as part of the project design. It also evaluates prospective renewable energy supply technologies, their feasibility within the project and an evaluation of which supply technology option provides the best renewable energy supply strategy.

The project will incorporate Project Design Features (PDFs) and ECMs that minimize energy consumption and are expected to deliver energy performance that exceeds the current minimum Title 24 requirements by approximately 17 percent at Phase 1 and 16 percent at full buildout. The project will be designed to eliminate the need for natural gas in building systems, positioning the WLC to become an all-electric development with the future potential to operate 100% on renewable electricity.

Pursuant to the World Logistics Center Specific Plan (WLCSP), WLC buildings will include rooftop solar photovoltaic (PV) systems sized, at minimum, to offset the power demands of office space contained in the building. In addition, the project will provide on-site rooftop solar generating capacity up to the maximum level currently permitted by Moreno Valley Electric Utility (MVU), which is currently defined as one-half the minimum electric demand a building experiences during daytime hours. As described herein, this would be more than sufficient to satisfy 100% of the office energy needs. In anticipation of increased electricity loads in the future that could result from a growing electric vehicle fleet, the project will provide solar ready roofs that could accommodate expanded rooftop solar installations in the future.

This section analyzes the project’s potential energy impacts based on the following technical studies:

- *Air Quality, Greenhouse Gas, and Health Risk Assessment Report World Logistics Center Specific Plan April 2018, (Environmental Science Associates, dated November 2019) contained in Appendix A.1 of this Draft Recirculated Revised Sections of the FEIR.*
- *World Logistics Center (WLC) Transportation Energy Technical Study , May 2018, (Environmental Science Associates and CALSTART, dated November 2019) contained in Appendix E.1 of this Draft Recirculated Revised Sections of the FEIR.*
- *World Logistics Center (WLC) Comparison of Renewable Energy Technologies Report , May 24, 2018, (WSP USA, Inc., dated May 24, 2018) contained in Appendix E.2 of the Revised Sections of the FEIR.*

## **4.17.1 Existing Setting**

### **4.17.1.1 Existing Site Energy Use**

The existing project Site is largely vacant with a few residences and scattered dry farming that generates minimal demand for electricity, natural gas, and transportation fuels. With implementation of the project, these uses would largely cease and be replaced. For the purposes of this analysis, a “zero demand” baseline was assumed; thus, the net change from baseline calculated for these analyses are conservative, representing a hypothetical “worst case.”

### **4.17.1.2 Existing Electricity Supply and Transmission**

Southern California Edison (SCE) currently has two existing 115 kilovolt (kV) overhead power transmission lines within the WLC site limits. One is located along Gilman Springs Road from the south to Eucalyptus Avenue, then east on Eucalyptus Avenue to World Logistics Center Parkway and then north on World Logistics Center Parkway across SR-60. The second 115 kV transmission line is located along Brodiaea Avenue from the west to Davis Road then southeast into the San Jacinto Wildlife Area. In the project area, SCE also maintains 12 kV overhead distribution lines along Redlands Boulevard, World Logistics Center Parkway, and Alessandro Boulevard just west of the project site.

The WLC project would be supplied electricity by Moreno Valley Electric Utility (MVEU). MVEU currently has an existing electrical substation west of the project area at the southwest corner of Moreno Beach Drive and Cottonwood Avenue. This substation currently has a capacity to distribute 28 megawatts (MW) of electricity based on two existing 28 MW units (i.e., if one unit goes off, the other unit still maintains capacity to handle the demand). Ultimate capacity of this substation is 84 MW based on four 28 MW units. The current peak load for this substation is 22 to 26 MW; therefore, there is an existing 2 to 6 MW surplus capacity available. MVEU has underground 12 kV distribution lines along Cottonwood Avenue from the west to Redlands Boulevard, then north along Redlands Boulevard to Fir Street (now Eucalyptus Avenue), and then east along Eucalyptus Avenue to World Logistics Center Parkway. The existing underground conduit underlying Eucalyptus Avenue currently serves the existing Skechers warehouse, office, and factory store. It should be noted that the MVEU indicated these assumptions are valid at this time, but could change if other development occurs before the project.

### **4.17.1.3 Existing Natural Gas Supply and Transmission**

The WLC project would be supplied natural gas by the Southern California Gas Company (SCGC). SCGC currently maintain a 4-inch medium-pressure service line underlying Redlands Boulevard that runs from SR-60 on the north to Cactus Avenue on the south and then runs west along Cactus Avenue with a stub-out to the north at Merwin Street. SCGC has low-pressure facilities that serve the residential areas located west of Redlands Boulevard and southwest of Merwin Street and Bay Avenue.

Throughout the WLC site, there are existing high-pressure natural gas transmission mains ranging in diameters of 16 inches up to 36 inches. SCGC currently maintains two 30-inch diameter transmission pipelines traversing the project site that run in an east-west direction and are located north and south of Alessandro Boulevard. There are also three transmission pipelines (a 16-inch, 30-inch, and 36-inch diameters) that run in a north-south direction along Virginia Street, south of Alessandro Boulevard. The 36-inch diameter pipeline also runs east from Virginia Street parallel with the 30-inch pipeline that runs south of Alessandro Boulevard.

Within the WLC site, SCGC maintains a gas line blow-down facility and flow metering station at Alessandro Boulevard and Virginia Street. Further south on Virginia Street, the San Diego Gas and Electric Company (SDG&E) maintains a natural gas compression station, known as the Moreno Compressor Station, which supplies gas to San Diego via 16-inch, 30-inch, and 36-inch transmission pipelines that continue to the south. SCGC has a gas transmission regulator station located at the southeast corner of Gilman Springs Road and Laurene Lane east of the WLC project site.

Questar currently maintains a 16-inch gas transmission pipeline that underlies Alessandro Boulevard from Gilman Springs Road to World Logistics Center Parkway, where it heads south to the Maltby Avenue alignment and then heads west toward Redlands Boulevard.

#### **4.17.1.4 Existing Regional Electricity Demand**

The MVU is the primary utility provider for the residences and businesses of Moreno Valley and is the utility provider to the WLC project. Southern California Edison does provide electrical service to a portion of the City and has existing facilities running through the project. The annual electricity sale to all customers in the MVU service area for the ~~2015-2016~~ 2017-2018 fiscal year was approximately ~~185~~ 188 million kilowatt hours (kWh).<sup>1</sup>

#### **4.17.1.5 Existing Regional Natural Gas Demand**

Southern California Gas Company (SoCalGas) is responsible for providing natural gas to 21.6 million consumers through 5.9 million meters in more than 500 communities throughout Central and Southern California and is regulated by the California Public Utilities Commission and other state agencies.<sup>2</sup> The annual natural gas sale to customers in 2017 was approximately ~~341,535 million kilo~~ 992 trillion British thermal units (Btu).<sup>3</sup> The consumption of natural gas by residences and businesses exclusively within Moreno Valley is not known.

#### **4.17.1.4 Existing Regional Transportation Energy Demand**

According to the California Energy Commission (CEC), transportation accounts for nearly 37 percent of California's total energy consumption.<sup>4</sup> Based on available fuel consumption data from the CEC, in 2016, Riverside County consumed a total of ~~4,035,000,000~~ 1,052,000,000 gallons of gasoline for transportation.<sup>5</sup> California consumed a total of ~~273,000,000~~ 275,000,000 gallons of diesel fuel for transportation.<sup>6</sup> Transportation fuels, primarily gasoline and diesel, are provided by local or regional suppliers and vendors.

According to the California Air Resources Board (CARB) on-road vehicle emissions factor (EMFAC2014) (EMFAC2017) model, the average fuel economy for the fleet-wide mix of vehicles operating in the South Coast Air Basin region is approximately ~~20.17~~ 24.6 miles per gallon for gasoline-fueled vehicles and approximately ~~7.84~~ 9.7 miles per gallon for diesel-fueled vehicles. Gasoline-fueled vehicles account for approximately ~~96~~ 95 percent of the total vehicles and diesel-fueled vehicles account for approximately ~~3.6~~ 4 percent of the total vehicles.<sup>7</sup> Electric vehicles account for approximately ~~0.3~~ 1 percent of the total vehicle registration in California.

<sup>1</sup> City of Moreno Valley, Moreno Valley Utility, 2018 Integrated Resource Plan, 2018 <http://www.moval.org/mvu/pubs/MVU-IRP-Report-072018.pdf> Accessed September 2019.

<sup>2</sup> Southern California Gas Company, <https://www.socalgas.com/about-us/company-profile> Accessed April 2018.

<sup>3</sup> California Gas and Electric Utilities, 2018 California Gas Report, (2018). Available at: [https://www.socalgas.com/regulatory/documents/cgr/2018\\_California\\_Gas\\_Report.pdf](https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf) Accessed September 2019. Converted from 958 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, April 28, 2017. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed September 2019).

<sup>4</sup> California Energy Commission, 2015 Integrated Energy Policy Report, CEC-100-2015-001-CMF, 2016, page 153, [http://www.energy.ca.gov/2015\\_energypolicy](http://www.energy.ca.gov/2015_energypolicy). Accessed April 2018.

<sup>5</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://www2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://www2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html) Accessed September 2019.

<sup>6</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://www2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://www2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html) Accessed September 2019.

Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>7</sup> Based on the California Air Resources Board on-road vehicle emissions model, EMFAC2017 (Modeling input: South Coast Area Air Basin; LDA, LDT1, LDT2; Annual; 2020). The modeling input values are considered generally representative of project buildout conditions for the region and representative of the majority of vehicles associated with project-related vehicle miles traveled (VMT).

## **4.17.2 Regulatory Setting**

### **4.17.2.1 Federal**

**Energy Policy Act of 1992.** The Energy Policy Act (EPA) of 1992 was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPA includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPA requires certain Federal, State, and local governments and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPA. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the Act to consider a variety of incentive programs to help promote AFVs.

**Energy Policy Act of 2005.** The Energy Policy Act of 2005 includes provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy.

**Clean Vehicles.** Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the Environmental Protection Agency (EPA) and the Department of Transportation's Highway Traffic and Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce greenhouse gas emissions (GHG) emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The vehicles had to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards were designed to cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO<sub>2</sub> per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle.<sup>8</sup>

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies proposed engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and up to a 15 percent reduction for diesel vehicles by 2018 model year (12% and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles (includes other vehicles like buses, refuse trucks, concrete mixers; everything except for combination tractors and heavy-duty pickups and vans), the agencies proposed engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by the 2018 model year. Building on the success of the standards, the EPA and U.S. Department of Transportation jointly finalized additional standards for

---

<sup>8</sup> United States Environmental Protection Agency, EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, (August 2012). Available at: <http://www.epa.gov/oms/climate/documents/420f12051.pdf>. Accessed April 2018.

medium- and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution.

#### **4.17.2.2 State**

**California Code of Regulations Title 24, Part 6.** The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California's energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include mandatory requirements for efficiency and design of energy systems, including space conditioning (cooling and heating), water heating, and indoor and outdoor lighting systems and equipment, and appliances. California's Building Energy Efficiency Standards are updated on an approximately three-year cycle as technology and methods have evolved. The 2016 Standards, effective January 1, 2017, focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, and include requirements that will enable both demand reductions during critical peak periods and future solar electric and thermal system installations. The next code update (2019) ~~is expected to focus~~ update takes effect on January 1, 2020 and focuses on integrating solar photovoltaic (PV) and other renewables with energy storage, taking Title 24 another step closer toward the state's zero net energy (ZNE) goals as spelled out in the California Energy Efficiency Strategic Plan (CEC, 2011), calling for all new residential construction to be ZNE by 2020 and all new commercial construction to be ZNE by 2030 ~~2020 and all new commercial construction to be ZNE by 2030.~~

**California Code of Regulations Title 24, Part 11.** The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

2016 Title 24, Part 11 includes construction requirements for non-residential projects that are designed to facilitate installation of future electric vehicle supply equipment (EVSE) to support electric vehicle (EV) charging. Under section 5.106.5.3, construction plans and specifications for large (projects with more than 200 total parking spaces) must include raceways for future EVSE at a minimum of 6 percent of the total parking spaces.

**Renewable Electricity Standards.** There have been several renewable electricity senate bills in California. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard (RPS) target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the CARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. Senate Bill X1-2 (2011) codifies the Renewable Electricity Standard into law.

**Senate Bill 100**

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by December 31, 2030. Incrementally, these energy providers must also have a renewable energy supply of 44 percent by December 31, 2024, and 52 percent by December 31, 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

**Senate Bill 350:** The Clean Energy and Pollution Reduction Act of 2015 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator (ISO) into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the Legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

**Pavley Regulation, Advanced Clean Cars (ACC), and the California Mobile Source Strategy.** Assembly Bill 1493 (2002) requires CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In setting these standards, CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The federal Clean Air Act ordinarily preempts state regulation of motor vehicle emission standards; however, California is allowed to set its own standards with a federal waiver from the USEPA, granted in 2009. Known as the Pavley Clean Car Standards, AB 1493 regulated GHG emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.

~~In January 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions control program for model years 2015 through 2025. The program includes components to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. The zero emissions vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEV) in the 2018 to 2025 model years (CARB, 2017).~~

Because the Pavley standards (named for the bill's author, state Senator Fran Pavley) would impose stricter standards than those under the CAA, California applied to the US EPA for a waiver under the CAA. In 2008, the US EPA denied the application. In 2009, however, the US EPA granted the waiver. The waiver has been extended consistently since 2009; however, in 2018 the US EPA and NHTSA indicated their intent to revoke California's waiver, and prohibit future state emissions standards enacted under the CAA. As of April 2019, the waiver was still in place and the status of the federal government's revocation of the waiver was uncertain.

As discussed previously, the federal government adopted standards for model year 2012 through 2016 light-duty vehicles. In addition, the US EPA and US Department of Transportation (DOT) have adopted GHG emission standards for model year 2017 through 2025 vehicles. These standards are slightly different from the state's standards (described below in the Advanced Clean Cars Program), but the state of California has agreed not to contest them, in part due to the fact that while the national standard would achieve slightly less reductions in California, the national standard would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals.

In May 2016, CARB released the updated Mobile Source Strategy that demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years, through a transition to ZEVs, cleaner transit systems and reduction of vehicle miles traveled. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 “last mile” delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels (CARB, 2016).

**Transportation Electrification.** Complementing the Mobile Source Strategy and the state’s push toward zero carbon electricity, SB 350 orders the CPUC to direct the six investor-owned electric utilities in the state to file Applications for programs that “accelerate widespread transportation electrification.” These programs are required to reduce dependence on petroleum, increase the adoption of zero-emission vehicles, help meet air quality standards, and reduce GHG emissions.

On January 11, 2018, the California Public Utilities Commission (CPUC) [approved](#) the first transportation electrification applications under SB 350 from the three large investor-owned utilities. The [decision](#) approves 15 projects with combined budgets of \$42 million. In SCE territory, \$16 million was approved for projects that help expand residential and transit bus EV charging infrastructure, including in or adjacent to disadvantaged communities, as well as crane and heavy duty vehicle electrification at the Port of Long Beach. In Pacific Gas and Electric (PG&E) and San Diego Gas and Electric territories, projects are similar but also include electrification of delivery vehicles and commercial shuttle fleets, and demonstration projects for electrification of school buses and medium- or heavy-duty vehicles fleets (CPUC, 2018).

**Executive Order B-16-2012 (Zero-Emission Vehicles).** This executive order requires that all State entities under the Governor’s control support and facilitate the rapid commercialization of zero-emission vehicles. The order contains a target similar to Executive Order S-3-05, but for the transportation sector instead of all sectors: that California target for 2050 a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels. Executive order B-16-2012 also indicates that the CARB, the California Energy Commission, the Public Utilities Commission and other relevant agencies are ordered to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following:

- By 2015: The State’s major metropolitan areas able to accommodate zero-emission vehicles, each with infrastructure plans and streamlined permitting; the State’s manufacturing sector expend zero-emission vehicle and component manufacturing; an increase in the private sector’s investment in zero-emission vehicle infrastructure; and the State’s academic and research institutions contributing to zero-emission vehicle research, innovation and education.
- By 2020: The State’s zero-emission vehicle infrastructure ability to support up to one million vehicles; the costs of zero-emission vehicles are competitive with conventional combustion vehicles; zero-emission vehicles are accessible to mainstream consumers; widespread use of zero-emission vehicles for public transportation and freight transport; and a decrease in transportation sector GHG emissions as a result of the switch to zero-emission vehicles; electric vehicle charging integrated into the electricity grid.
- By 2025: over 1.5 million zero-emission vehicles on California roads; easy access to zero-emission vehicle infrastructure in California; the zero-emission vehicle industry strong and sustainable part of California’s economy; and California’s vehicles displace at least 1.5 billion gallons of petroleum fuels per year.

**Sustainable Freight Action Plan.** Executive Order B-32-15 directed the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness

of California's freight transport system. The targets are not mandates, but rather aspirational measures of progress towards sustainability for the State to meet and try to exceed. The targets include:

- System Efficiency Target: Improve freight system efficiency by 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030.
- Transition to Zero Emission Technology Target: Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
- Increased Competitiveness and Economic Growth Targets: Establish a target or targets for increased State competitiveness and future economic growth within the freight and goods movement industry based on a suite of common-sense economic competitiveness and growth metrics and models developed by a working group comprised of economists, experts, and industry. These targets and tools will support flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes and jobs, while working with industry to mitigate potential negative economic impacts. The targets and tools will also help evaluate the strategies proposed under the Action Plan to ensure consideration of the impacts of actions on economic growth and competitiveness throughout the development and implementation process.

**California Transportation Plan 2040.** The California Transportation Plan (CTP) 2040, issued by the California Department of Transportation (Caltrans) in June 2016, provides a long-range policy framework to meet future mobility needs and reduce GHG emissions.<sup>9</sup> The CTP defines goals, performance-based policies, and strategies to achieve maximum feasible emission reductions in order to attain a statewide reduction in GHG emissions.

The CTP 2040 recognizes that the Governor is committed to reduce by one-half current petroleum use in cars and trucks; increase from one-third to one-half the electricity derived from renewable sources; double the efficiency savings of existing buildings and make heating fuels cleaner; reduce the release of methane, black carbon, and other short-lived climate pollutants; and manage farm and rangelands, forests, and wetlands to store more carbon.

Transportation GHG reduction strategies within the CTP 2040 include demand management (including telecommuting/working at home, increased carpoolers, and increase car sharing), mode shift (including transit service improvements, high-speed rail, bus rapid transit, expanded bike and pedestrian facilities, carpool land occupancy requirements, and increased HOV lanes), travel cost (implement expanded pricing policies), and operational efficiency (incident/emergency management, Caltrans' Master Plan, ITS/TSM, and eco-driving).

**Low Carbon Fuel Standard, Executive Order S-01-07.** The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandated that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. The LCFS requires producers of petroleum based fuels to reduce the carbon intensity of their products, beginning with a quarter of a percent in 2011, ending in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS Credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas or hydrogen. The LCFS was challenged in the United States District Court in Fresno in

---

<sup>9</sup> California Department of Transportation, *California Transportation Plan 2040*, June 2016, <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/finalctp2040-report-webready.pdf>; Accessed October 2019.

2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against the CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the CARB to continue to implement and enforce the regulation and vacated the injunction on September 18, 2013, and remanded the case to the district court for further consideration. ~~With the adoption of the 2017 Scoping Plan Update, the LCFS has been increased to an 18 percent reduction in carbon intensity by 2030.~~

In September 2015, CARB approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In April 2017, the LCFS was brought before the Court of Appeal challenging the analysis of potential nitrogen dioxide impacts from biodiesel fuels. The Court directed CARB to conduct an analysis of nitrogen dioxide impacts from biodiesel fuels and froze the carbon intensity targets for diesel and biodiesel fuel provisions at 2017 levels until CARB has completed this analysis. On March 6, 2018 CARB issued its *Draft Supplemental Disclosure Discussion of Oxides of Nitrogen Potentially Caused by the Low Carbon Fuel Standard Regulation*.<sup>10</sup> CARB posted modifications to the amendments on August 13, 2018, with a public comment period through August 30, 2018. Final approval of regulatory changes from CARB's analysis of nitrogen dioxide impacts from biodiesel fuels was made on January 4, 2019.<sup>11</sup> The 2017 Climate Change Scoping Plan also calls for increasing the mandatory reduction in carbon intensity of transportation fuels from 10 percent to 18 percent by 2030.

**2017 Scoping Plan Update.** On December 14, 2017, CARB approved the final version of *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels.<sup>12</sup> The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. As of 2015, California's emissions totaled approximately 440 MMTCO<sub>2e</sub>. The emissions breakdown is as follows: 37 percent from transportation, 21 percent from industrial sources, 11 percent from in-state electricity generation, 9 percent from commercial and residential, 8 percent from imported electricity generation, 8 percent from agriculture, 4 percent from high global warming potential gases, and 2 percent from recycling and waste. Through a combination of data synthesis and modeling, CARB determined that the target Statewide 2030 emissions limit is 260 MMTCO<sub>2e</sub>, and that further commitments will need to be made to achieve an additional reduction of 50 MMTCO<sub>2e</sub> beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by Executive Order B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030. These include:

- Extending the LCFS beyond 2020 and increasing the carbon intensity reduction requirement to 18 percent by 2030;
- Senate Bill 350, which increases the RPS to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030;
- The 2016 Mobile Source Strategy targets for more ZEVs and much cleaner trucks and transit (described in more detail below);
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies (described in more detail below);

<sup>10</sup> California Air Resources Board, Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation 2018, <https://www.arb.ca.gov/regact/2018/lcfs18/lcfs18.htm>. Accessed October 2018.

<sup>11</sup> California Air Resources Board, Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation 2019.

<sup>12</sup> CARB, *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); Accessed April 2018.

- Senate Bill 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- Assembly Bill 398, which extends the state Cap-and-Trade Program through 2030.

California's climate stabilization strategy relies on contributions from all sectors of the economy, which includes continued investment in renewable energy such as solar roofs, wind, and other types of distributed generation. In addition to being an integral factor in meeting GHG reduction goals, shifting to clean, local, and efficient use of energy also reinvests energy expenditures on local economies and reduces risks associated with exposure to volatile global and national oil and gas commodity prices (CARB, 2017).

**California Cap and Trade Program.** Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is a core strategy in the Scoping Plan for the state to meet its reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020.<sup>13</sup> Under the Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 metric tons CO<sub>2</sub>e per year) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program's duration.<sup>14</sup> On July 17, 2017 the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through December 31, 2030.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions to occur in any discrete location or by any particular source. Rather, GHG emissions reductions are assured on a State-wide basis.

**CARB Low NOx Regulation.** CARB has identified that reductions of up to 90 percent are needed for heavy-duty trucks to meet NOx reduction targets. In 2013, California established an optional low-NOx standard to pave the way for a future mandatory standard. A more stringent low-NOx regulation is expected in the 2021/2023 timeframe. When implemented, this regulation will continue to drive the deployment of zero or near-zero emissions truck solutions. This development has been taken into consideration in estimating the number of zero emission trucks projected in this study.

**CARB Advanced Clean Local Truck Rule.** The goal with the Advanced Clean Local Truck Rule is to accelerate the early market adoption of zero emission trucks that are usually centrally fueled, have duty cycles with low average speed and stop-and-go operation. The rule focuses on urban, mostly vocational trucks, but includes heavy truck (class 7–8) urban goods movement as well. The proposed regulatory schedule begins with the 2023 vehicle model year with early action credits given for pre-2023 vehicle models. ~~The regulation is scheduled for CARB board consideration in November 2018.~~ The regulation is currently available for public comment and will be considered at a meeting of the Board in December 2019.

**The Clean Port Plan 2.0 The Clean Air Action Plan Update for Ports of Long Beach and Los Angeles.** The ports of Long Beach and Los Angeles have set goals to drastically reduce air pollution

---

<sup>13</sup> 17 CCR §§ 95800 to 96023.

<sup>14</sup> See generally 17 CCR §§ 95811, 95812.

over the next decades and move towards zero emissions solutions. It is anticipated that new fee structures will be implemented in 2021 that favors low-NOx engine and zero emission solutions.<sup>15</sup>

**SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).** In April, 2016, the Southern California Association of Governments (SCAG) adopted the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which provides a vision for transportation throughout the region for the next 25 years.<sup>16</sup> It considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The 2016 RTP/SCS describes how the region can attain the GHG emission-reduction targets set by CARB by achieving an 8 percent reduction by 2020, 18 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level on a per capita basis.

The 2016 RTP/SCS includes \$70.7 billion in goods movement strategies, and a Goods Movement Appendix that addresses the region's challenges in moving freight while reducing harmful emissions generated by trucks and other goods movement sources.

**SCAG Comprehensive Regional Goods Movement Plan and Implementation Plan.** This report from SCAG, issued in 2012, presents a long-range comprehensive plan for the goods movement system in Southern California. The Plan is designed to ensure that the region continues to play a vital role in the global supply chain while meeting regional economic goals, addressing critical mobility challenges, preserving the environment, and contributing to community livability and quality of life goals. The Plan is the final product of the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy, a four-year effort to collect data, conduct analyses, and engage with regional, statewide and national stakeholders covering various aspects of the region's goods movement system.<sup>17</sup>

**CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations.** In 2004, the CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel efficient engines.

---

<sup>15</sup> Port of Long Beach and Port of Los Angeles, *Clean Air Action Plan 2017*.

<http://www.cleanairactionplan.org/documents/final-2017-clean-air-action-plan-update.pdf>; November 2017.

<sup>16</sup> SCAG, *Final 2016 RTP/SCS*. April 2016. <http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx>; Accessed October 2019.

<sup>17</sup> SCAG, *Comprehensive Regional Goods Movement Plan and Implementation Strategy*, December 2012.

[http://www.freightworks.org/DocumentLibrary/CRGMPIS\\_Summary\\_Report\\_Final.pdf](http://www.freightworks.org/DocumentLibrary/CRGMPIS_Summary_Report_Final.pdf); Accessed October 2019.

**4.17.2.5 City of Moreno Valley**

**City of Moreno Valley General Plan Policies.** The City adopted its General Plan in 2006. The General Plan's Conservation Element contains policies directly related to energy efficiency and renewable energy listed below:

**Objective 7.5** Encourage efficient use of energy resources

**Policy 7.5.1** Encourage building, site design, and landscaping techniques that provide passive heating and cooling to reduce energy demand.

**Policy 7.5.2** Encourage energy efficient modes of transportation and fixed facilities, including transit, bicycle, equestrian, and pedestrian transportation. Emphasize fuel efficiency in the acquisition and use of City-owned vehicles.

**Policy 7.5.5** Encourage the use of solar power and other renewable energy systems.

**City of Moreno Valley Climate Action Strategy.** The City of Moreno Valley approved the Energy Efficiency and Climate Action Strategy (Strategy) in October 2012. The Strategy identifies ways that the City can reduce energy and water consumption and GHG emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and GHG emissions. The Strategy contains the following policies to reduce GHG emissions in 2010 by 15 percent by 2020:

**R2-T1** *Land Use Based Trips and VMT Reduction Policies.* Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.

**R2-T3** *Employment-Based Trip Reductions.* Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.

**R2-E1** *New Construction Residential Energy Efficiency Requirements.* Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.

**R2-E2** *New Construction Residential Renewable Energy.* Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off site.

**R2-E5** *New Construction Commercial Energy Efficiency Requirements.* Require energy efficient design for all new commercial buildings to be 10 percent beyond the current Title 24 standards.

**R3-E1** *Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining.* Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy-efficient projects.

**R3-L2** *Heat Island Plan.* Develop measures that address "heat islands." Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.

**R2-W1** *Water Use Reduction Initiative.* Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.

**R3-W1** *Water Efficiency Training and Education.* Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.

**R2-S1** *City Diversion Program.* For solid waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

**Moreno Valley Utility 2018 Integrated Resource Plan (IRP).** MVU provides electrical services to approximately 6,000 6,800 customers. MVU's main guidance document to plan for future growth and development is the ~~2015~~ 2018 IRP which forecasts a 40 20-year planning period from ~~2015~~ 2017 to the horizon year of ~~2024~~ 2037. The purpose of the IRP is to identify key considerations to meet future energy demand, increase local renewable energy projects, and plan for large-scale logistics and distribution centers that are increasingly prevalent in the region. As stated above, electricity sales for ~~2015~~ 2018 totaled 485 188 million kWh and the IRP forecasts growth in sales to be ~~352,044~~ 231,555 million kWh by the horizon year of 2024.<sup>18</sup>

MVU previously offered a solar net energy metering program to their customers, but in MVU's latest Electric Rates Schedule for Net Energy Metering, adopted April 17, 2018, this schedule is closed to new applicants effective April 2018. Furthermore, per *Resolution No. 2017-20* the "maximum solar generating capacity that will be approved to be connected to each meter is up to 50% of the meter minimum daytime load." This limits the amount of on-site solar generation that can be installed at WLC buildings.

### **4.17.3 Methodology**

The analysis addresses the project's potential impacts related to energy usage, including electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is assessed. The potential for on-site generation of renewable energy is also assessed. Specific analysis methodologies are discussed below. Calculations are provided in Appendix E.

#### **4.17.3.1 Construction**

Construction activities can vary substantially from day to day, depending on the specific type of construction activity and the number of workers and vendors traveling to the Site. This analysis considers these factors and provides the estimated maximum construction energy consumption for the purposes of evaluating the associated impacts on energy resources.

Energy use during construction is forecasted by assuming a conservative estimate of construction activities (i.e., maximum daily equipment usage levels). The energy usage required for project construction has been estimated based on the number and type of construction equipment that would be used during project construction, the extent that various equipment is utilized in terms of equipment operating hours or miles driven, and the estimated duration of construction activities. Energy for construction worker commuting trips has been estimated based on the predicted number of workers for the various phases of construction and the estimated VMT.

The heavy duty construction equipment would likely be diesel-fueled (with the exception of construction worker commute vehicles, which would primarily be gasoline-fueled). For the purposes of this assessment, it is conservatively assumed heavy-duty construction equipment and haul trucks would be diesel-fueled and construction equipment would be in operation for the entire construction day. This represents the maximum potential energy use during construction since some equipment could feasibly be electric or gasoline powered and be less energy intensive and since it is unlikely that equipment would be in operation for the entire construction day. The estimated fuel economy for heavy-duty construction equipment is based on fuel consumption factors from the CARB off-road vehicle (OFFROAD) emissions model, which is a state-approved model for estimating emissions from off-road heavy-duty equipment. The estimated fuel economy for haul trucks and worker commute vehicles is based on fuel consumption factors from the CARB EMFAC~~2017~~ emissions model, which is a state-approved model for estimating emissions for on-road vehicles and trucks. Both OFFROAD and the previous version of EMFAC (EMFAC2014) are incorporated into the California Emissions Estimator

<sup>18</sup> City of Moreno Valley, Moreno Valley Utility, 2018 Integrated Resource Plan, 2018 <http://www.moval.org/mvu/pubs/MVU-IRP-Report-072018.pdf> Accessed September 2019.

Model (CalEEMod), which is a state-approved emissions model used for the project's air quality and GHG emissions assessment. Mobile emission factors were updated using EMFAC2017 and calculated separate from CalEEMod. Therefore, this energy assessment is consistent with the modeling approach used for other environmental analyses in the EIR and consistent with general CEQA standards.

#### **4.17.3.2 Operation**

The WLC project would require energy in the form of electricity and natural gas for the operation of buildings and infrastructure (heating, cooling, lighting, water demand and wastewater treatment, consumer electronics, and other energy needs) and gasoline, diesel, natural gas, and electricity (to charge plug-in EVs) for vehicles traveling to and from the project site. The project would also require energy from natural gas use for on-site forklifts and yard trucks associated with warehousing activities.

The project's estimated building and infrastructure energy consumption was calculated in the WLC *Comparison of Renewable Energy Technologies* report (WSP, 2018) (See Appendix E.2 of this EIR). The energy usage required for project building and infrastructure operations is estimated based on the net change in energy demand from the new buildings and facilities compared to the existing uses (as described above, the existing energy usage is conservatively assumed to be zero). Project building and infrastructure operations will consume energy directly through electricity used to power equipment and appliances on-site, and indirectly, through the demand for water. On-site energy usage takes into account building energy standards pursuant to the 2016 2019 Title 24 Building Standards Code and CALGreen Code, the sustainability measures in the WLCSP for which the effect can be quantified, and Mitigation Measures prescribed in the Revised Draft Recirculated Sections of the FEIR. Refrigerated warehouse space is not an allowed use within the WLC site (see Mitigation Measure 4.3.6.3E in the Revised Draft Recirculated Sections of the FEIR). Energy usage from water demand (e.g., electricity used to supply, convey, treat, and distribute) is based on predicted annual water demand rates (which in turn are based on the size and type of future land uses) and state-wide averages regarding the amount of electricity needed to pump, treat, and transport each gallon of potable water and sewage.

Energy for transportation from increased activities to, from, and on the WLC site is estimated based on the predicted number of trips and the estimated VMT per trip. Trip types include employees commuting to and from home, vendors and deliveries associated with operation of the future uses, trucks bringing goods to and from the proposed warehousing facilities, and off-road mobile equipment needed for cargo/material handling (fork lifts, etc.). The estimated fuel economy for on-road vehicles is based on fuel consumption factors from the CARB EMFAC2017 emissions model. ~~As discussed above, EMFAC is incorporated into CalEEMod, which is a state-approved emissions model used for the project's air quality and GHG emissions assessment.~~ Therefore, this energy assessment is consistent with the modeling approach used for other environmental analyses in the Revised Draft Recirculated Sections of the FEIR and consistent with general CEQA standards. However, additional analysis was required to quantify the increased electricity use and decreased fuel use associated with higher fleet penetration of electric vehicles (EVs) expected with implementation of California's 2016 Mobile Source Strategy, which is not incorporated into EMFAC2017 2014 (for more information see next section on Technology Development).

CNG/LNG station fuel use was estimated based on assumptions outlined in the traffic study. The traffic study assumed all visits to the station were from trucks. The estimated number of CNG/LNG trucks visiting the station each day was multiplied by the typical tank size of a CNG/LNG truck and then calculated over the span of a year to result in annual fueling demand.

#### **4.17.3.3 Renewable Energy**

To supply the project with electricity, the *Comparison of Renewable Energy Technologies* report (see Appendix E.2 of this EIR) considered on-site and off-site options for integrating the use of renewable energy and optimizing onsite energy management. The report is aimed at addressing arguments and concerns raised in Paulek, et al vs. City of Moreno Valley, in which the petitioners argued that the analysis did not adequately consider feasible renewable energy technologies and therefore failed to provide an

adequate energy conservation analysis.<sup>19</sup> A comprehensive list of prospective energy resources was evaluated, and a screening process was applied to winnow the options down to those that hold the greatest potential for being successfully implemented at WLC. Screening criteria causing certain energy supply options to be discarded involved safety considerations, regulatory barriers, air emissions concerns, cost-effectiveness, and technical impracticalities. The report also evaluated a wide array of renewable energy options that are currently available, feasible, and cost-effective for implementation at the Project Site, and determined the maximum feasible and allowable implementation of on-site renewables given the constraints set forth by MVU. Several on-site supply options were deemed infeasible for WLC, including the use of biomass energy, biogas/landfill gas, district energy system, microgrid, in-line hydroelectric turbines in water transmission pipelines, natural gas pressure recovery, and local wind generation. For more details regarding the Project's renewable energy considerations and recommendations refer to the *Comparison of Renewable Energy Technologies* report.

Onsite energy supply options considered feasible include ground-source heat pumps (GSHPs); combined cooling, heat, and power (CCHP); and solar photovoltaic (PV) with and without battery storage:

- GSHP is not recommended in the WLC location due to the cooling requirements within the building being much greater than the building heating needs as a result of year-round weather conditions at the WLC site. Such an imbalance would cause the geoexchange field (where excess heat removed from the building by the cooling process is transferred via piping into the ground) to grow increasingly warmer over time. This, in turn, would degrade GSHP performance in providing building space cooling.
- CCHP produces air emissions, resulting from the combustion of fossil fuels, that exacerbate the poor air quality of Moreno Valley and the entire South Coast Air Quality Basin. Furthermore, CCHP increases the project's GHG emissions since it produces more GHG emissions than California's increasingly green grid.
- On-site solar PV generation is scalable and is becoming more cost competitive as project size increases.

As described in Section 4.17.5 (Project Design Features), the *Comparison of Renewable Energy Technologies* report (WSP, 2018) found that onsite rooftop PV systems without energy storage were determined to be the project's best sustainable clean energy supply option. Pursuant to the WLCSP, the rooftop solar PV generating capacity for the project will be designed at minimum to offset the power demands of office space contained in the building. In addition, the project proponent is committed to requiring on-site rooftop solar generating capacity up to the maximum level currently permitted by MVU, which is defined as one-half the minimum electric demand a building experiences during daytime hours.

To determine the specific allowable PV capacity at the WLC site, the *Comparison of Renewable Energy Technologies* report analyzed the hourly electric loads using energy simulation software. Phase 1 building simulation produced a minimum daytime electric load of about 600 kW. The minimum daytime electric load at buildout was simulated to be about 1,600 kW. The offices in each typical WLC building would consume about 474,120 kWh/yr in Phase 1 and experience a peak electric demand of about 280 kW. At buildout, the offices in each building would consume about 417,230 kWh/yr and experience a peak demand of about 270 kW. At the maximum solar PV generating capacity allowed by MVU, Phase 1 buildings could provide up to 300 kW (one-half the 600 kW minimum daytime electric load) and Phase 2 buildings could provide up to 800 kW (one-half the 1,600 kW minimum daytime electric load). This would generate approximately 512,275 kWh/yr and 1,366,400 kWh/yr per building for Phase 1 and Phase 2, respectively, which is more than sufficient to power 100% of the office energy needs.

---

<sup>19</sup> The Superior Court of California in the County of Riverside ruled that the analysis compressed the impacts and mitigation measures into a single issue (greenhouse gas emissions) and disregarded the requirements of CEQA. The Court ruled that the energy analysis must include a comparison of available, cost-effective renewable energy technologies.

#### **4.17.3.4 Technology Advancement**

CEQA Guidelines Section 15144 states “Drafting an EIR or preparing a Negative Declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.” This essentially limits the requirement for forecasting to that which could be reasonably expected under the circumstances and is part of the effort to provide a general “rule of reason” for EIR contents. The following discussion, in conjunction with the regulatory drivers listed above, seeks to establish what is reasonably foreseeable with respect to technology advancements that may influence transportation energy use contemporaneous with development of the WLC project.

As spelled out in CPUC’s California Energy Efficiency Strategic Plan, the state has ambitious goals for the development of zero net energy (ZNE) buildings (zero net energy consumption), including a goal for all new commercial construction to be ZNE by 2030.<sup>20</sup> Most zero-energy buildings rely on the electrical grid during times when local demand exceeds supply, and return the same amount of power or more at other times. Some ZNE buildings utilize on-site energy storage and are thus independent of the grid. ZNE buildings usually harvest some amount of energy on-site using technologies like solar and wind, while reducing the overall use of energy with highly efficient heating, ventilation, and air conditioning (HVAC) and lighting technologies.

The ZNE goal for commercial buildings is becoming more practical as the costs of alternative energy technologies decrease, grids become “smarter” and the costs of traditional fossil fuels increase. As pointed out by the California Public Utilities Commission (CPUC) in their draft *Commercial ZNE Action Plan* (CPUC, 2017), the current commercial ZNE market is extremely small, with approximately 190 currently verified or designed ZNE commercial buildings in California, but is positioned to grow.<sup>21</sup> As described in Section 4.17.5, *Project Design Features*, future updates to the Title 24 building standards are expected to require ZNE commercial buildings by the year 2030. By proactively embracing an all-electric building design and committing to solar-ready roof construction, WLC would be net-zero-ready and in a stronger position for compliance with future Title 24 updates.

Zero emission vehicle (ZEV) technology is developing rapidly for both light-duty and heavy-duty vehicles. ZEVs can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or through electricity provided by sources outside the vehicle such as overhead catenary wires that are currently used for light rail and some transit buses. ZEVs achieve zero tailpipe emissions by utilizing electric drive to power the vehicle instead of fuel combustion, and achieve higher system efficiency compared to fossil fuel powered vehicles. Additionally, Low Carbon Fuels, such as biodiesel and natural gas, have achieved relatively high rates of market penetration in some specific commercial applications, such as fleet delivery trucks, public buses, and waste hauling.

Because the project is proposed to be developed over a long period of time, the assessment of future energy demand by fuel type may consider likely achievements related to the development and improvement of technologies to reduce or displace traditional fossil fuel energy consumption. The following scenarios were developed in the WLC Transportation Energy Technical Report (ESA, 2018) (See Appendix E.1 of this EIR) based on varying degrees of electric vehicles projected to be in use at the time of the project’s Phase 1 development in 2025 and full buildout in 2040 2035 and their effects on overall project energy use. These scenarios form the basis for considering the project’s potential impacts to energy consumption and generation in Section 4.17.7 Impacts Analysis:

##### Vehicle Scenario A: Low EV Penetration

~~Scenario A reflects the vehicle technology assumptions built into the EMFAC model that is the standard for use in CEQA analysis to calculate emission rates from motor vehicles operating on highways, freeways and local roads in California. It also~~ Scenario A reflects the requirements of current state

<sup>20</sup> CPUC, *California Energy Efficiency Strategic Plan*. September 2008.

<https://www.cpuc.ca.gov/General.aspx?id=4125>; Accessed October 2019.

<sup>21</sup> CPUC, *Zero Net Energy Action Plan*. 2017. <https://www.cpuc.ca.gov/ZNE/>; Accessed October 2019.

building code (Title 24, part 11), which stipulates stipulating that 6 percent of parking spaces be constructed to accommodate the future installation of EV charging stations (see Table 4.17-1) electric vehicle supply equipment (EVSE) for future electric vehicle charging. Scenario A assumes that EV charging stations will be installed at 6 percent of the parking spaces by the completion of Phase 1. This Scenario assumes no increase in the stringency of the construction requirement, as any change in the regulatory minimums would be purely speculative at this time. Scenario A also assumes that the code-compliant charging stations would installed for be used only for charging passenger vehicles and light duty truck EVs, and there would be no charging of light duty truck EVs (or any other size trucks) medium-duty or heavy-duty truck EVs. Table 4.17-1 indicates the number of EV charging stations needed for 2025 and 2040 ~~2035~~ were determined using the following data and based on these assumptions.

**Table 4.17-1: EV Charging Station Requirements at WLC**

Stage of Development	WLC Warehouse Buildings			WLC Parking Requirements		
	Total Building Square Footage	Average Building Square Footage (approximate)	Number of Buildings	Average per Building	WLC Total	EV Charging Equipped (6%)
Phase 1 – 2025	22,946,000	1,500,000	15.3	584	8,781	527
Full buildout – 2035	40,600,000	1,500,000	27.1	575	15,536	932

For determining the breakdown of vehicle types and fuels powering the fleet, Scenario A relies on EMFAC2014 ~~EMFAC2017~~<sup>22</sup>, which forecasts a statewide EV population of 1.08 million zero emission passenger vehicles by 2025 (4.6% of total) and 3.14 million by 2040 (10.5%).<sup>23</sup> For the South Coast Air Basin, the EMFAC 2014 forecasts very similar percentages of passenger EV populations at 4.6% by 2025 and 10.5% by 2040. Using these figures for the South Coast Air Basin, the number of passenger EVs estimated to access the project site daily under Scenario A were determined to be 533 for Phase 1 (2025) and 2,058 for full build-out in 2040. For Phase 1 under Scenario A there would be approximately the same number of parking spaces pre-constructed for installing EV charging stations as there would be EVs visiting the site each day. At full buildout, the number of EVs expected each day would be approximately double the parking spaces pre-constructed for charging stations. ~~EMFAC2017 forecasts approximately 619,000 passenger EVs (2.5 percent of total) and 59,000 light truck EVs (1.4 percent of total) statewide by 2025, and approximately 1.4 million passenger EVs (4.7 percent of total) and 172,000 light truck EVs (3.7 percent of total) statewide by 2035.~~<sup>24</sup> For the South Coast Air Basin, ~~EMFAC2017 forecasts the same percentages of passenger EVs and 1.6 percent of light truck EV populations by 2025, and slightly higher percentages by 2035. Based on the percentages for the South Coast Air Basin, the number of passenger EVs estimated to access the Project area on any day under Scenario A were determined to be 300 for Phase 1 (2025) and 991 for full buildout in 2035.~~

Scenario A energy demand calculations assume that passenger EVs would have an average battery size of 100 kWh in the year 2025, equating to an average charge capacity of 80 kWh (80 % percent). Passenger cars in 2040 ~~2035~~ would have an average battery size of 200 kWh, equating to an average charge capacity of 160 kWh (80 % percent).

Scenario A assumes that half of the passenger EV population on site each day would charge their batteries to full capacity. If Level 2 AC chargers with a minimum charging rate of 19.2 kW (highest rate currently available) were provided, it would take approximately 4 hours to fully charge a vehicle with a 100 kWh battery. If the site was served by DC power blocks that spread the power delivery across multiple vehicles simultaneously in response to site energy management requirements, the charging

<sup>22</sup> The Emission FACTors (EMFAC) model is the standard method used in CEQA analysis to calculate emission rates from motor vehicles operating on highways, freeways and local roads in California.

<sup>23</sup> As interpreted by the project traffic modeling, passenger vehicles include all Light Duty Automobile (LDA) and Light Duty Truck (LDT) category vehicles in EMFAC

<sup>24</sup> As interpreted by the project traffic modeling, passenger vehicles include all LDA, LDT1, and LDT2 category vehicles in EMFAC.

time could be much faster. DC power blocks provide power at up to 500 kW, but it is reasonable to assume an average charging rate would be 100 kW, resulting in a charging time of approximately 48 minutes for a vehicle with a 100 kWh battery. At that rate, 932 charging stations at full buildout could charge thousands of vehicles per day, assuming vehicles move in and out of the EV charging parking spaces throughout the day.

Peak electricity loads for servicing the EVs were provided by WSP in their World Logistics Center *Comparison of Renewable Energy Technologies* report (WSP, 2018).<sup>25</sup>

#### Vehicle Scenario B: Medium EV Penetration (Scoping Plan Scenario)

~~This scenario reflects the same assumption regarding electric vehicle charging infrastructure as used in Scenario A (EV charging stations will be installed at 6 percent of parking spaces by the completion of Phase 1) but with higher electric vehicle populations consistent with the goals of California's 2017 Scoping Plan Update and 2016 Mobile Source Strategy, which are both designed to enable statewide attainment of the SB 32 GHG Target of 40 percent below 1990 levels by 2030. For Scenario B, the higher numbers of EVs include passenger vehicles and light trucks, and result in a higher vehicle charging load for the project. This scenario reflects the same assumption regarding electric vehicle charging infrastructure as used in Scenario A (EV charging stations will be installed at 6 percent of parking spaces by the completion of Phase 1) but with higher electric vehicle populations consistent with the goals of California's 2017 Scoping Plan Update and 2016 Mobile Source Strategy, which are both designed to enable statewide attainment of the SB 32 GHG Target of 40 percent below 1990 levels by 2030. As with Scenario A, Scenario B includes passenger and light truck EVs, but no charging of medium-duty or heavy-duty truck EVs. The higher numbers of passenger and light truck EVs result in a higher vehicle charging load for the project.~~

~~The passenger EV population estimates are aligned with Governor Brown's Executive Order calling for 1.5 million ZEVs by 2025 (5.8 percent of total passenger vehicles), and the Mobile Source Strategy calling for 4.2 million ZEVs by 2030 (16.1 percent of total passenger vehicles). The passenger EV population estimate for 2040 is based on the conservative assumption that the EV population increase from 2025 to 2030 due to the Mobile Source Strategy (448,000 more EVs per year than assumed by EMFAC 2014) continues after 2030 through the year 2040. Based on that rate, as described in the WLC Transportation Energy Technical Study, there would be approximately 8.7 million ZEVs in operation statewide by 2040 (29 percent of total). Assuming the passenger EV percentages would be the same in the South Coast Air Basin, the project would be visited by 659 passenger EVs per day by 2025 and 5,795 passenger EVs by 2040. The passenger EV population estimates are aligned with Governor Brown's Executive Order calling for 1.5 million ZEVs by 2025, and the Mobile Source Strategy calling for 4.2 million ZEVs by 2030, which works out to approximately 5.2 percent of combined vehicles (passenger + light trucks) in 2025 and 13.2 percent in 2030. The EV population estimates (21 percent of passenger vehicles and 22.5 percent of light trucks) for 2035 are based on the conservative assumption that the EV population increase from 2025 to 2030 due to the Mobile Source Strategy is repeated over the five-year period from 2030 to 2035. There would be approximately 7.2 million ZEVs in operation statewide by 2035. Assuming the EV percentages would be the same for the proposed Project located in the South Coast Air Basin, the Project would be visited by 627 EVs per day by 2025 and 4,509 EVs by 2035.~~

---

<sup>25</sup> As explained in the WSP report, peak EV charging rate was estimated by allocating the annual electricity consumption of EVs according to the building operating schedules. The resulting peak electric load imposed by EV charging is about 25% of the aggregate nameplate capacity of all charging stations. This result agrees quite well with industry expectations that charging blocks managed with automated 'smart' controls will reduce the coincident peak demand to 20-25% of the aggregate capacity of the individual charging stations.

Charging loads for the light truck category were determined using the daily mileage estimates and average kWh/mile consumption for each vehicle category, using data from the U.S. Department of Energy's Alternative Fuels Data Center.<sup>26</sup>

Like Scenario A, Scenario B assumes that EVs in 2025 would have an average battery size of 100 kWh, and by 2040 2035 they would have an average battery size of 200 kWh. Due to the higher EV populations the demand for fast charging will be higher, and it is reasonably assumed that DC power blocks, which manage power delivery across multiple vehicles simultaneously in response to site energy requirements, would be the appropriate chargers at the site to handle the increased loads. Like Scenario A, it is assumed that the average charging rate for DC power block chargers would be 100 kW. At that rate a 200 kWh battery (160 kWh capacity) would take approximately 96 minutes to charge. 932 charging stations at full buildout could charge thousands of vehicles per day, assuming vehicles move in and out of the EV charging parking spaces throughout the day.

Peak electricity loads for servicing the EVs were provided by WSP in their World Logistics Center *Comparison of Renewable Energy Technologies* report (WSP, 2018).

#### Vehicle Scenario C: High EV Penetration

Scenario C is the same as Scenario B with respect to passenger and light truck EVs, but includes estimates for medium duty and heavy duty EV trucks based on CALSTART's zero-emission transformation model that takes into account how nascent zero emission solutions, namely technologies from the transit bus segment, evolve and transition into other medium- and heavy-duty categories. As with the light duty truck estimates, the projections take into account funding programs, sales trends, technology development, and upcoming regulations. In addition, the estimates consider regulatory and commercialization studies completed by CALSTART, including potential regulations related to zero emission drayage trucks and access by zero emission trucks to city centers.

CALSTART's zero emission transformation model indicates that 10 percent of medium-duty and 20 percent of heavy-duty trucks servicing the South Coast Air Basin could feasibly be EVs by 2025; by 2040 2035, the forecasts indicate that 40 20 percent of medium-duty and 30 percent of heavy-duty trucks could be EVs. Charging loads for the light truck category were determined using the daily mileage estimates and average kWh/mile consumption for each vehicle category, using data from the U.S. Department of Energy's Alternative Fuels Data Center.<sup>27</sup>

## 4.17.4 Thresholds of Significance

### 4.17.4.1 CEQA Guidelines Appendix F

~~CEQA Guidelines Appendix G of the State CEQA Guidelines~~ does not provide specific thresholds for the evaluation of impacts related to energy resources. ~~CEQA Guidelines Appendix F of the State CEQA Guidelines~~ was prepared in response to the requirement in Public Resources Code Section 21100(b)(3), which states that and EIR shall include a detailed statement setting forth "[m]itigation measures proposed to minimize significant effects of the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy."

- A project would result in significant impacts with regard to energy use and consumption if it would cause wasteful, inefficient, and unnecessary consumption of energy. In accordance with

<sup>26</sup> <https://www.afdc.energy.gov/>

<sup>27</sup> <https://www.afdc.energy.gov/>

Appendix F, the following criteria will be considered in determining whether this threshold of significance is met:

- 1) The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed (Appendix F Section II C-1).
  - 2) The effects of the project on local and regional energy supplies and on requirements for additional capacity (Appendix F Section II C-2).
  - 3) The effects of the project on peak and base period demands for electricity and other forms of energy (Appendix F Section II C-3).
  - 4) The effects of the project on energy resources (Appendix F Section II C-5).
  - 5) The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives (Appendix F Section II C-6).
- A project would result in significant impacts with regard to energy use and consumption if it would require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.
  - A project would result in significant impacts with regard to energy use and consumption if it would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. In accordance with Appendix F, the following criteria will be considered in determining whether this threshold of significance is met:
    - 1) The degree to which the project complies with existing energy standards (Appendix F Section II C-4).

#### **4.17.5 Project Design Features**

The WLCSP incorporates Project Design Features (PDFs) including sustainable development standards that minimize energy consumption, conserve water, and use recycled or sustainable building materials, where feasible. The WLCSP provides developers with a specific framework for identifying and implementing a variety of practicable and measurable green building measures into the design, construction, operations, and maintenance of each development. Pursuant to the WLCSP, all new development within the project site will be required to meet the California Building Energy Standards in effect at the time construction commences or be 10% more stringent than 2008 standards, whichever results in lowest energy use. In addition, WLC buildings will be designed to be "solar ready" (i.e., structural upgrades to allow the installation of solar photovoltaic systems on the roof of each building), and the WLCSP includes a commitment that the energy requirements of all office space will be supplied with rooftop solar energy systems.

##### **Building Energy**

As outlined in the WLCSP Section 1.3.2, *Green Building – Sustainable Development*, the project will incorporate sustainable design features to save energy and reduce its environmental footprint, including but not limited to:

- Reduced water use for landscape irrigation,
- Street designs that harvest and channel runoff into landscape areas instead of storm drains,
- Accommodate the use of alternative means of transportation,
- Use recycled building materials to the extent feasible,
- Use local sources of building materials to the extent feasible,
- Support waste management reduction identified in AB 341.

- Minimize the use of impervious paved surfaces throughout the project,
- Incorporate on-site storm water capture and infiltration within landscape areas,
- Support alternative fuel use through the provision of an on-site alternative fueling site, and
- Provide for the use of roof-mounted solar systems or other alternative power systems.

The WLCSP specifies that all buildings of at least 500,000 square feet (representing more than 99 percent of total project square footage at buildout) shall be designed to meet or exceed the LEED Certified Building Standards and that buildings will be designed to accommodate renewable energy systems. The design of the WLC will pursue these goals by incorporating design features such as, but not limited to, the following:

Building Design and Construction Features:

- Construct “Solar ready” rooftops for buildings;
- Implement design and construction techniques will be employed to reduce the heat island effect, including the use of materials that have a low solar reflectance index such as white roofs and light-colored pavements;
- High performance glazing, overhangs, and landscaping to capture and control natural daylight;
- Use of atriums, skylights and internal courtyards to provide additional daylighting;
- Use of renewable materials and building materials with recycled content where feasible;
- Develop waste management plan and a comprehensive recycling and management program to divert at least 50 percent of waste from landfill, including storage and collection of recyclables, building and material reuse, and careful construction waste management;
- Incorporate the use of passive heating and cooling into the design or modification of the high-cube warehouse development (e.g., white building colors and roof insulation to minimize heat gain, and landscaping to help shade buildings);
- Install outdoor electric outlets to accommodate the use of electrical property maintenance equipment (Section 12.4 of the WLCSP);
- Install advanced irrigation systems, drought-tolerant plants, the use of mulch, recycled and other permissible alternative sources of water, and turfless plantings with decorative hardscape materials such as rock and other materials that do not require potable water sources.

Transportation Features:

- Accommodate alternate forms of transportation including, public transportation (bus), charging stations for electric cars, carpooling, and bicycles.
- Construct sidewalks and a multiuse trail for pedestrian circulation;
- Promote the riding of bicycles, through the provision of bike racks/storage, showers and changing rooms; and
- Design streets to accommodate bus service – Riverside Transit Agency (RTA) does not currently operate any routes in the immediate vicinity of the WLC. RTA will determine if and when bus service will be provided.

Solid Waste Diversion Features:

- Require that all development within the project provide enclosures or compactors for trash and recyclable materials per Specific Plan (Section 5.1.6).

In addition to the prescriptive Building Design and Construction Features, Transportation Features, and Solid Waste Diversion Features listed above, the Applicant commissioned the WLC *Comparison of Renewable Energy Technologies* report (WSP, 2018) to compare feasible, cost-effective renewable energy technologies that could be incorporated into the project design. The report evaluates additional project design options for the WLC that could improve energy performance and increase the use of renewable energy. The screening criteria used to evaluate feasibility include GHG emissions, resiliency, financial constraints, technical constraints, and regulatory constraints. Both on-site and off-site sources of renewable energy were considered.

As an overall strategy, the report recommends eliminating the need for natural gas in building systems and maximizing onsite renewable electricity generation to position the WLC to become an all-electric development that has the future potential to operate 100% on renewable electricity.<sup>28</sup>

The State's Energy Action Plan, first developed in 2003, established a "loading order" to address the state's energy needs. This loading order states that investments in energy efficiency and demand-side resources be considered first, followed by renewable resources and then clean conventional electricity supply.<sup>29</sup>

Recognizing that energy efficiency is the least-cost sustainable energy resource available, the *Comparison of Renewable Energy Technologies* report recommends implementing all feasible and cost-effective energy conservation measures (ECMs) before determining the feasibility and cost-effectiveness of renewable energy supply options. In addition to reducing energy demand associated with the project, improving the energy efficiency of the buildings will reduce the additional electrical distribution capacity that must be built to supply the project, and help minimize expansion of the electricity distribution infrastructure (e.g., substation and transformer) and the associated local distribution capital costs. To that end, the report identifies feasible and cost-effective ECMs that go beyond the PDFs in the WLCSP and can further reduce building energy consumption beyond the minimum requirements of the current (2019) Title 24 energy code, and help achieve or exceed LEED Certified Building Standards. The ECMs address internal loads, such as lighting and equipment, as well as the energy required to provide heating, cooling, and domestic hot water. Key ECMs in the recommended package that go beyond the PDFs in the WLCSP are variable refrigerant flow (VRF) heat pumps providing heating and cooling to the office spaces, direct evaporative cooling as the first cooling stage and VRF as the supplemental cooling stage for air-conditioned warehouse spaces, LED lighting throughout the offices and warehouses, and LED exterior and parking lot lighting. If fully implemented by the project, the ECMs in combination with the WLCSP PDFs are expected to deliver energy performance that exceeds the current minimum Title 24 requirements by approximately 17 percent at Phase 1 and 16 percent at full buildout:

Building Envelope:

- Optimal Vertical Fenestration Construction
- Optimal Skylight Construction
- Optimal Window to Wall Ratio
- Optimal Skylight to Roof Ratio

Exterior Loads:

- LED exterior lighting

---

<sup>28</sup> The State of California is expected to require net-zero energy (ZNE) buildings in future updates to Title 24 building standards. By proactively embracing an all-electric building design and committing to solar-ready roof construction, WLC would be net-zero-ready and in a stronger position for compliance with future Title 24 updates.

<sup>29</sup> California Public Utilities Commission, Energy Action Plan, 2003. Available at: <https://www.cpuc.ca.gov/eaps/>. Accessed November 2019.

- Daylight sensor based exterior lighting

Internal Equipment Loads:

- Automatic Receptacle Control
- Highest Efficiency Office Equipment
- Highest Efficiency Other Internal Loads

Lighting:

- Multi-Level Switching
- High Performance Lighting (LED)
- Use separate controls for lighting areas near windows
- Occupant sensors

Daylighting:

- High-on-wall continuous daylighting windows/clerestory windows
- Optimal Daylighting Control
- Dimming daylight controls

HVAC:

- Thermostat setback/setup
- Shut off outdoor air and exhaust air dampers during unoccupied periods
- Supply air temperature reset
- High Performance Fans
- Variable Speed Fans
- High efficiency pumps
- Variable Speed Pump motors
- Reduce service water consumption
- Efficient service water pumping
- Integrated and optimized air side economizer
- Direct Evaporative Cooling
- Variable refrigerant flow heat pump & cooling
- Dedicated Outside Air System Ventilation with Heat Recovery
- Demand controlled ventilation/CO2 controls

On-Site Renewable Energy

The WLC Specific Plan commits the WLC project to meeting the annual energy requirements of all office spaces with PV, thereby effectively achieving net-zero energy (NZE) office operations. The *Comparison of Renewable Energy Technologies* report estimates that the offices in each typical WLC building would consume about 474,120 kWh/yr in Phase 1 and experience a peak electric demand of about 280 kW. At buildout, the offices in each building would consume about 417,230 kWh/yr and experience a peak demand of about 270 kW. The report also found that the maximum allowed amount

of PV capacity/building in Phase 1 (300 kW) will generate about 512,275 kWh/yr at the WLC location. The maximum allowed amount of PV capacity/building at buildout (800 kW) will generate about 1,366,400 kWh/yr. These maximum allowed PV capacities are sufficient in both Phase 1 and buildout to satisfy 100% of the office energy needs, thereby meeting the NZE objective for WLC office space.

A system that combines PV with battery storage of excess solar generation was considered, but the MVU solar sizing limitations and the estimated WLC project demands do not result in excess solar generation that could be used to charge a battery. In addition, MVU's Time-of-Use rate structure is not compatible with the project's peak electrical usage (load curve) making the use of batteries to deliver any meaningful reduction an unviable option.

Considering the air emissions constraints, MVU rate structures, project electric load curves, and MVU PV sizing rules, rooftop PV systems without energy storage were determined to be the project's best sustainable clean energy supply option. The use of PV in each phase of the WLC project would cover both the peak electric load generated by the offices and the annual energy usage of the offices. Utilizing the maximum permitted amount of rooftop PV would enable the project office spaces to achieve effectively ZNE operations. Project Design Features include roofs with the structural integrity that can accommodate the possibility of future solar installation over the entire roof of each building. At a minimum, the project will install enough solar power in both phases to meet energy needs of the project's office spaces.

The *Comparison of Renewable Energy Technologies* report found that the use of on-site battery storage and vehicle-to-grid (V2G) technology<sup>30</sup> are not viable under current regulatory and economic conditions. MVU currently has no policies or rules that would allow WLC to use battery storage to increase usage of solar electricity. V2G technology is not yet commercialized, and MVU rules and rate structures would need to change to accommodate V2G technology and to incentivize EV owners to make their vehicle's batteries available while the vehicle is parked.

#### Off-Site Renewable Energy Procurement

While WLC tenants are expected to purchase electricity from MVU, there are multiple off-site renewable electricity procurement options available to them, if they are willing to incur the associated price premium. Understanding the risk profiles, market credibility, and regulatory implications of different renewable energy procurement options is paramount to making an informed decision. WSP evaluated the following options:

- Unbundled renewable energy certificates (RECs);
- Power purchase agreements (PPAs);
- Community choice aggregation (CCA);
- Green tariffs.

There is no one-size-fits-all recommendation for WLC tenant procurement of off-site renewable energy. Each tenant's circumstances are likely to be unique, so the best off-site procurement option for one tenant may very well not be the best option for another tenant.

To meet the Project Objectives and the City's Economic Development Objectives (see Section 1.3.1 of the WLC Specific Plan), WLC must establish and maintain a competitive position in the marketplace. The price premium associated with off-site renewable energy procurement would increase WLC tenant utility costs and thus run counter to the Project Objectives and the City's Economic Development Objectives. It would therefore be counterproductive to require WLC tenants to procure renewable

<sup>30</sup> A V2G system uses the on-board battery packs of parked electric vehicles as distributed energy resources to store electricity for use during peak electricity demand periods. In the future, it is expected that smart controls on EV charging stations will enable each EV owner to decide whether or not to allow V2G charging and discharging of the EV's battery pack.

energy from off-site sources. For these reasons, the concept of requiring a tenant to procure off-site renewable energy was not considered a viable sustainable supply option to impose on the project.

#### Transportation Energy

For transportation energy, the *Transportation Energy Technical Study* (ESA, 2018) was conducted to compare feasible, cost-effective options for integrating the use of renewable energy and improving the overall energy performance of transportation operations associated with the WLC project. The *Transportation Energy Technical Study* considered a wide range of fuel and vehicle options across all vehicle classes, and assessed feasibility based on applicability to the project, relative cost, commercial readiness, funding availability, policy and regulatory support, potential industry partners, and other factors.

The *Transportation Energy Technical Study* found that zero emission vehicle (ZEV) technology is steadily developing for both light-duty and heavy-duty vehicles, driven by both regulatory developments and market forces. ZEVs encompass a range of technologies including battery electric vehicles (BEVs), hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and range extended electric vehicles (REEVs) that utilize a fuel cell as an additional energy source. As outlined in the *Transportation Energy Technical Study* and summarized in the Vehicle Scenarios above, commercialization of passenger vehicles is occurring rapidly. A significant population of passenger EVs is expected at the site by Phase 1 (2025) and that number will increase substantially by full buildout of the project (2040) (2035), representing a potential significant demand for on-site charging. The study also found that development of electric medium- or heavy-duty vehicles is still in the pilot or demonstration phase and it is not possible to predict when they will become commercially available.

Although it is speculative to state what the regional fleet mix will be as each phase of the project is completed, and the adoption of ZEVs by WLC employees and customers will be beyond the direct control of the WLC, all EV types should be anticipated in planning for the onsite charging infrastructure. To that end, the project will construct the WLC parking areas with cable raceways for installing future EV charging stations, which will enable WLC to more readily and cost effectively provide this service to future tenants if and when demand dictates.

#### **4.17.6 Mitigation Measures**

In addition to the PDFs regarding energy conservation and renewable energy, the Revised Draft Recirculated Sections of the FEIR include the following mitigation measures for other environmental impacts that reduce potential impacts of the WLC project relative to energy use. The complete mitigation measures below can be found in the Executive Summary.

**Air Quality Mitigation Measure 4.3.6.2A (construction fuel)** would require that construction equipment greater than 50 horsepower be USEPA Tier 4 emissions compliant and limits on-site idling of all diesel-powered construction equipment, delivery vehicles, and delivery trucks to three minutes in any one hour.

**AQ Mitigation Measure 4.3.6.3B (long haul trucks).** Require model year 2010 medium-heavy duty and heavy-heavy duty trucks or later.

**AQ Mitigation Measure 4.3.6.4A:** Includes several measures related to bicycle and pedestrian facilities and infrastructure, electric vehicle infrastructure, and ridesharing as conditions to any Plot Plan approval within the WLC site.

**Utilities Mitigation Measure 4.16.1.6.1A** would reduce outdoor water usage which in turn reduces energy use associated with the conveyance of that water.

**Utilities Mitigation Measure 4.16.1.6.1B** would reduce interior water usage, including low flow fittings, fixtures and equipment.

**Utilities Mitigation Measure 4.16.1.6.1C** would allow reclaimed water to be used for irrigation.

**Greenhouse Gas Mitigation Measure 4.7.6.1A (waste diversion).** Recycling and composting availability and reduce operational waste by at least 50 percent before 2020 and 75 percent after.

**Greenhouse Gas Mitigation Measure 4.7.6.1B** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1A for building energy). Each application for a building permit shall include energy calculations to demonstrate compliance with California Energy Efficiency Standards (Title 24, Part 6).

**Greenhouse Gas Mitigation Measure 4.7.6.1C** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1B building energy). Prior to the issuance of any building permits within the WLC site, each project developer shall submit energy calculations used to demonstrate compliance with the performance approach to the California Energy Efficiency Standards, for each new structure.

**Greenhouse Gas Mitigation Measure 4.7.6.1D** (Previously Included as Utilities Mitigation Measure 4.16.4.6.1C building energy; now modified). Prior to the issuance of a building permit, new development shall demonstrate that each building has implemented the following:

- Install solar panels with a capacity equal to the peak daily demand for the ancillary office uses in each warehouse building or up to the limit allowed by MVU's restriction on distributed solar PV connecting to their grid, whichever is greater;
- Increase efficiency for buildings by implementing either 10 percent over the 2008 Title 24's energy saving requirements or the Title 24 requirements in place at the time the building permit is approved, whichever is more stringent; and
- Require the equivalent of "Leadership in Energy and Environmental Design Certified" for the buildings constructed at the World Logistics Center based on Leadership in Energy and Environmental Design Certified standards in effect at the time of project approval.

## **4.17.7 Less than Significant Impacts**

### **4.17.7.1 Energy Consumption and Generation**

Threshold	Would the proposed project result in energy use and consumption that would cause wasteful, inefficient, and unnecessary consumption of energy?
-----------	--

#### Construction

##### Electricity

Electrical power would be consumed to construct the project. Electricity would be supplied by MVU, with electrical service extended to specific construction sites from existing infrastructure throughout the WLC site area, as warranted. Specifically, construction offices and security lighting are expected to be powered by MVU-provided electricity. However, diesel powered generators are expected to be used to power tools in remote portions of the construction sites (diesel use discussed below). The City's noise ordinance generally restricts construction during nighttime hours (See Section 4.12.3, the City of Moreno Valley Noise Ordinance as well as Section 4.12, *Noise*, in the Revised Sections of the FEIR), which would minimize the need for nighttime lighting.

However, on-site construction activities are expected to occur outside of the allowed construction hours specified in the City of Moreno Valley Noise Ordinance. The operation of each piece of off-road equipment within the on-site construction areas (i.e., Plots 1 through 22) would not be constant throughout the day, as equipment would be turned off when not in use. Most of the time over a typical work day, the equipment would be operating at different locations within the various plots of the project site and would be largely intermittent. Should 24-hour concrete pouring occur, the project would use

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

light carts powered by diesel to illuminate pouring areas. The light carts used for continuous pouring are included in the construction transportation energy analysis below.

The project would require electricity for water conveyance during ground-moving activities. The project site spans 2,600+ acres and would require a relatively large amount of water to cover the affected construction areas. Electrical consumption due to the conveyance of water used for dust control is presented in Table 4.17-2, below.

**Table 4.17-2: WLC Project Construction Electricity Use**

<b>Source</b>	<b>Electricity (MWh per year)</b>
Water Conveyance from Dust Control and Grading (Annual Average over 15-16 year construction period) <sup>b</sup>	1,496
<b>2020 MVU Electricity Sales (MVU 2016)</b>	<b>312,786</b>
<b>% of MVU Electricity Usage</b>	<b>0.48%</b>

SOURCE: ESA 2018; MVU 2016

NOTES:

<sup>a</sup> Moreno Valley Utility, 2015/16 Annual Report (2016). Available at: [http://www.moreno-valley.ca.us/resident\\_services/utilities/pdfs/mvuAnnualReport0217.pdf](http://www.moreno-valley.ca.us/resident_services/utilities/pdfs/mvuAnnualReport0217.pdf). Accessed April 2018.

<sup>b</sup> Derived from estimated construction water use in CalEEMod runs from 2015 FEIR.

**Table 4.17-2: WLC Project Construction Electricity Use**

<b>Source</b>	<b>Electricity (MWh per year)</b>
Water Conveyance from Dust Control and Grading (annual average over 15- to 16-year construction period) <sup>b</sup>	1,496
<b>2020 MVU Electricity Sales (MVU 2018)<sup>a</sup></b>	<b>201,787</b>
<b>% of MVU Electricity Usage</b>	<b>0.74%</b>

Notes:

<sup>a</sup> Moreno Valley Utility, 2018 Integrated Resource Plan (2018). Available at: <http://www.moval.org/mvu/pubs/MVU-IRP-Report-072018.pdf>. Accessed September 2019.

<sup>b</sup> Derived from estimated construction water use in CalEEMod runs from 2015 FEIR.

Sources: ESA 2018; MVU 2016

Water use related to dust control is regulated under SCAQMD’s Rules 402 and 403 and is required to limit fugitive particulate matter generated by construction activities. The project would be in compliance with Rules 402 and 403 and would require a relatively large amount of water to cover the entire acreage of the project site. The expected electricity consumption associated with water use equates to only 0.48 0.74 percent of MVU’s forecasted sales for 2020 (expected starting year of construction).

The electrical demand would vary throughout the construction period based on the construction activities being conducted. Additionally, when not in use, electrical equipment would be powered off to avoid unnecessary energy consumption.

~~Therefore, since electricity from water conveyance represents a relatively negligible percentage of total electricity use, and night construction activities would be intermittent and would not require electricity, construction activities would not result in the wasteful, inefficient, and unnecessary consumption of electricity, and impacts would be less than significant.~~

Although there is a temporary increase in electricity consumption at the site during construction, the electrical consumption would be within the supply and infrastructure capabilities of MVU (201,787 MWh

projected energy for 2020).<sup>31</sup> The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed, and would cease upon completion of construction. Electricity use from construction would be short-term, and limited to working hours, used for necessary construction-related activities and night construction activities would not require electricity, construction activities would not result in the wasteful, inefficient, and unnecessary consumption of electricity, and impacts would be less than significant.

**Natural Gas**

Natural gas is not expected to be consumed in any substantial quantities during construction of the WLC project. Therefore, related to the consumption of natural gas during construction, the project would have no impact.

**Transportation Energy**

The estimated fuel usage for off-road equipment is based on the number and type of equipment that would be used during construction activities, hour usage estimates, the total duration of construction activities, and hourly equipment fuel consumption factors from the OFFROAD<sub>2017</sub> model. On-road equipment would include trucks to haul material to and from the project site, vendor trucks to deliver supplies necessary for project construction, and fuel used for construction worker commute trips. A summary of the annual fuel consumption during construction of the project is provided in Table 4.17-3; *WLC Project Construction Fuel Usage*. As shown in Table 4.17-3, on- and off-road vehicles would consume an estimated annual average of 1,553,812 gallons of diesel fuel and 54,103 gallons of gasoline for each year of project construction.

**Table 4.17-3: WLC Project Construction Fuel Usage**

<b>Source</b>	<b>Diesel Fuel (gallons per year)</b>	<b>Gasoline Fuel (gallons per year)</b>
<b>Construction:</b>		
Heavy-Duty Construction Equipment	1,212,964	—
Haul Trucks	94,155	—
Vendor Trucks	68,463	—
Worker Trips	—	36,169
<b>Annual Average (approximately up to a 15-16 year construction duration)</b>	<b>1,375,582</b>	<b>36,169</b>
<b>2016 Riverside County Fuel Sales (CEC 2016)</b>	<b>273,000,000<sup>a</sup></b>	<b>1,035,000,000<sup>b</sup></b>
<b>% of County Usage</b>	<b>0.50%</b>	<b>0.0035%</b>

SOURCE: ESA 2018; CEC 2016

NOTES:

<sup>a</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>b</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>31</sup> Southern California Edison, 2018. 2018 Annual Report, p. 2. 2018.

**Table 4.17-3: WLC Project Construction Fuel Usage**

<b>Source</b>	<b>Diesel Fuel (gallons per year)</b>	<b>Gasoline Fuel (gallons per year)</b>
Heavy-Duty Construction Equipment	1,370,308	=
Haul Trucks	106,877	=
Vendor Trucks	76,627	=
Worker Trips	=	54,103
<b>Annual Average (approximately up to a 15-16 year construction duration)</b>	<b>1,553,812</b>	<b>54,103</b>
<b>2018 Riverside County Fuel Sales (CEC 2019)</b>	<b>275,000,000<sup>a</sup></b>	<b>1,052,000,000<sup>b</sup></b>
<b>% of County Usage</b>	<b>0.57%</b>	<b>0.0051%</b>

Notes:

<sup>a</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>b</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

Source: ESA 2018; CEC 2016.

Compliance with the anti-idling regulation and the use of cleaner, more energy efficiency construction equipment would reduce the project’s annual average diesel fuel usage. As discussed previously, construction of the project would utilize fuel efficient equipment consistent with state and federal regulations, and would comply with State measures to reduce the inefficient, wasteful, and unnecessary consumption of energy. While these regulations are intended to reduce construction emissions, compliance with them would also result in energy savings.

In addition, the project would implement a construction waste management plan to divert 50 percent of mixed construction and demolition debris to City certified construction and demolition waste processors, consistent with the AB 341. Implementation of the construction waste management plan will likely reduce truck trips to landfills and/or material recovery facilities and increase the amount recycling and reuse of materials.

Based on the available data, construction would utilize energy for necessary on-site activities and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment would result in less fuel combustion and energy consumption and thus result in the efficient use of the project’s construction-related energy.

Construction of the WLC project would benefit from California’s Pavley/ACC standards that are designed to result in more efficient use of transportation fuels, because they would affect the vehicles used by workers and any light duty trucks used by vendors or haulers. These vehicle efficiency standards are the most stringent in the nation and among the most stringent in the world. In addition, the project would reduce fuel use by requiring that construction equipment greater than 50 horsepower be USEPA Tier 4 emissions compliant and by limiting on-site idling of all diesel-powered construction equipment, delivery vehicles, and delivery trucks to three minutes in any one hour, as specified in Mitigation Measure 4.3.6.2A.

Based on the analysis above, construction would utilize energy only for necessary on-site activities, construction worker travel to and from the project site, and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment would result in less fuel combustion and energy consumption and thus minimize the WLC project construction-related energy use. Therefore, construction of the Proposed Project would not result in the wasteful, inefficient, and unnecessary consumption of energy, and the impact would be **less than significant**.

Operation

Electricity

The WLC project would increase demand for electricity due to consumption by buildings, water supply and conveyance, and EV charging. The project's operational electricity demand was estimated for Phase 1 and Full Buildout by considering a Baseline scenario (minimum Title 24 compliance) and three project scenarios based on the Electric Vehicle Scenarios presented earlier. The project scenarios (Low, Medium, and High EV Penetration) all incorporate the energy conservation PDFs. The following assumptions were incorporated into the scenarios:

- The Title 24 Baseline scenario is based on the project's annual energy use being in minimum compliance with Title 24, including the Title 24 Part 6 requirement for the building energy efficiency and the Part 11 requirement that 6 percent of employee and visitor parking spaces be constructed to accommodate electric vehicle supply equipment (EVSE) for future electric vehicle charging. The Baseline scenario assumes that EV charging stations will be installed at 6 percent of the parking spaces by the time the project becomes operational.
- The project incorporates the Energy Conservation Measures (ECMs) from the WLC *Comparison of Renewable Energy Technologies* report<sup>32</sup> that would enable the project to exceed Title 24 energy standards by approximately 17 percent at Phase 1 and 16 percent at full buildout. As with the Title 24 Baseline Scenario, the project also assumes that EV charging stations will be installed at 6 percent of the parking spaces by the time the project becomes operational.
- The project implements the commitment to install rooftop solar PV generation designed so as to produce an amount of electricity equal to the power needs for the projected ancillary office portion of the warehouse buildings or up to the limit allowed by MVU's restriction on distributed solar PV connecting to the grid, whichever is greater.

The project's estimated operational electricity demand is provided in Table 4.17-4, ~~WLC Project Operational Electricity Usage~~ for the Title 24 Baseline Scenario and the three Electric Vehicle Scenarios.

As discussed above and shown on Table 4.17-4, the project implements commitments and strategies to lower electricity consumption needed for buildings (e.g. lighting, cooling, power equipment, and water conveyance). In 2025, electrical demand will be lowered with implementation of sustainability measures such as high efficiency lighting and appliances, skylights, and motion sensors, etc. As discussed above, the project would comply with and exceed the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance and buildings over 500,000 sf (representing more than 99 percent of total project square footage at buildout) will be LEED certified. Reliance on grid-supplied power is further offset by the generation of 12 MW of power through on-site rooftop solar PV. Thus, the Project + Low EV Penetration (Scenario A) uses approximately 14 percent less electricity than the baseline demand scenario. In ~~2040~~ 2035, the Project + Low EV Penetration Scenario would use approximately ~~15~~ 16 percent less electricity than the ~~2040~~ 2035 Baseline Scenario.

Although the Project + Medium EV Penetration Scenario would require more power than the Project + Low EV Penetration Scenario, the net electrical demand on MVU would still be ~~12~~ 11 percent less than the Baseline Scenario for 2025 due to the ECMs and on-site solar PV generation. For ~~2040~~ 2035, electricity use would be ~~15~~ 12 percent more than the Baseline Scenario due to the much higher EV penetration rates for light duty passenger cars and medium duty vehicles consistent with the 2016 Mobile Source Strategy.

<sup>32</sup> Referred to as Energy Conservation Measures (ECMs) in the *Comparison of Renewable Energy Technologies* report.

**Table 4.17-4 WLC Project Operational Electricity Usage**

<b>Source</b>	<b>Phase 1 – 2025 (MWh/yr)</b>	<b>Full Buildout – 2040 (MWh/yr)</b>
<b>MVU Electricity Forecast Sales (2024)<sup>a,b,c</sup></b>	<b>352,044</b>	<b>-</b>
<b>Title 24 Baseline Scenario</b>		
Building annual electricity <sup>d</sup>	194,287	330,649
EV charging annual electricity <sup>e</sup>	7,775	60,116
<b>Total</b>	<b>202,062</b>	<b>390,765</b>
<b>% of MVU Forecast</b>	<b>57%</b>	<b>-</b>
<b>Project + Low EV Penetration (Scenario A)</b>		
Building annual electricity <sup>d</sup>	174,423	298,084
EV charging annual electricity <sup>e</sup>	7,775	60,116
Electricity Savings from Solar PV <sup>f</sup>	-7,686	-24,083
<b>Total</b>	<b>174,512</b>	<b>334,117</b>
Change from Baseline	-27,550	-56,648
<b>% Change from Baseline</b>	<b>-14%</b>	<b>-15%</b>
<b>% of MVU Forecast</b>	<b>50%</b>	<b>-</b>
<b>Project + Medium EV Penetration (Scenario B)</b>		
Building annual electricity <sup>d</sup>	174,423	298,084
EV charging annual electricity <sup>e</sup>	10,687	174,279
Electricity Savings from Solar PV <sup>f</sup>	-7,686	-24,083
<b>Total</b>	<b>177,424</b>	<b>448,280</b>
Change from Baseline	-24,638	+57,515
<b>% Change from Baseline</b>	<b>-12%</b>	<b>+15%</b>
<b>% of MVU Forecast</b>	<b>50%</b>	<b>-</b>
<b>Project + High EV Penetration (Scenario C)</b>		
Building annual electricity <sup>d</sup>	174,423	298,084
EV charging annual electricity <sup>e</sup>	96,619	485,017
Electricity Savings from Solar PV <sup>f</sup>	-7,686	-24,083
<b>Total</b>	<b>263,356</b>	<b>759,018</b>
Change from Baseline	+61,294	+368,253
<b>% Change from Baseline</b>	<b>+30%</b>	<b>+94%</b>
<b>% of MVU Forecast</b>	<b>75%</b>	<b>-</b>

**NOTES:**

Scenario A through C's building energy is different from the baseline due to Project Design Features that exceed Title 24 energy standards. The baseline scenario complies with but does not exceed standards.

<sup>a</sup> Moreno Valley Utility, 2015 Integrated Resource Plan, March 2015.

<sup>b</sup> Electricity sales forecasts only available up to 2024 in MVU's IRP.

<sup>c</sup> Since MVU's forecast only extends until 2024, it is not possible to adequately estimate electricity use in 2040 and compare to future project use.

<sup>d</sup> Source: Evans, 2018; electricity consumption numbers estimated by WSP, as communicated by email (subject: WSP draft inputs—Building electricity) from Evan Evans to Jeff Caton on June 29, 2018.

<sup>e</sup> Source: ESA and CALSTART, 2018

<sup>f</sup> Source: WSP, 2018

**Table 4.17-4: WLC Project Operational Electricity Usage**

<b>Source</b>	<b>Phase 1 – 2025 (MWh/yr)</b>	<b>Full Buildout – 2035 (MWh/yr)</b>
MVU Electricity Forecast Sales (2024) <sup>a,b,c</sup>	231,555	338,063
<b>Title 24 Baseline Scenario</b>		
Building annual electricity <sup>c</sup>	194,287	330,649
EV charging annual electricity <sup>d</sup>	4,379	28,144
<b>Total</b>	<b>198,666</b>	<b>358,793</b>
<b>% of MVU Forecast</b>	<b>86%</b>	<b>106%</b>
<b>Project + Low EV Penetration (Scenario A)</b>		
Building annual electricity <sup>c</sup>	174,423	298,084
EV charging annual electricity <sup>d</sup>	4,379	28,144
Electricity Savings from Solar PV <sup>e</sup>	-7,686	-24,083
<b>Total</b>	<b>171,116</b>	<b>302,145</b>
<b>Change from Baseline</b>	<b>-27,550</b>	<b>-56,648</b>
<b>% Change from Baseline</b>	<b>-14%</b>	<b>-16%</b>
<b>% of MVU Forecast</b>	<b>74%</b>	<b>89%</b>
<b>Project + Medium EV Penetration (Scenario B)</b>		
Building annual electricity <sup>c</sup>	174,423	298,084
EV charging annual electricity <sup>d</sup>	9,157	127,132
Electricity Savings from Solar PV <sup>e</sup>	-7,686	-24,083
<b>Total</b>	<b>175,894</b>	<b>401,133</b>
<b>Change from Baseline</b>	<b>-22,772</b>	<b>42,340</b>
<b>% Change from Baseline</b>	<b>-11%</b>	<b>12%</b>
<b>% of MVU Forecast</b>	<b>76%</b>	<b>119%</b>
<b>Project + High EV Penetration (Scenario C)</b>		
Building annual electricity <sup>c</sup>	174,423	298,084
EV charging annual electricity <sup>d</sup>	95,089	356,321
Electricity Savings from Solar PV <sup>e</sup>	-7,686	-24,083
<b>Total</b>	<b>261,826</b>	<b>630,322</b>
<b>Change from Baseline</b>	<b>63,160</b>	<b>271,529</b>
<b>% Change from Baseline</b>	<b>32%</b>	<b>76%</b>
<b>% of MVU Forecast</b>	<b>113%</b>	<b>186%</b>

**Notes:**

Scenario A through C's building energy is different from the baseline due to Project Design Features that exceed Title 24 energy standards. The baseline scenario complies with but does not exceed standards.

<sup>a</sup> Moreno Valley Utility, 2018 Integrated Resource Plan, July 2018.

<sup>b</sup> Electricity sales forecasts only available up to 2037 in MVU's IRP.

<sup>c</sup> Source: Evans, 2018; electricity consumption numbers estimated by WSP, as communicated by email (subject: WSP draft inputs – Building electricity) from Evan Evans to Jeff Caton on June 29, 2018.

<sup>d</sup> Source: ESA and CALSTART, 2018

<sup>e</sup> Source: WSP, 2018.

In the Project + High EV Penetration Scenario, total electrical demand driven by populations of EV trucks would exceed total electrical demand in the Baseline Scenarios for 2025 and 2040 2035; however, a substantial reduction in the use of liquid transportation fuels (diesel and gasoline) would also be expected (see discussion below). Replacing VMT powered by the combustion of diesel and gasoline fuels with EV-generated VMT, especially as electricity becomes less GHG-intensive under the State's RPS, has the added advantage, or co-benefit, of reducing the emission of harmful air pollutants such as particulate matter (PM) and oxide of nitrogen (NOx) associated with transportation.

The feasibility of using medium and heavy duty EVs for delivery of goods to or from the WLC is, to a great extent, dependent on the nature of the warehousing operations. For example, many warehouses implement the “drop and drag” procedure, where a truck will bring goods to the facility, and the trailer (or sea-going cargo container) will be disconnected and left on-site for the lengthy process of unloading. An empty trailer may be connected and the truck quickly departs to return to its point of origin. Conversely, an out-bound truck is usually scheduled to retrieve a delivery load only once the container/trailer is full. Thus, trucks are not on-site or idle for long enough times to obtain a meaningful battery charge. Medium-duty and heavy-duty zero emission trucks are in the very early stages of commercially market deployment and currently cost substantially more than conventionally fueled trucks, and current funding assistance programs do not fully offset that cost difference (ESA and CALSTART, 2018). Given that the future tenants of the WLC are not known and cannot be identified at this time, it would be speculative to assume the High EV Penetration Scenario would be practicable or feasible by 2025 or by ~~2040~~ 2035.

In regard to forecasting, such as done with EV penetration rates to generate the scenarios evaluated, the *Laurel Heights* Court commented that an agency is required to forecast only to the extent that an activity could be reasonably expected under the circumstances. The Court recognizes that an agency cannot be expected to predict the future course of governmental regulation or exactly what information scientific advances may ultimately reveal. *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376. Therefore, in light of the changes to market and regulatory drivers that would have to occur to make medium and heavy duty EVs widely implemented and feasible by 2025 or ~~2040~~ 2035 to the now unknown future tenants of the WLC, the potential for the electrical demand projected under the Project + High EV Penetration Scenario to materialize is highly speculative. CEQA Guidelines Section 15145 advise “*If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.*” Therefore, any effects to energy resources from achieving the Project + High EV Penetration Scenario would be highly speculative, and associated analyses are presented herein for informational purposes only.

MVU forecasts that its peak demand in 2024 2025, the furthest forecasted year in its 2015 IRP would be approximately ~~352,044~~ 231,555 MWh per year.<sup>33</sup> This is approximately ~~90~~ 25 percent higher than the 185,000 MWh that MVU sold to all customers in its area for the 2015-2016 fiscal year. As shown in Table 4.17-4, the WLC project’s estimated electrical consumption would account for between 74 and 113 percent of MVU’s projected electricity projected sales depending on the EV penetration scenario for Phase 1 (2025). However, MVU’s ~~2015~~ 2018 IRP anticipates growth in the region and specifically considers the electrical demand generated by energy-intensive account focused in the logistics industry. The IRP states that large energy-intensive projects like the WLC project are included in the projected growth. Therefore, it is reasonable to assume that MVU’s existing and planned electricity supplies could support the project’s electricity demand calculated for the Project + Low EV Penetration (Scenario A) and the Project + Medium EV Penetration (Scenario B) by 2025. Any determination of MVU’s need for additional capacity beyond what is planned would be speculative and depend on the cumulative demand within MVU’s service area.

As stated above, effects attributable to the Project + High EV Penetration Scenarios would be highly speculative, and could be as much as ~~75~~ 113 percent of MVU’s projected forecast sales in 2024. ~~Since the 2015 IRP only forecasts out to 2024, projecting MVU’s electricity use and supply for the full buildout 2040 Scenarios would also be highly speculative.~~ MVU has a considerable amount of time to procure energy resources in anticipation of the project’s development, and has committed to taking the WLC project’s needs into consideration in future IRP development.

Based on MVU’s forecasts, the peak demand for their power grid in 2024 2025 will be ~~79~~ 83.4 MW.<sup>34</sup> The project’s annual peak demand from buildings is expected to be 34.9 MW in 2025 and 58.2 MW in ~~2040~~ 2035, as shown in Table 4.17-5. For the Low and Medium EV Penetration Scenarios, the total

<sup>33</sup> Moreno Valley Utility, 2015 Integrated Resource Plan, March 2015.

<sup>34</sup> Moreno Valley Utility, 2018 Integrated Resource Plan, July 2018.

peak demand including EV loads could be ~~36~~ 35.6 MW and 36.5 MW for 2025, respectively. By the year ~~2040~~ 2035, the annual peak demand for the Low and Medium EV Penetration Scenarios could total ~~67.3~~ 64.1 MW and 84.6 MW, respectively. However, as stated above, forecasting project peak demand and MVU's peak demand for 2035 is highly speculative and would depend on cumulative demand. The peak demand for ~~2040~~ 2035 is included for informational purposes.

**Table 4.17-5: WLC Project Annual Peak Demand**

Source	Peak Demand (MW)	
	2025	2040
Building Demand	34.9	58.2
Scenario A Low EV Penetration	1.1	9.1
<b>Total</b>	<b>36.0</b>	<b>67.3</b>
Building Demand	34.9	58.2
Scenario B Medium EV Penetration	1.6	26.4
<b>Total</b>	<b>36.5</b>	<b>84.6</b>
Building Demand	34.9	58.2
Scenario C High EV Penetration	14.6	73.4
<b>Total</b>	<b>49.5</b>	<b>131.6</b>

SOURCE: WSP 2018 and ESA 2018

**Table 4.17-5: WLC Project Annual Peak Demand**

Source	Peak Demand (MW)	
	2025	2035
Building Demand	<u>34.9</u>	<u>58.2</u>
Scenario A Low EV Penetration	<u>0.7</u>	<u>5.9</u>
<b>Total</b>	<b><u>35.6</u></b>	<b><u>64.1</u></b>
Building Demand	<u>34.9</u>	<u>58.2</u>
Scenario B Medium EV Penetration	<u>1.6</u>	<u>26.4</u>
<b>Total</b>	<b><u>36.5</u></b>	<b><u>84.6</u></b>
Building Demand	<u>34.9</u>	<u>58.2</u>
Scenario C High EV Penetration	<u>19.5</u>	<u>74.4</u>
<b>Total</b>	<b><u>54.4</u></b>	<b><u>132.6</u></b>

Source: WSP 2018 and ESA 2018

MVU's electrical generation is derived from a mix of non-renewable and renewable sources such as coal, natural gas, solar, geothermal, wind, and hydropower. MVU's ~~2015~~ 2018 Power Integrated Resources Plan identifies adequate resources to support future generation capacity, and a new ~~115~~ 115 kV substation is proposed to be constructed within the WLC site. With regard to renewable energy sources, the project would use electricity provided by MVU, which MVU is required to meet the 2050 RPS. MVU's current source of renewable resources include wind, solar, and hydroelectric and account for 17 percent of MVU's overall energy mix for ~~2016~~ 2017 (the most current year data is available for).<sup>35</sup> The project itself is incorporating renewable energy sources with a minimum of 14.1 MW of rooftop solar at buildout to achieve a net-zero energy use for the estimated office demands. At full buildout WLC will feature the equivalent of twenty-seven 60,000 square-foot net-zero office buildings. To put this in context, the entire State of California has about 190 net-zero commercial buildings that are

<sup>35</sup> California Energy Commission, Utility Annual Power Content Labels for 2017. <http://www.energy.ca.gov/pcl/labels/>. Accessed September 2019.

currently verified or designed as of 2017 (CPUC, 2017). This solar commitment would be within the solar PV limitations set by MVU.

In addition to the solar commitment the WLC project would implement energy performance improvement measures to exceed the current minimum Title 24 requirements ~~by approximately 17 percent at Phase 1 and 16 percent improvement at full buildout~~ after Phase 1 and full buildout. Although the project would result in moderate increases in annual electrical demand compared to MVU’s current supply, for the low and medium EV penetration scenarios, MVU is committed to meeting the project’s electricity demand through a future IRP update and planning process. Therefore, with the incorporation of these features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of electricity, would not cause a need for additional capacity regionally or locally, and would not affect electricity resources to the extent that electricity demand can reasonably be projected and assessed.

**Building Natural Gas**

The WLC project could increase the demand for natural gas resources through the project’s commitment to a CNG/LNG fueling station,<sup>36</sup> but the project’s operational natural gas demand from buildings is expected to be zero, as shown in Table 4.17-6. The project would mostly comprise high-cube warehouses that do not require heating from natural gas. The spaces that do require heating are ancillary office spaces. Because all heating and cooling is provided via direct evaporative cooling and heat pumps, natural gas is not required. This allows the project to reduce on-site fossil fuel combustion that would normally be associated with service water and space heating. The Title 24 Baseline scenario assumes compliance but not exceedance of energy standards and includes annual natural gas use equating to 51,274 MMBtu in 2025 and 84,771 MMBtu in 2040 ~~2035~~. As such, the project would result in a 100 percent decrease in consumption of natural gas from the Title 24 Baseline scenario for both Phase 1 and Full Buildout.

**Table 4.17-6: WLC Project Operational Natural Gas Usage in Buildings**

<b>Source</b>	<b>Phase 1 – 2025 (MMBtu/yr)</b>	<b>Full Buildout – 2040 (MMBtu/yr)</b>
<b>SoCal Gas (2016)<sup>a</sup></b>	<b>304,290</b>	<b>304,290</b>
<b>Title 24 Baseline Scenario:</b>		
Building annual natural gas	51,274	84,771
<b>% of SoCal Gas</b>	<b>17%</b>	<b>28%</b>
<b>All-Electric Project:</b>		
Building annual natural gas	0	0
<b>% of SoCal Gas</b>	<b>0%</b>	<b>0%</b>

NOTES:

<sup>a</sup> Total Sempra natural gas sales, from Sempra Energy, 2016 Annual Report, (2017). Available at: [https://www.sempra.com/sites/default/files/microsites/2016\\_annualreport/](https://www.sempra.com/sites/default/files/microsites/2016_annualreport/). Accessed July 2018. Converted from 294 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, April 28, 2017. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed October 2017).

SOURCE: WSP 2018

<sup>36</sup> For natural gas use from CNG/LNG fueling station, see discussion under Transportation Energy, below.

**Table 4.17-6: WLC Project Operational Natural Gas Usage in Buildings**

<b>Source</b>	<b>Phase 1 – 2025 (MMBtu/yr)</b>	<b>Full Buildout – 2035 (MMBtu/yr)</b>
<b>SoCal Gas (2018)<sup>a</sup></b>	<b>991,659,375</b>	<b>873,793,575</b>
<b>Title 24 Baseline Scenario:</b>		
<u>Building annual natural gas</u>	<u>51,274</u>	<u>84,771</u>
<u>% of SoCal Gas</u>	<u>0.005%</u>	<u>0.010%</u>
<b>All-Electric Project:</b>		
<u>Building annual natural gas</u>	<u>0</u>	<u>0</u>
<u>% of SoCal Gas</u>	<u>0%</u>	<u>0%</u>

**Notes:**

<sup>a</sup> California Gas and Electric Utilities, 2018 California Gas Report (2018). Available at: [https://www.socalgas.com/regulatory/documents/cgr/2018\\_California\\_Gas\\_Report.pdf](https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf). Accessed September 2019. Converted from 958 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed September 2019). Source: WSP 2018

**Transportation Energy**

Like operational electricity discussed above, the transportation energy usage was estimated for three EV penetration scenarios and for two different phases of development (Phase 1 and Full Buildout). In the context of transportation fuels, the Project + Low EV Penetration scenario represents the “baseline” scenario, as it assumes EV penetrations consistent with the EMFAC2014 EMFAC2017 transportation model used in standard CEQA analysis. As explained in Section 4.17.3.3 *Technology Advancement*, the Medium EV Penetration and High EV Penetration Scenarios assume statewide attainment of the higher EV targets in the 2016 California Mobile Source Strategy or the 2017 Scoping Plan Update.

The WLC project’s estimated operational transportation fuel demand is provided in Table 4.17-7. As discussed previously, the project would support statewide efforts to improve transportation energy efficiency and reduce fossil fuel consumption by private automobiles. The project would also include the installation of electric vehicle supply equipment (EVSE) pursuant to Title 24, part 6 of the CALGreen Code. According to the EMFAC2014 EMFAC2017 model, electric vehicles should account for approximately 2.5 percent of passenger vehicles<sup>37</sup> in 2025 and 4.7 percent by 2035 in the SoCAB region. The estimated potential fuel savings from the increased population of EVs is provided in Table 4.17-7.

As discussed under Section 4.17.3, *Methodology*, and presented in Table 4.17-7 above, the WLC project would provide the infrastructure for supporting a higher population of electric vehicles, in direct support of the state’s targets of 1.5 million ZEVs by 2025 and 4.2 million ZEVs by 2035. The increase in EV populations will increase demand for electricity but reduce demand for fossil-based vehicle fuels.

Estimates for the number of EVs and the expected annual electricity demand associated with each of the three vehicle scenarios are presented below in Tables 4.17-8 through 4.17-10, based on the information summarized in Section 4.17.3, *Methodology*.

<sup>37</sup> As defined by the traffic modeling for the project, passenger vehicles include the EMFAC2017 vehicle categories of Light Duty Automobile (LDA) and Light Duty Truck (LDT1 and LDT2).

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 4.17-7: WLC Project Operational Fuel Usage**

Source	2025			2040		
	Gallons of Diesel Fuel Per Year (gallons) <sup>a</sup>	Gallons of Gasoline Fuel Per Year (gallons) <sup>b</sup>	Electricity Use Per Year (MWh)	Gallons of Diesel Fuel Per Year (gallons) <sup>a</sup>	Gallons of Gasoline Fuel Per Year (gallons) <sup>b</sup>	Electricity Use Per Year (MWh)
County of Riverside (Transportation Sector) 2016/ MVU 2024 <sup>c</sup>	273,000,000	1,035,000,000	352,044	273,000,000	1,035,000,000	352,044
<b>Project + Low EV Penetration (Scenario A)</b>						
Low EV Penetration	36,678	22,940	7,789	60,755	30,886	60,105
% of County	0.013%	0.0022%	2.2%	0.022%	0.003%	17%
<b>Project + Medium EV Penetration (Scenario B)</b>						
Medium EV Penetration	36,674	22,607	10,687	60,674	26,036	174,279
% of County	0.013%	0.0022%	3%	0.022%	0.002%	50%
% change from Low EV	-0.01%	-1.3%	+37%	-0.1%	-16%	+190%
<b>Project + High EV Penetration (Scenario C)</b>						
High EV Penetration	29,507	21,663	96,619	36,989	23,142	485,017
% of County	0.011%	0.0021%	27%	0.014%	0.002%	138%
% change from Low EV	-20%	-5%	+1,140%	-39%	-25%	+707%

SOURCE: ESA 2018

NOTES:

<sup>a</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>b</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>c</sup> Moreno Valley Utility, 2015 Integrated Resource Plan, March 2015.

**Table 4.17-7: WLC Project Operational Fuel Usage**

Source	2025				2035			
	Gallons of Diesel Fuel per Year (gallons) <sup>a</sup>	Gallons of Gasoline Fuel per Year (gallons) <sup>b</sup>	Electricity Use per Year (MWh)	Natural Gas Use per Year (MMBtu)	Gallons of Diesel Fuel per Year (gallons) <sup>a</sup>	Gallons of Gasoline Fuel per Year (gallons) <sup>b</sup>	Electricity Use per Year (MWh)	Natural Gas Use per Year (MMBtu)
<b>County of Riverside (Transportation Sector) 2018/MVU 2024<sup>c</sup>/SoCalGas<sup>d</sup></b>	<b>275,000,000</b>	<b>1,052,000,000</b>	<b>231,555</b>	<b>991,659,375</b>	<b>275,000,000</b>	<b>1,052,000,000</b>	<b>338,063</b>	<b>873,793,575</b>
<b>Project + Low EV Penetration (Scenario A)</b>								
Low EV Penetration	32,464	21,456	4,379	612	45,345	30,327	28,144	1,094
% of County	0.012%	0.0020%	1.9%	0.0001%	0.016%	0.003%	8.3%	0.0001%
<b>Project + Medium EV Penetration (Scenario B)</b>								
Medium EV Penetration	32,464	21,002	9,157	612	45,345	26,313	127,132	1,094
% of County	0.0118%	0.0020%	3.95%	0.0001%	0.0165%	0.0025%	37.6%	0.0001%
% change from Low EV	0.00%	-2.12%	109.11%	0.00%	0.00%	-13.24%	351.72%	0.0%
<b>Project + High EV Penetration (Scenario C)</b>								
High EV Penetration	25,562	20,747	95,089	612	30,796	25,584	356,321	1,094
% of County	0.0093%	0.0020%	41.1%	0.0001%	0.0112%	0.0024%	105.4%	0.0001%
% change from Low EV	-21.26%	-3.31%	2,071.5%	0.00%	-32.09%	-15.64%	1,166.1%	0.0%

**Notes:**

<sup>a</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>b</sup> California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2016. Available at: [http://www.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed April 2018. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>c</sup> Moreno Valley Utility, 2015 Integrated Resource Plan, March 2015.

<sup>d</sup> California Gas and Electric Utilities, 2018 California Gas Report (2018). Available at: [https://www.socalgas.com/regulatory/documents/cgr/2018\\_California\\_Gas\\_Report.pdf](https://www.socalgas.com/regulatory/documents/cgr/2018_California_Gas_Report.pdf). Accessed September 2019. Converted from 958 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed September 2019).

Source: ESA, 2019.

**Table 4.17-8: Scenario A: Low EV Penetration Charging Loads**

Vehicle Type	2025				2040			
	Population	Peak Rate (MW)	Avg Daily (MWh)	Avg Annual (MWh)	Population	Peak Rate (MW)	Avg Daily (MWh)	Avg Annual (MWh)
Passenger Vehicles	533	1.1	21.3	7,789	2,058	9.1	164.7	60,105
Light Trucks (2 axle)	0	0	0	0	0	0	0	0
Medium Trucks (3 axle)	0	0	0	0	0	0	0	0
Large Trucks (4+ axle)	0	0	0	0	0	0	0	0
<b>Total</b>	<b>533</b>	<b>1.1</b>	<b>21.3</b>	<b>7,789</b>	<b>2,058</b>	<b>9.1</b>	<b>164.7</b>	<b>60,105</b>

**Table 4.17-8: Scenario A: Low EV Penetration Charging Loads**

Vehicle Type	2025				2035			
	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)
Passenger Vehicles	288	0.7	11.5	4,206	937	5.7	74.9	27,351
Light Trucks (2 axles)	12	0.1	0.5	173	54	0.1	2.2	793
Medium Trucks (3 axles)	0	0	0	0	0	0	0	0
Large Trucks (4+ axles)	0	0	0	0	0	0	0	0
<b>Total</b>	<b>288</b>	<b>0.8</b>	<b>12.0</b>	<b>4,379</b>	<b>991</b>	<b>5.8</b>	<b>77.1</b>	<b>28,144</b>

**Table 4.17-9: Scenario B: Medium EV Penetration Charging Loads**

Vehicle Type	2025				2040			
	Popula- tion	Peak Rate (MW)	Avg Daily (MWh)	Avg Annual (MWh)	Populati- on	Peak Rate (MW)	Avg Daily (MWh)	Avg Annual (MWh)
Passenger Vehicles	659	1.4	26.4	9,622	5,795	25.6	464	169,214
Light Trucks (2 axle)	73	0.2	2.9	4,065	346	0.8	13.9	5,065
Medium Trucks (3 axle)	0	0	0	0	0	0	0	0
Large Trucks (4+ axle)	0	0	0	0	0	0	0	0
<b>Total</b>	<b>732</b>	<b>1.6</b>	<b>29.3</b>	<b>10,687</b>	<b>6,141</b>	<b>26.4</b>	<b>478</b>	<b>174,279</b>

**Table 4.17-9: Scenario B: Medium EV Penetration Charging Loads**

Vehicle Type	2025				2035			
	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)	Popu- lation	Peak Rate (MW)	Average Daily (MWh)	Average Annual (MWh)
Passenger Vehicles	590	1.4	23.6	8,608	4,197	25.6	335.8	122,564
Light Trucks (2 axles)	38	0.2	1.5	549	312	0.8	12.5	4,568
Medium Trucks (3 axles)	0	0	0	0	0	0	0	0
Large Trucks (4+ axles)	0	0	0	0	0	0	0	0
<b>Total</b>	<b>627</b>	<b>1.6</b>	<b>25.1</b>	<b>9,157</b>	<b>4,509</b>	<b>26.4</b>	<b>348.3</b>	<b>127,132</b>

**Table 4.17-10: Scenario C: High EV Penetration Charging Loads**

Vehicle Type	2025				2040			
	Popula- tion	Peak Rate (MW)	Avg Daily (MWh)	Avg Annual (MWh)	Popula- tion	Peak Rate (MW)	Avg Daily (MWh)	Avg Annual (MWh)
Passenger Vehicles	659	1.4	26.4	9,622	5,795	25.6	464	169,214
Light Trucks (2 axle)	73	0.2	2.9	4,065	346	0.8	13.9	5,065
Medium Trucks (3 axle)	111	0.4	6.0	2,189	786	2.4	42.3	15,455
Large Trucks (4+ axle)	614	12.7	229.4	83,743	2,166	44.2	809.0	295,282

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Total</b>	<b>1,457</b>	<b>14.6</b>	<b>265</b>	<b>96,619</b>	<b>9,093</b>	<b>73.4</b>	<b>1,329</b>	<b>485,017</b>
--------------	--------------	-------------	------------	---------------	--------------	-------------	--------------	----------------

**Table 4.17-10: Scenario C: High EV Penetration Charging Loads**

<b>Vehicle Type</b>	<b>2025</b>				<b>2035</b>			
	<b>Popu- lation</b>	<b>Peak Rate (MW)</b>	<b>Average Daily (MWh)</b>	<b>Average Annual (MWh)</b>	<b>Popu- lation</b>	<b>Peak Rate (MW)</b>	<b>Average Daily (MWh)</b>	<b>Average Annual (MWh)</b>
Passenger Vehicles	590	1.4	23.6	8,608	4,197	25.6	569.5	122,564
Light Trucks (2 axles)	38	0.1	1.5	549	312	1.0	8.3	4,568
Medium Trucks (3 axles)	111	0.5	6.0	2,189	393	1.6	21.2	7,728
Large Trucks (4+ axles)	614	17.5	229.4	83,743	1,625	46.3	606.7	221,462
<b>Total</b>	<b>1,353</b>	<b>19.5</b>	<b>260.5</b>	<b>95,089</b>	<b>6,527</b>	<b>74.4</b>	<b>1,205.8</b>	<b>356,321</b>

The Project + Low EV Penetration scenario has the lowest population of EVs and only includes passenger vehicle EVs. The annual electricity use would be 2.2 1.9 percent of MVU’s forecasted demand in 2024 2025.

The Project + Medium EV Penetration scenario includes EV passenger vehicles and light trucks. The annual electricity use would be only slightly more than the Low EV Penetration scenario and would represent 3 4.0 percent of MVU’s demand. As stated above, this scenario would increase electricity use, however, it would be displacing and reducing gasoline use by 4 2.1 percent.

The Project + High EV Penetration scenario analyzes the inclusion of an increased percentage of medium and heavy duty trucks that are EVs. Under this scenario, electricity demand would be 27 41 percent of MVU’s total electricity demand and the EVs would displace a substantial number of fossil fuel burning vehicles.

As shown in Table 4.17-7, the Project + Medium EV Penetration scenario would reduce gasoline use by approximately 1.3 2.1 percent and increase electricity use by 37 109 percent in 2025 compared to the Low EV Penetration scenario. Diesel consumption would be about the same for the two scenarios. By 2040 2035, gasoline use with the Medium EV Penetration scenario would be reduced by about 16 13 percent from the Low EV Penetration scenario and displaced with EVs that would increase electricity by 190 352 percent from the Low EV Penetration scenario.

The Project + High EV scenario would realize a greater amount of fuel savings (gasoline and diesel) due to the higher percentage of trucks assumed to be EVs. For 2025, diesel use would decrease by approximately 20 21 percent compared to the Low EV Penetration scenario and gasoline would decrease by approximately 5 3 percent. By 2040 2035, diesel use would decrease by 39 32 percent and gasoline would decrease by 25 16 percent. Electricity demand would increase more than 14 20 times the Low EV Penetration scenario by 2025, and approximately 7 11 times by 2040 2035. However, as stated earlier, forecasting demand for 2040 2035 is highly speculative and numbers presented are strictly for informational purposes.

As described earlier, these increases in transportation-related electricity will be offset through implementation of energy conservation measures and installation of on-site rooftop solar PV, resulting in an approximate 16 percent improvement in energy efficiency as compared to the baseline scenario at full buildout. Although the project would result in moderate increases in annual electrical demand from EV charging compared to MVU’s current supply (for the low and medium EV penetration scenarios), MVU is committed to meeting the project’s electricity demand through a future IRP update and planning process. As mentioned above, MVU’s IRP addresses the fact that the project would

exceed the utility's current and forecasted demand. However, the IRP states that ~~a portion of the project's demand is incorporated into forecasted growth and MVU will monitor the development progress of the project~~ energy-intensive logistics projects are considered in the projected growth. Any determination on additional capacity would be speculative considering MVU is aware of the project and its effect on grid electricity. MVU has a considerable amount of time to procure energy resources in anticipation of the project's development.

As shown in Table 4.17-7, the Project + Low EV Penetration scenario would represent a small fraction of the county's overall diesel and gasoline fuel use for 2025, making up ~~0.013 and 0.0022~~ 0.012 and 0.0020 percent respectively. By ~~2040~~ 2035, those numbers increase to ~~0.022~~ 0.016 percent for diesel and 0.003 percent for gasoline. Although the fuel does slightly increase, the Project's fuel use is still negligible when compared to overall county use.

The Project + Medium EV Penetration scenario would account for ~~0.013~~ 0.012 percent of total County diesel use and ~~0.0022~~ 0.0020 percent of total County gasoline use in 2025. By ~~2040~~ 2035, those percentages increase to ~~0.022~~ 0.017 percent for diesel and remain approximately ~~0.0022~~ 0.0025 percent for gasoline. This scenario slightly lowers fuel use when compared to the Project + Low EV Penetration because it assumes a greater percentage of car and light truck EVs (See Section 4.17.3.3, *Technology Advancement* for assumptions).

The Project + High EV Penetration scenario would represent ~~0.014~~ 0.0093 percent of total County diesel use and ~~0.0024~~ 0.0020 percent of total County gasoline use in 2025. By ~~2040~~ 2035, those percentages increase to 0.011 percent for diesel and remain approximately 0.0020 percent for gasoline. The High EV Penetration scenario assumes light, medium, and heavy trucks would have a higher population of EVs that would reduce diesel fuel use by ~~7,174~~ 6,902 gallons per year from the Low EV Penetration scenario for 2025 and by ~~23,766~~ 14,550 gallons per year for ~~2040~~ 2035.

Given the evidence presented herein, the WLC project would result in the efficient use of operational transportation fuel consistent with State and City goals. The project would represent between 0.002 to 0.003 percent of the County gasoline use and between ~~0.011 to 0.022~~ 0.009 to 0.017 percent of County diesel use. Diesel and gasoline fuel consumption from the project would be negligible in any of the presented scenarios, however as stated in the electricity analysis above, any effects to energy resources from achieving the Project + High EV Penetration Scenario would be highly speculative, and associated analyses are presented herein for informational purposes only.

Operation of the WLC project would benefit from California's Pavley/ACC standards that are designed to result in more efficient use of transportation fuels. These vehicle efficiency standards are the most stringent in the nation and among the most stringent in the world. As shown in Table 4.17-7 above, the project's operational activities under the Low EV Penetration Scenario (the most conservative scenario in terms of petroleum-based fuel consumption) would result in the consumption of approximately ~~0.013~~ 0.017 percent of the County's diesel consumption and approximately ~~0.002~~ 0.003 percent of the County's gasoline consumption, representing a very small fraction of the County's total fuel demand. Therefore, these activities would have a negligible effect on the transportation fuel supply. In conjunction with California's stringent vehicle efficiency standards, operation of the WLC project would not result in the wasteful, inefficient, or unnecessary consumption of transportation fuel.

#### Transportation Natural Gas

~~The WLC project (all scenarios) would also include regularly operating propane-powered yard trucks and CNG-powered forklifts that are typical of large warehouse facilities. Additionally, the project would include a CNG/LNG fueling station on-site that would be publically available for refueling. Table 4.17-11, below, shows the annual average natural gas use from operational vehicles and CNG/LNG vehicle refueling within the project.~~

EMFAC2017 assumes that by 2025, natural gas-powered large trucks (HHDT and MHDT) would represent 2.2 percent of all large trucks in the SoCAB region. By 2035, the natural gas-powered large

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

truck population slightly increases to 2.5 percent. The natural gas vehicle population at the Project would remain constant for each EV penetration scenario.

The WLC project (all scenarios) would also include regularly operating propane-powered yard trucks and CNG-powered forklifts that are typical of large warehouse facilities. Additionally, the project would include a CNG/LNG fueling station on-site that would be publically available for refueling. Table 4.17-11 shows the annual average natural gas use from operational vehicles and CNG/LNG vehicle refueling within the project.

**Table 4.17-11: Natural Gas Use from Transportation**

<b>Source</b>	<b>Annual Fuel Use (MMBtu/yr)</b>
<b>State Natural Gas Consumption<sup>a</sup></b>	<b>2,253,678,345</b>
Yard Trucks <sup>b</sup>	14,543
Forklifts <sup>b</sup>	738
CNG/LNG Fueling Station <sup>b</sup>	805,148
<b>Total Natural Gas Consumption (on- and off-road)</b>	<b>820,429</b>
<b>% of State</b>	<b>0.036%</b>

**NOTES:**

<sup>a</sup>All uses; from US Energy Information Administration, California Natural Gas Consumption by Year (2017). Available at: [https://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm) Converted from 2,177,467 million cubic feet using a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, April 28, 2017. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed July 2018).

<sup>b</sup>See Appendix F for detailed calculations of natural gas vehicles and CNG/LNG fueling station

**Table 4.17-11: Natural Gas Use from Transportation**

<b>Source</b>	<b>Annual Fuel Use (MMBtu/yr)</b>
<b>State Natural Gas Consumption<sup>a</sup></b>	<b>2,184,708,015</b>
Large Trucks (4+ Axle) <sup>b</sup>	1,094
Yard Trucks <sup>c</sup>	14,543
Forklifts <sup>c</sup>	738
CNG/LNG Fueling Station <sup>c</sup>	805,148
<b>Total Natural Gas Consumption (on- and off-road)</b>	<b>821,523</b>
<b>% of State</b>	<b>0.037%</b>

**Notes:**

<sup>a</sup> All uses; from US Energy Information Administration, California Natural Gas Consumption by Year (2018). Available at: [https://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm) Converted from 2,184,708,015 million cubic feet using a conversion factor of 1,035 Btu per cubic foot based on USEIA data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, April 28, 2017. Available: [https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed July 2018).

<sup>b</sup> Large trucks refers to HHDT and MHDT EMFAC2017 vehicle class categories.

<sup>c</sup> See Appendix F for detailed calculations of natural gas vehicles and CNG/LNG fueling station.

As presented in Table 4.17-11, the natural gas use from operational vehicles and the CNG/LNG fueling station would represent approximately 0.036 0.037 percent of the statewide natural gas consumption. The analysis assumes a conservative estimate of 204 trucks completely refueling per day based on trip rates presented in the WLC project’s traffic study.<sup>38</sup> The traffic study bases trip rates on ITE’s code for a gas station with convenience store that has a relatively high trip rate. CNG fueling stations would

<sup>38</sup> Traffic study states an average daily traffic of 408 trips. This accounts for roundtrips of trucks, so the number of trucks visiting to refuel would be half of the average daily traffic volume.

likely have less daily visits than a traditional gas station, making the analysis even more conservative. The operational vehicles are also based on conservative assumptions of maximum operating hours of 7 hours for propane-powered yard trucks and 4 hours for CNG forklifts. Realistically, all of the yard trucks would not be operating simultaneously or continuously for 7 hours and forklifts would be used intermittently for the unloading and loading of warehousing goods. Furthermore, the analysis above represents additional natural gas use from vehicles and does not account for CNG/LNG trucks displacing diesel- or gasoline-powered vehicles. In actuality, the CNG/LNG trucks may displace fossil-fueled trucks on the project site. Even with the conservative assumptions for trip rates, volumes, non-displacement, and operating hours, and without considering the potential benefit of offsetting other vehicle fuels, the natural gas use from operational vehicles and the CNG/LNG fueling station represent a negligible percent of the State's total natural gas use.

According to SoCal Gas data, natural gas sales have been relatively stable over the past three years with a slight increase from 287 billion cubic feet in 2014 to 294 billion cubic feet in 2016. Southern California's natural gas supply is predominantly sourced from out of state with a small portion originating in California. Sources of natural gas are obtained from locations throughout the western United States as well as Canada.<sup>39</sup> According to the US Energy Information Administration (EIA), the United States has approximately 85 years of natural gas reserves based on consumption in 2015.<sup>40</sup> Statewide compliance with energy efficiency standards is expected to result in more efficient use of natural gas and therefore reduced consumption in future years. It is anticipated that SoCal Gas' existing and planned natural gas supplies would be sufficient to support the project's natural gas use and that the CNG/LNG fueling station would have a negligible effect on the natural gas supply.

Operation of the WLC project would benefit from California's Pavley/ACC standards that are designed to result in more efficient use of transportation fuels. These vehicle efficiency standards are the most stringent in the nation and among the most stringent in the world. Operation of the project would require very small amounts of natural gas to be consumed by vehicles at the site, and in conjunction with California's stringent vehicle efficiency standards, would not result in the wasteful, inefficient, and unnecessary consumption of natural gas.

#### **4.17.7.2 Construction or Expansion of Electrical and Natural Gas Facilities**

Threshold	Would the proposed project require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?
-----------	---

#### Electricity

Through implementation of energy conservation measures the WLC project will exceed Title 24 energy standards by approximately 17 percent at Phase 1 and 16 percent at full buildout. The project would also incorporate renewable energy sources with a minimum of 14.1 MW of rooftop solar at buildout to achieve a net-zero energy use for the estimated office demands. Despite these improvements a number of SCE facilities would require relocation and expansion of MVU facilities would be needed in order to provide network backup (i.e., if the solar generation equipment were to fail) and accommodate the potential increase in electrical demand due to increased EV populations. Power poles, guy poles, and guy anchors for the existing overhead 115 kV line along World Logistic Center Parkway and Gilman Springs Road will need to be relocated at the time these roadways are widened. The portion of the existing 115 kV line along Eucalyptus Avenue may also need to be relocated into the new Eucalyptus Avenue alignment between World Logistic Center Parkway and Gilman Springs Road at the time the roadway is constructed. The existing 115 kV line along Brodiaea Avenue may be able to be protected in place except for a few hundred feet where the transmission line intersects with the new Merwin Street, which will need to be relocated to accommodate street and storm drain channel improvements.

<sup>39</sup> California Gas and Electric Utilities, 2016 California Gas Report. 2016.

<sup>40</sup> EIA. *Frequently asked Questions*. <https://www.eia.gov/tools/faqs/faq.php?id=58&t=8>. Accessed April 2018.

The existing 12 kV overhead power distribution lines along Redlands Boulevard will need to be undergrounded when the roadway is developed to its ultimate width. The existing 12 kV overhead power feeder lines located along World Logistic Center Parkway and Alessandro Boulevard will need to be relocated and undergrounded as these roadway improvements take place during the development of the WLC project. The existing 12 kV overhead power feeder line running south along Virginia Street to the Moreno Compressor Station (planned as Open Space) will be protected in place. The existing overhead service lines from the World Logistic Center Parkway 12 kV line along Dracaea Avenue to the east and along Cottonwood Avenue to the west can be abandoned when existing on-site residences served by these facilities are abandoned. Per SCE requirements, SCE 12 kV undergrounded lines cannot be in a common trench with MVU facilities and require a separate underground facility with a minimum 6 feet from other utility lines.

Based on the *Technical Memorandum – Dry Utilities World Logistics Center, Moreno Valley, CA*, (Utility Specialists, October 24, 2013) prepared for the WLC project, construction of the first three logistics buildings that would occur during the initial phase of construction can be served by the existing MVU substation at Cottonwood Avenue and Moreno Beach Drive, as long as capacity is still available at that station. Subsequent buildings in Phase 1 of construction will require the expansion of this substation. The expansion that would occur to meet this demand would be the addition of two new 28 MW transformer units which can be accommodated within the existing substation property. New 12 kV underground feeder circuits, including trenching, conduit, electrical vaults, and conductors will need to be installed from the substation to the WLC project site. These improvements will occur along Cottonwood Avenue, along Moreno Beach Drive, and along Alessandro Boulevard, Brodiaea Avenue, and Cactus Avenue. These improvements are expected to take place concurrently with roadway construction.

To meet the WLC project's ultimate annual electricity demand, a new 442 ~~115~~ kV substation will be constructed within the project limits at a central location near one of SCE's 115 kV transmission lines that will feed power to the substation. The *Dry Utilities* memo for the project indicates two potential locations; the first adjacent to the SCE transmission lines along Gilman Springs Road, and the other adjacent to the SCE transmission lines along Brodiaea Avenue. Impacts of constructing the new station at either of these on-site locations may be the same.

SCE will require approximately 2 acres for a switching station near the new 442 ~~115~~ kV substation proposed by MVU to serve the WLC project. All MVU primary distribution conductors within the project will be installed within underground conduits and vaults within the public roadway rights-of-way or within easements as a joint trench with telephone, cable television, and natural gas. Since the installation or relocation of electrical facilities would take place concurrently with roadway construction and/or within dedicated easements, or protected in place, the construction of these facilities would not result in significant environmental effects. Connecting the site to existing utility lines is considered part of the project, the impact of which has been analyzed in the Revised Sections of the FEIR. Previously referenced Figure 3.16 depicts the proposed electrical facilities assuming 100 percent backup electrical service to the WLC site.

#### Natural Gas

Figure 3.17 in the Project Description depicts the existing natural gas pipelines at the site. An existing 3-inch medium pressure line traveling along World Logistics Center Parkway and Street F could supply the proposed CNG/LNG fuel station. Although there would be no anticipated use of natural gas by the buildings in the WLC project and thus no need for natural gas distribution infrastructure, SCGC has indicated that the existing 4-inch medium-pressure line underlying Redlands Boulevard and Cactus Avenue can be extended into and looped around the WLC project roadway alignments to serve the proposed development. New two-inch gas lines could also be installed to accommodate the WLC project's demand. Natural gas facilities could be installed in the public street rights-of-way and easements as a joint trench with telephone, cable TV and electrical services. The gas main in Eucalyptus Avenue would be on the south side of the street and in its own trench as it was not included in the common trench installed to serve the Sketchers building.

Relocation of natural gas transmission lines within the WLC site into public street rights-of-way and easements will be necessary to support site development and grading. These include 11,100 feet of the 30-inch gas pipeline in Cottonwood Avenue from Redlands Boulevard to World Logistics Center Parkway and then southeast to Virginia Street and Alessandro Boulevard intersection; 1,900 feet of 30-inch gas line from Gilman Springs Road at Lisa Lane southwest to Alessandro Boulevard; 1,000 feet of 16-inch gas line owned by Questar from Gilman Springs Road southwest to Alessandro Boulevard and 4,000 feet of 16-inch gas line owned by Questar on the Maltby Avenue alignment from Merwin Street to World Logistics Center Parkway. The remaining transmission gas lines are anticipated to be protected in place within the proposed streets or easements between buildings. The regulator station located at the southeast corner of Gilman Springs Road and Laurene Lane east of the WLC project will need to be relocated as part of the widening of this road. The gas facility on Alessandro Boulevard and Virginia Street will remain in place as the project develops in this area. The SDG&E natural gas compression station on Virginia Street south of the project site, known as the Moreno Compressor Station, along with a smaller facility on Virginia Street at Boadicea Avenue will be protected in place. Since the installation or relocation of natural gas facilities would take place concurrently with roadway construction and or within dedicated easements, or protected in place, the construction of these facilities would not result in significant environmental effects.

**4.17.7.3 Energy Standards, Policy, Regulation Consistency**

Threshold	The Degree to which the Project Complies with Existing Energy Standards
-----------	---

This impact assesses whether the WLC project would conflict with any applicable standards, policies, or regulations, as discussed below.

The project would comply with applicable CARB regulations restricting the idling of heavy-duty diesel motor vehicles and governing the accelerated retrofiting, repowering, or replacement of heavy duty diesel on- and off-road equipment. As discussed in Section 4.7, *Greenhouse Gas Emissions*, CARB has adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other toxic air contaminants. The measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. While intended to reduce construction emissions, compliance with the above anti-idling and emissions regulations would also result in energy savings from the use of more fuel-efficient engines. According to the CARB staff report that was prepared at the time the anti-idling Airborne Toxic Control Measure was being proposed for adoption in late 2004/early 2005, the regulation was estimated to reduce non-essential idling and associated emissions of diesel particulate matter and nitrogen oxide (NO<sub>x</sub>) emissions by 64 and 78 percent respectively in analysis year 2009.<sup>41</sup> These reductions in emissions are directly attributable to overall reduced idling times and the resultant reduced fuel consumption. Mitigation Measure 4.3.6.2A includes a stricter provision that would limit idling to no more than three minutes in any one hour. Therefore, fuel savings have the potential to be even more than those estimated from the Airborne Toxic Control Measure.

CARB has also adopted emission standards for off-road diesel construction equipment of greater than 25 hp. The emissions standards are referred to as “tiers,” with Tier 4 being the most stringent (i.e., least polluting). The requirements are phased in, with full implementation for large and medium fleets by 2023 and for small fleets by 2028. The project would accelerate the use of cleaner construction equipment by using mobile off-road construction equipment greater than 50 horsepower (wheeled or tracked) that meets, at a minimum, the Tier 4 off-road emissions standards as specified in Mitigation Measure 4.3.6.2A. Field testing by construction equipment manufacturers has shown that higher tier equipment results in lower fuel consumption. For example, Tier 4 interim engines have shown a 5

<sup>41</sup> CARB, Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/idling/idling.htm>, Accessed April 2018.

percent reduced fuel consumption compared to a Tier 3 engine.<sup>42</sup> Similar reductions in fuel consumption have been shown for Tier 3 engines compared to a Tier 2 engine.<sup>43</sup>

The project would comply with and exceed (through its PDFs and mitigation measures) the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance and buildings over 500,000 square feet will be designed to be LEED certified. According to the CEC, buildings compliant with the Title 24 (2019) standards should use 5 percent less energy for lighting, heating, cooling, ventilation, and water heating than the prior Title 24 (2016) standards for non-residential uses.<sup>44</sup> As specified in the Project's Design Features, the project would include numerous energy and waste reduction features that would allow the project to comply with or exceed the Title 24 standards and achieve energy savings equal to or greater than what is required by state regulations.

With respect to operational transportation-related energy, the WLC project would support statewide efforts to improve transportation energy efficiency and reduce transportation fuel consumption with respect to private automobiles. In particular, the project would provide the infrastructure for supporting a higher population of electric vehicles, in direct support of the state's targets of 1.5 million ZEVs by 2025 and 4.2 million ZEVs by ~~2040~~ 2035. Thus, the project would comply with existing energy standards.

#### **4.17.8 Significant Impacts**

The project has no significant impacts related to energy use, consumption, resources, or standards.

---

<sup>42</sup> Businesswire, "Fuel Duel" Confirms 5 Percent Higher Fuel Efficiency for Cummins Tier 4, June 25, 2009, <http://www.businesswire.com/news/home/20090625005468/en/%E2%80%9CFuel-Duel%E2%80%9D-Confirms-5-Percent-Higher-Fuel>, Accessed April 2018.

<sup>43</sup> John Deere, Engine Performance, Fuel Efficiency, and Clean Air, Emissions Technology for Non-Road Applications, 2006, [http://bellpower.com/uploads/product\\_brochures/15\\_Exp\\_EmissionsBrochure%20dswt14%5B1%5D.pdf](http://bellpower.com/uploads/product_brochures/15_Exp_EmissionsBrochure%20dswt14%5B1%5D.pdf), Accessed April 2018.

<sup>44</sup> CEC, Adoption Hearing, 2016 Building Energy Efficiency Standards, June 10, 2015, [http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10\\_hearing/2015-06-10\\_Adoption\\_Hearing\\_Presentation.pdf](http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf), Accessed April 2018.

**NOTE TO READERS:** Section 6.3, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 6.3 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 6.3 replaces the cumulative analysis provided in Section 4.3 of the FEIR prepared in 2015.

## **6.3 Air Quality**

Cumulative effects to air quality are described in this section. A summary of the project’s potential impacts to air quality issues is provided in Section 6.3.1. The cumulative impact geographic areas for air quality issues are provided in Section 6.3.2. The potential cumulative impacts and the project’s contribution to cumulative impacts to each of the air quality issues are discussed in Section 6.3.3. In addition, a brief summary of the significance of the project’s contribution to cumulative impacts for each issue is also provided in Section 6.3.3 as well as applicable mitigation measures and significance determination after mitigation. Cumulative emissions calculations are included as Appendix A.3 of this Draft Recirculated RSFEIR.

The cumulative projects identified in Table 6.3-1 and their respective CEQA documents have been reviewed and evaluated in conjunction with the project to determine if they would contribute to a cumulatively considerable impact to air quality. These potentially cumulative impacts are documented in the following section.

### **6.3.1 Project Impact Findings**

The project’s effects to air quality are summarized in this section, and the impacts have been evaluated against the following thresholds that were developed based on the CEQA Guidelines Appendix G thresholds, as modified to address potential project impacts. After each threshold, a significance determination for the project impacts (see Section 4.3 of the Revised Final Programmatic EIR Sections (RPFEIRS Draft Recirculated RSFEIR)) is provided as well as a reference to the specific section and impact number if the impact determination is significant.

Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan? **Significant and Unavoidable with Mitigation, Section 4.3.6.1.**
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation? **Less than Significant, Section 4.3.5.2.**
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); **Significant and Unavoidable with Mitigation, Section 4.3.6.**
- Expose sensitive receptors to substantial pollutant concentrations? **Significant and Unavoidable with Mitigation, Section 4.3.6.2; Significant and Unavoidable with Mitigation, Section 4.3.6.3; and Significant and Unavoidable with Mitigation, Section 4.3.6.4; Significant and Unavoidable with Mitigation, Section 4.3.6.5;**
- Create objectionable odors affecting a substantial number of people? **Less than Significant, Section 4.3.5.1.**

### **6.3.2 Geographic and Temporal Scope**

#### **6.3.2.1 Summary of Lists of Projects Approach**

Ordinarily, the cumulative air quality thresholds of significance established by the South Coast Air Quality Management District (SCAQMD) are the same as those used to determine the significance of a project's air quality impacts, i.e., if a project's air quality impacts for a criteria pollutant are below the appropriate threshold, it is conclusively presumed that the project's cumulative impacts are not cumulatively considerable.<sup>1</sup> However, because of the court's ruling, which required the list of projects method to determine if a project's cumulative impacts were significant, the extent of the cumulative impacts analyzed in this Draft Recirculated RSFEIR was based on the limits set forth in the cumulative traffic analysis conducted by the project (refer to Section 6.15.2). The cumulative traffic analysis limited the geographic scope of refined cumulative traffic analyses to an area in which related projects could contribute 50 peak hour trips or more on surface streets in the same area as project impacts. As shown in Table 4.3-24, mobile sources contribute the vast majority of project-related emissions (approximately 92 to 99 percent) for pollutants such as CO, NO<sub>x</sub>, and PM, and approximately 40 percent for VOCs on a worst-case daily basis. Similarly, emissions from other proposed land uses identified in the vicinity of the Proposed Project (see Table 6.3-1) are expected to be dominated by mobile sources. This is consistent with SCAQMD's basin-wide inventories; for example, in the 2016 Air Quality Management Plan (AQMP), mobile sources contribute approximately 88 percent of basin-wide NO<sub>x</sub> emissions and approximately 58 percent of basin-wide VOCs. Therefore, it is appropriate to also limit the geographic scope of the detailed cumulative air quality analyses to this "cumulative projects impact area" defined for traffic analyses, as those projects with the potential to contribute non-negligible peak hour trips (equal to or greater than 50) would represent the projects from which non-negligible emissions may contribute to a cumulative impact, that is a measurable change in the environment that results from the incremental impact of the proposed Project when added to other closely related past, present, and reasonably foreseeable probable future projects. According to the SCAQMD, "The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute."<sup>2</sup>

The cumulative project impact area includes the entire City of Moreno Valley and portions of the Cities of Riverside, Redlands, Beaumont, Perris, San Jacinto, Hemet and Calimesa, as well as portions of unincorporated Riverside and San Bernardino County, and the March Joint Powers Authority (JPA). A geographic map for these cumulative projects are shown on Figure 6.3-1. Approximately 359 projects have been identified in the vicinity of the Project and are listed in Table 6.3-1. Out of those 359 projects, approximately 173 environmental documents were available. All 173 were reviewed to identify quantitative emissions for construction and operation of the respective projects; however, not all environmental documents contained emissions for construction and operation. Emissions from all of the identified cumulative projects were calculated based on available information and methodologies.

The geographic scope of analysis for cumulative air quality impacts is the Air Basin and the identified cumulative projects. The SCAQMD recommends using two different methodologies to analyze cumulative air quality impacts: (1) that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality;<sup>3</sup> and (2) that a project's consistency with the current AQMP be used to determine its potential cumulative impacts. Utilizing these two methodologies can

---

<sup>1</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>2</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Page D-2. Accessed September 29, 2019.

<sup>3</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

determine a project's contribution to cumulative impacts. Should a project result in significant and unavoidable impacts, the project would most likely generate a cumulatively considerable impact, as the project alone is already exceeding respective SCAQMD significance thresholds. If a project's emissions were approaching significance thresholds with mitigation measures, these projects could also have a potential to cause a significant impact when combined with other projects within the project analysis area. Also, if a project was not consistent with AQMP, this could cause a cumulative impact as the AQMP is established to achieve air quality standards within the Basin.

Because the significance thresholds adopted by the SCAQMD are designed to assist the Basin in attaining the applicable NAAQS and CAAQS, the SCAQMD recommends application of the same significance thresholds for Project-level impacts and cumulative impacts. Projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>4</sup> Because the Project Site is located in a region that is in non-attainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> under federal and/or state standards, should project-specific emissions with mitigation exceed the SCAQMD daily significance thresholds, the Project's construction-related and operational emissions would be cumulatively considerable or contribute to cumulatively significant air quality impacts.

Although the Basin is considered the geographic area relative to cumulative impacts, it would be impracticable and unreasonable to review project-specific data and analyses related to regional emissions, localized impacts, health risks, and odors from all projects contemplated, entitled, and being built within the 6,745 square mile Basin. Instead this cumulative analysis was based on the limits set forth in the cumulative traffic analysis conducted by the project. This area includes the entire City of Moreno Valley and portions of the Cities of Riverside, Redlands, Beaumont, Perris, San Jacinto, Hemet and Calimesa, as well as portions of unincorporated Riverside and San Bernardino County, and the March JPA. The geographic area for these basin-wide projects is shown on Figure 6.3-1. For localized impacts, such as LSTs and odors, a geographic map for these cumulative projects are shown on Figure 6.3-2. Approximately 360 projects have been identified in the vicinity of the Project and are listed in Table 6.3-1. Out of those 360 projects, approximately 162 environmental documents were available. All 162 were reviewed to identify quantitative emissions for construction and operation of the respective projects. However, only 35 of the available documents contained construction and operation emissions. A mixture of results was identified for these 35 projects, 28 projects were found to have a less than significant impact, four projects were found to have a significant and unavoidable impact for operations and four projects were found to have a significant and unavoidable impacts for both construction and operations. Despite not having all the emissions from every one of the 360 cumulative projects within SCAB, a determination on the project's cumulative impact could still be assessed based on the SCAQMD's strategies in assessing a cumulatively considerable impact, where projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>5</sup> As shown in Section 4.3.6 Significant Impacts (Air Quality), project-specific impacts were found to result in significant and unavoidable impacts with mitigation.

<sup>4</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>5</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.



**Table 6.3-1 - Air Quality Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
B-3	Heartland	Per the City of Beaumont Planning Department's 1994 EIR, the Heartland Specific Plan would develop low and medium density housing, and supporting land uses on 417.2 acres. The construction phase and project operation air quality impacts would exceed thresholds and remain significant after mitigation.
B-4	Hidden Canyon	Per the City of Beaumont Planning Department's 2004 EIR, the Hidden Canyon EIR Addendum to the Beaumont Gateway Specific Plan would result in the development of 426 residential units, commercial space and open space on 196.5 acres. The project would result in the generation of pollutants both short and long term and the level of impacts is considered significant, even with mitigation.
B-5	ProLogis/Rolling Hills Ranch Industrial	Per the City of Beaumont Planning Department's 2004 EIR, the Second Amendment to the Rolling Hills Ranch Specific Plan would change the 152.9 acre property's General Plan land use designation from low density residential to Business Park. After mitigation, no significant impact would occur to air quality.
B-7	Kirkwood Ranch (#14)	Per the City of Beaumont Planning Department's 1990 EIR, the Kirkwood Ranch Specific Plan would develop 470 single family detached units and 60 multi-family units on a 128 acre site. The cumulative impacts of this project in conjunction with all other past, current, and future projects will have adverse impacts on regional air quality.
B-9	Sundance (#17)	Per the City of Beaumont Planning Department's 2004 EIR, the Sundance Specific Plan Amendment to the Deutsch Specific Plan would result in the development of 1,968 single family units, 2,208 homes, and 540 condo units, commercial space, and supporting land uses on 1,195 acres. No significant air quality impacts as compared to the Deutsch Specific Plan.
B-10	Tract No. 32850 (#39)	Per the City of Beaumont Planning Department's 2005 ND, the Tract Map 32850 would divide a 29.09 acre parcel into 103 single family residential lots. The project will have no impact on air quality.
B-11	San Geronio Village, Phase 2 (#45)	Per the City of Beaumont Planning Department's 2007 MND, the San Gregorio Village Specific Plan would provide for the development of approximately 225,000 square feet of commercial and restaurant uses on approximately 23 acres. The project would have a less than significant impact on air quality.
B-12	Beaumont Commercial Center	Per the City of Beaumont Planning Department's 2016 IS, the Beaumont Commercial Center would provide for the development of five commercial buildings with 58,603 square feet of retails, service, and restaurant uses. The project would have a less than significant impact on air quality.
B-14	Potrero Creek Estates (#26)	Per the City of Beaumont Planning Department's 1988 EIR, the Potrero Creek Estates Specific Plan would result in the residential development of 1,028 single family lots on 737 acres. The project would result in no impact to air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
H-3	Tres Cerritos Specific Plan	Per the City of Hemet's 2008 EIR, the Tres Cerritos Specific Plan would result in the development of 787 residential units, park and open space, on 154.7 acres. The project would result in no impact to air quality.
H-5	McSweeny Farms Specific Plan	Per the City of Hemet's 2003 EIR, the McSweeny Farms Properties Specific Plan would result in the construction of 2,482 residential units within 442 acres.
H-6	Ramona Creek Specific Plan	Per the City of Hemet's 2014 EIR, the Ramona Creek Specific Plan and General Plan Amendment would result in the development of a multiple use commercial and residential community. The project would have a less than significant impact on air quality.
H-7	Peppertree Specific Plan	Per the City of Hemet's 2003 ISMND, the Peppertree Specific Plan would result in the development of 456 residences, and recreational spaces of 79.2 acres. The project would have a less than significant impact on air quality.
H-9	Pulte Del Web (TTM 31807 and 31808)	Per the City of Hemet's 2005 SEIR, the Tentative Tract Map 31807, Tentative Tract Map 31808, and Specific Plan Amendment SPA 04-1 would result in the amendment of a land use plan for a 10 acre site from commercial to high medium density residential and the division of 154.77 acres into 611 residential lots, an adult community center, and open space. The project would have a less than significant impact on air quality and is consistent with SCAG's Regional Comprehensive Plan and Guide.
H-10	Downtown Hemet Specific Plan	Per the City of Hemet's 2017 ISMND, the proposed Downtown Hemet Specific Plan is a comprehensive plan that features a land use plan, circulation plan, urban design framework, utility infrastructure plan, development standards, design guidelines, and sustainability plan for future development within a 360-acre area in downtown Hemet. The project would have a less than significant impact with mitigation incorporated on air quality.
M-2	Meridian Business Park Phases I and II	Per the March Joint Powers Authority's 2017 EIR, the project would result in the development of a 130 acre business park. The project would have significant and unavoidable impacts on air quality.
M-8	March LifeCare Campus Specific Plan	Per the March Joint Powers Authority's 2009 EIR, the project would result in the development of a medical campus on approximately 236 acres. The project would have significant and unavoidable impacts on air quality.
M-9	TM 34748	A Negative Declaration was prepared for the project, therefore, the project would have no significant effect on the environment.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	Per the March Joint Power's Authority's draft ND, the project would construct a Retail/Storage Lumber Yard Complex (approximately 67,800 square feet of total building space) on 11.0 acres. The project would have a less than significant impact on air quality.
MV-3	ProLogis	Per the City of Moreno Valley's September 2014 EIR, this project would develop approximately 2,244,638 square feet of distribution warehouse uses on approximately 122.8 acres. Project would have significant air quality impacts.
MV-4	Westridge Commerce Center	Per the City of Moreno Valley's April 2011 Final EIR, the project would develop approximately 937,260 square feet of light industrial warehouse/ distribution uses and related infrastructure on 55 acres. The project is consistent with the Air Quality Management Plan and impacts to air quality would be less than significant.
MV-7	TR33962 / Pacific Scene Homes	Per the City of Moreno Valley's 2006 ND, the project would subdivide 20 acres into 31 single family residential lots ranging in size from 20,001 sf to 27,562 sf. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-8	TR32460 / Sussex Capital	Per the City of Moreno Valley's 2006 ND, the project proposes 57 single family residential lots and 2 detention basins on 36.7 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-9	TR32459 / Sussex Capital	Per the City of Moreno Valley's 2006 ND, the project is for a single family residential tract with 11 lots on 13 acres and is zoned R1. The lots range from 41,021 sq ft to 59,627 sq ft in size. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-10	TR30998 / Pacific Communities	Per the City of Moreno Valley, the project would subdivide 60 acres into 47 single family lots. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-11	TR30411 / Pacific Communities	Per the City of Moreno Valley's 2002 Negative Declaration, this project would result in 25 single family homes on 30.02 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-14	TR32548 / Gabel, Cook & Associates	Per the City of Moreno Valley's November 2005 Negative Declaration, this project would subdivide 36.24 acres for residential purposes. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-15	TR32218 / Whitney	Per the City of Moreno Valley's May 2005 Negative Declaration, this project would subdivide 17.25 acres for 63 single family homes and open space. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-16	TR32284 / 26th Corporation & Granite Capitol	Per the City of Moreno Valley's October 2004 Negative Declaration, this project would result in the development of 32 residential lots on 8.77 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-17	TR31590 / Winchester Associates	Per the City of Moreno Valley's May 2005 Negative Declaration, this project would subdivide 30 acres for 96 single family homes. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-18	Convenience Store / Fueling Station	Per the City of Moreno Valley's environmental checklist/initial study, this project would develop a gas station (including a 4,000 square foot convenience store and an automated drive through car wash) on 4.17 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-19	Senior Assisted Living	Per the City of Moreno Valley's environmental checklist/initial study, this project would develop a 98,434 square foot, 139 unit (155 bed) senior assisted living facility on 7.33 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-20	Moreno Marketplace	Per the City of Moreno Valley's June 2006 Negative Declaration, this project would develop a 95,905 square foot retail center on 10.46 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-21	PEN16-0053 Medical Center	Per the City of Moreno Valley's November 2017 MND, this project would develop a medical complex on 18.38 acres. The project would produce excessive volatile organic compound emissions, but would have a less than significant impact on air quality with mitigation.
MV-22	TR36882 (PA15-0010) SFR	Per the City of Moreno Valley's June 2015 MND, this project would subdivide 9.4 acres for 40 residential lots. The project would have a less than significant impact on air quality.
MV-24	TM 36436 (PA12-0005)	Per the City of Moreno Valley's December 2012 MND, this project would subdivide 43.52 acres for 159 single family residential lots. The project would have a less than significant impact on air quality with mitigation measures incorporated.
MV-25	TR32142	Per the City of Moreno Valley's June 2004 Negative Declaration, this project would result in the development of 172 multi-family residences on 19.3 acres. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-27	TR32917 / Empire land	Per the City of Moreno Valley's March 2005 Negative Declaration, this project would result in the development of a 227-unit condominium project on 17.9 acres. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-28	TR34329 / Granite Capitol	Per the City of Moreno Valley's June 2007 initial study/environmental checklist form, this project would result in the development of 90 condominium units on 10.41 acres. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-29	TR36340	Per the City of Moreno Valley's April 2005 Negative Declaration, this project would develop a 276-unit condominium complex on 32 acres. Per the negative declaration, the project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-30	PA03-0168 TR 31517	Per the City of Moreno Valley's November 2004 Negative Declaration, the project would subdivide 31.74 acres for the development of 83 single-family residential lots. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-32	TTM 31592 (P13-078) SFR	Per the City of Moreno Valley's March 2014 Negative Declaration/Addendum, the project revises downward the level of previously approved development. As a result, 115 single-family homes would be built on 64.65 acres within an overall project site of 203.52 acres. The project would have a less than significant impact on air quality.
MV-33	TR32645 / Winchester Associates	Per the City of Moreno Valley's December 2004 Negative Declaration, the project would subdivide 20 acres for 53 single-family residential lots. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-34	TR34397 / Winchester Associates	Per the City of Moreno Valley's April 2007 initial study/environmental checklist form, the project would subdivide 19 acres for 50 single-family residential lots. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-35	TR31771 / Sanchez	Per the City of Moreno Valley's April 2006 Negative Declaration, the project would subdivide 9.34 acres for 25 single-family residential lots and two water quality basins. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-36	TM 31618 (PA03-0106)	Per the City of Moreno Valley's November 2004 Negative Declaration, the project would subdivide 18.99 acres for 56 single-family residential lots. Per the negative declaration, the project would have a less than significant impact on air quality.
MV-37	Vogel/PA09-004	Per the City of Moreno Valley's June 2012 EIR, the project would develop approximately 1,616,133 square feet of distribution warehouse uses (including business office space and parking) on approximately 71 acres. The project would have significant and unavoidable impacts to air quality.
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	Per the City of Moreno Valley's June 2012 EIR, the project would develop approximately 1,616,133 square feet of distribution warehouse uses (including business office space and parking) on approximately 71 acres. The project would have a less than significant impact on air quality.
MV-41	First Nandina Logistics Center	Based on the City of Moreno Valley's October 2014 Facts, Findings, and Statement of Overriding Considerations, the project would develop approximately 1,371,210 square feet of warehouse uses; 12,000 square feet of office space; and 66,790 square feet of mezzanine space on 72.9 acres. Emissions during project construction would violate air quality standards for VOCs and NO <sub>x</sub> and would have a significant direct and cumulative impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-42	Indian Street Commerce Center	Per the City of Moreno Valley's 2016 FEIR, the project would prepare the Indian Street Commerce Center Project which proposes approximately 446,350 square feet of light industrial uses within an approximately 19.64-acre site. The project would exceed the South Coast Air Quality Management District recommended regional significance thresholds for NO <sub>x</sub> and would have a significant impact on air quality.
MV-43	Ivan Devries / PA06-0017	Per the City of Moreno Valley's 2007 IS and Environmental Checklist, the project would prepare the IS for a project that will build distribution warehouse buildings totaling approximately 569,200 sf on 28.64 acres of land. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-44	Modular Logistics Center (Kearny RE Co)	Per the City of Moreno Valley's 2017 FEIR, the project would prepare an EIR that would redevelop 50.84 acres with one logistic warehouse building containing 1,109,378 sf of building space with 256 loading bays. The project would exceed the South Coast Air Quality Management District recommended regional significance thresholds for NO <sub>x</sub> and would have a significant direct and cumulative impact on air quality.
MV-45	Iris Plaza	Per the City of Moreno Valley's IS, the project would construct a 109,289 sq. ft. shopping center on approximately 12.4 acres of land within the Community Commercial (CC) land use district. The project would have a less than significant impact on air quality.
MV-47	PA07-0129 TR 35606 SFR	No environmental documentation was available for review. However, there is a planning commission resolution, which states that the project is not likely to cause substantial environmental impact.
MV-48	PA11-001 thru 007, March Business Center (Industrial Area SP)	Per the City of Moreno Valley's Environmental Checklist, the project would prepare an EIR to subdivide 75.05-acre property into four parcels with business center land uses. The project would have a significant impact on air quality, even with mitigation.
MV-49	PA07-0079/0080/0093, & 0121 and PA08-0018, Indian Business Park, (Industrial Area SP)	Per the City of Moreno Valley's IS and Environmental Checklist, the project would prepare an IS for one 1,560,046 sf warehouse building on a project site that is currently vacant and undeveloped. The project would have a less than significant impact on air quality with mitigation.
MV-50	San Michele Industrial Center, (Industrial Area SP)	Per the City of Moreno Valley's 2005 ND, the project would prepare an ND for a 414,533 sf warehouse distribution facility on 17.17 net acre site. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-51	Nandina Distribution Center IDS	Per the City of Moreno Valley's 2007 IS and Environmental Checklist, the project would prepare an MND to construct a 770,867 square foot industrial building located on the southeast corner of Heacock Street and San Michele Road on approximately 38 acres. The project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-52	First Industrial III & IV, (Industrial Area SP)	Per the City of Moreno Valley's 2008 IS and Environmental Checklist, the project would prepare an MND for a project that consists of two industrial buildings with a total of approximately 880,000 square feet of warehouse space. The project would have a less than significant impact on air quality with mitigation.
MV-53	I-215 Logistics Center (Amazon)	Per the City of Moreno Valley's IS and Environmental Checklist, the project would prepare a MND for the construction of two (2) distribution warehouse buildings totaling 1,705,000 sf on approximately 76 acres of land. The project would have a less than significant impact on air quality with mitigation incorporated.
MV-54	Moreno Valley Logistics Center (Prologis)	Per the City of Moreno Valley's 2017 MMP, the project would prepare MMP for the construction and operation of a logistics center with four (4) buildings and a combined 1,736,180 square feet (sf) of total floor space. The project would have significant direct and cumulative impacts on air quality due to the exposure of sensitive receptors to substantial pollutant concentrations.
MV-56	Tract Map 33840	No environmental documentation was available for review. However, there is a planning commission resolution that states that the project is exempt from the requirements of CEQA guidelines.
MV-57	Tract Map 34151	Per the City of Moreno Valley's 2006 General Plan Resolution, the project would subdivide 8.95 acres into 37 single family lots. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-58	Tract Map 33024	Per the City of Moreno Valley's 2005 General Plan Resolution, the project would subdivide 2.17 net acres into 8 single family lots. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-59	Tract Map 31442	Per the City of Moreno Valley's 2004 MND, the project would subdivide the 15.8 net acres into 63 single family residential lots. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-60	Tract Map 36404	Per the City of Moreno Valley's 2012 ND, the project would subdivide 19.4 acre project site and 9 common areas lot to build three types of residential product for a total of 216 dwelling units. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-61	Walmart & Gas Station	Per the City of Moreno Valley's 2015 FEIR, the project would develop approximately 193,000 square feet of new retail/commercial uses on the approximately 22.28-acre site. The project would generate NO <sub>x</sub> in exceedance of South Coast Air Quality Management District regional thresholds and be inconsistent with the current Air Quality Management Plan. The project would have a significant impact on air quality.
MV-63	PA14-0053 (TTM 36760) Legacy Park	Per the City of Moreno Valley's 2017 MND, the project would subdivide the 53-acre site into a total of 221 single family residential lots. The project would result in significant individual and cumulative impacts to air quality from emissions of CO, PM <sub>10</sub> , NO <sub>x</sub> , and reactive organic gases.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-65	TR33607 / TL Group	Per the City of Moreno Valley's 2006 ND, the project would complete a 52-unit condominium on 4.28 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-66	TR34988 / Stratus Properties	Per the City of Moreno Valley's 2007 ND, the project would propose 271 units on 3.75 acres of outdoor recreation area. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-67	TR32515	Per the City of Moreno Valley's 2005 ND, the project would develop 174 senior single-family residential lots and retain natural open space on a 38.4-acre parcel. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-68	PA07-0035	Per the City of Moreno Valley's 2009 ND, the project would develop six industrial buildings on 19.14-acre parcel. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-69	PA07-0039, (Industrial Area SP)	Per the City of Moreno Valley's 2009 ND, the project would develop six industrial buildings on 19.14-acre parcel. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-75	Aqua Bella Specific Plan	Per the City of Moreno Valley's 2005 EIR, the project would develop a gated active-adult community containing 2,922 dwelling units on 685 acres. The project is not consistent with the Regional Growth Management Strategy or Air Quality Management Plan and would have a significant impact on air quality.
MV-78	Overton Moore Properties PA08-0072	Per the City of Moreno Valley's 2008 ND, the project would build a 522,772 square foot industrial warehouse building on 25.96 acres of land. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-79	Shaw Development	Per the City of Moreno Valley's 2014 IS and Environmental Checklist, the project proposes construction and operation of an approximate 366,698 square-foot warehouse on approximately 16.07 acres. The project would have a less than significant impact on air quality with mitigation incorporated.
MV-80	PA15-0032 MV Cactus Center	Per the City of Moreno Valley's 2017 IS and environmental checklist, the project proposes to develop a 39,950-sf warehouse building, gas station, car wash, and 3 fast-food restaurant on 6.3 acres. The project would have a less than significant impact on air quality.
MV-81	Ridge Property Trust, PA07-0147 & PA-07-0157	Per the City of Moreno Valley's 2010 IS and environmental checklist, the project proposed to build a 353,859-sf warehouse distribution building on 16.55 acres in a light industrial zone. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-84	PA16-0075 Brodiaea Business Center	Per the City of Moreno Valley's 2017 IS, the project would develop 8 industrial buildings and 1 future industrial building on 126 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-85	Retail Center / Winco Foods, PA08-0079/0080/0084	Per the City of Moreno Valley's 2010 ND, the project subdivides 16.9 acres into 6 pads for commercial retail use. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-86	TR32505 / DR Horton	Per the City of Moreno Valley's 2007 ND, the project would subdivide 18.66 acres into 72 single-family residential lots. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-88	TR33771 / Creative Design Associates	No environmental documentation was available for review. However, there is a planning commission resolution for a 12-unit condominium complex on approximately 0.9 acres.
MV-89	TR35663 / Kha	No environmental documentation was available for review. However, there is a notice of exemption for a mixed use development on approximately 2.2 acres, which states that there is no evidence of potential for significant environmental impacts.
MV-91	TR31305 / Richmond American	Per the City of Moreno Valley's 2004 ND, the project would subdivide 22.9 net acres in the R5 zone into 87 single-family residential lots. A portion of the subject site was previously subdivided as part of Tract Map No. 27251. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-92	TR 33256	Per the City of Moreno Valley's 2005 ND, the project would subdivide 28.6 net acres in the R5 zone into 99 single-family residential lots. The site backs to SR 60. The Tract's northern boundary will change because of the expansion of Caltrans ROW to complete improvements to the eastbound off-ramp. A portion of the site includes approved Tentative Tract Map No. 28594. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-93	PA14-0042 Edgemont Apartments	Per the County of Riverside's 2004 Final SP/EIR would result in the development of the Oak Valley & SCPGA Gold Course Area. The project would have a less than significant impact on air quality.
MV-94	PA15-0002 Box Springs Apartments	Per the City of Moreno Valley's 2015 Addendum to MND SCH No. 2007101131, the project site will consist of the same approx. 12 acres for the proposed 266-unit multi-family residential development which is an increase of 26 units and a modification to the building designs and locations. Mitigation Measures and Conditions Approval from the original project will be included in the modified project. The project would have a less than significant impact on air quality with mitigation incorporated.
MV-95	Moreno Beach Marketplace / Lowes	Per the City of Moreno Valley's IS/Checklist, the project proposes to develop 14.2 acres with approximately 11.58 acres remaining vacant. Project includes a total of four applications, GP Amendment, Zone Change, and 2 Master Plot Plans. The project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-96	31394 Pigeon Pass, Ltd.	Per the City of Moreno Valley's 2006 ND, the project would subdivide a 46 gross acre site into 78 single-family residential lots within area adjacent to city limits. Applicant is proposing Pre-zoning and a GP Amendment to establish an R3 land use district and request the expansion of the Moreno Valley SOI and annex the project into the City. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-97	32005 Red Hill Village, LLC	Per the City of Moreno Valley's 2005 ND, project includes a tentative tract map to develop a Planned Unit Development consisting of approximately 214 clustered and single-family residential gated community. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-98	33388 SCH Development, LLC	Per the City of Moreno Valley's 2007 ND, project proposes to subdivide a 19.5 gross acre parcel into a 16 lot single-family residential subdivision. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-100	32215 Winchester Associates "Scottish Village"	Per City of Moreno Valley's 2006 IS/Environmental Checklist Form, project proposes a planned residential development of 194 residential units on a 26.12 acre site. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-103	Gateway Business Park	Per the City of Moreno Valley's 2008 IS and environmental checklist, the project would develop a business park consisting of 16 buildings with office, industrial, and warehouse space and associated parking areas on 25.3 acres. The project would have a less than significant impact on air quality with mitigation incorporated.
MV-106	35304 Jimmy Lee	Per the City of Moreno Valley's 2007 Resolution, the project would develop 12 condominiums with 15 dwelling units on 0.9 acres.
MV-110	TM 33417	Per the City of Moreno Valley's Environmental Checklist, the project would propose a 60 unit condominium complex on 7.40 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-111	35769 Michael Chen	Per City of Moreno Valley Planning Commission Resolution 2009-21, this tentative tract map is for a 16-unit condominium complex on 1.21 acres.
MV-112	PA09-0006 Jim Nydam	Per City of Moreno Valley Planning Commission Resolution 2009-25, this project would result in the development of a 15-unit affordable housing project on 1.57 acres.
MV-113	Ironwood Residential	Per the City of Moreno Valley's November 2016 MND, this project would develop 101 single family home subdivision on approximately 75 acres, including open space, a park, trails, streets, utility improvements, and related infrastructure. The project would have a less than significant impact on air quality with mitigation incorporated.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-114	Stoneridge Town Centre – Vacant Restaurant	Per the City of Moreno Valley's March 2006 Negative Declaration, this project would subdivide a 55.45-acre parcel into 25 individual parcels to be developed as 563,328 square feet of commercial uses. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-116	31621 Peter Sanchez	Per the City of Moreno Valley's Checklist form, this project would subdivide 3.1 acres to be developed as 12 single family homes. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-117	Riverside County Office Building	Per the City of Moreno Valley's September 2014 Negative Declaration, this project would develop a 52,250 square foot office building and 342 parking spaces on 5.8 acres. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-118	28860 Professor's Fun IV, LLC/Winchester Associates, Inc.	Per the City of Moreno Valley's December 2003 checklist form, this project would subdivide 46.16 acres for nine single family homes. Per the Negative Declaration, the project would have a less than significant impact on air quality.
MV-119	32126 Salvador Torres	Per the City of Moreno Valley's November 2007 Negative Declaration, this project would subdivide 9 acres for 35 single family homes. Per the Negative Declaration, the project would have a less than significant impact on air quality.
P-2	TR34716	Per the City of Perris' 2013 FEIR, the project involves the construction and operation of up to 600,000 gross square feet (gsf) of light industrial/warehouse uses. The project would have a direct a cumulative impact on air quality.
P-4	Bookend	Per the City of Perris' 2015 MND, the project proposed to subdivide an existing vacant parcel into five new industrial parcels with a total building area of 165,000 sf. The project would have a less than significant effect on air quality with mitigation incorporated.
P-5	Markham East	Per the City of Perris's June 2007 Notice of Determination, the project would develop 462,692 square feet of light industrial warehouse/distribution uses in a single building with associated roadway and utility infrastructure and landscape improvements on 22.25 acres. The project would not have a significant impact on air quality.
P-7	Duke Warehouse	Per the City of Perris's Facts, Findings and Statement of Overriding Considerations, the project would redesign ate a large portion of the northern part of the City with broad categories of compatible commercial and industrial uses on 34.57 acres. Uses would include a 668,681 square foot industrial/warehouse building that includes 19,200 square feet of office space. The Project would contribute to an increase of emissions due to operational NOx, and would have a significant impact on air quality.
P-8	First Perry Logistics Project	Per the City of Perris's November 2017 Notice of Determination, the project would develop a 236,961 square foot industrial building on 11.06 acres. The project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
P-10	IDS	Per City of Perris 2005 Final EIR would result in the Perris Warehouse/Distribution Facility Project. The project would have a significant impact on air quality.
P-11	Ridge II	Per the City of Perris 2007 NOC and Environmental Doc Transmittal, project proposes a new industrial warehouse use, incorporating approximately 2 million square feet of building area in two structures. The project would have a significant impact on air quality and would exceed the SCAQMD daily regional emissions thresholds for VOC and NO <sub>x</sub> .
P-12	Starcrest, P011-0005; 08-11-0006	Per the City of Perris Final EIR, the proposed project is the expansion of an existing internet/mailorder fulfillment facility to an adjacent property. The existing Starcrest building is approximately 232,215 square feet in size. The expansion would include a 454,008-sf building north of and adjacent to Starcrest's existing facility. The project would not have any related long-term air quality impacts.
P-14	Rados Distribution Center	Per the City of Perris 2010 Final EIR, proposed project is an approximately 1,191,080 sq ft distribution center on approximately 61.63 gross acres. The project would have a significant impact on air quality.
P-15	Duke Perris Logistics Center I	Per the City of Perris 2017 Final EIR, the project would result in the Duke Warehouse at Indian Avenue and Markham Street. Project would have an impact on air quality and regional NO <sub>x</sub> emissions would exceed SCAQMD operational threshold after implementation of mitigation measures.
P-16	Perris Ridge Commerce Center I	Per the City of Perris' 2007 excerpt of an EIR, the project proposes the establishment of a new industrial warehouse use, incorporating approximately 2 million square feet of building area in two structures on 91 acres. The project documentation provided no information on significance of air quality impacts.
P-18	P07-07-0029	Per the City of Perris' 2009 EIR, the project proposed to construct a 1,608,322-sf industrial complex comprised of five buildings on 92.3 acres. The project would have a significant impact on air quality.
P-19	P05-0192	Per the City of Perris' 2006 EIR, the project proposed development of an approximately 700,000 square foot industrial building on a 40-acre. The project would have a significant impact on air quality.
P-20	P05-0113	Per the City of Perris' 2009 EIR, the project proposed subdividing the site into five legal parcels, four of which would be developed with industrial/warehouse buildings for a total of 1,750,000-sf. The project has mitigation measures in place for air quality impacts, no information on if impacts are significant after mitigation implemented.
P-21	P07-09-0018	Per the City of Perris' 2008 IS, the project proposed the development of a 173,000-sf industrial building on 8.7 acres. The project would have a less than significant impact on air quality with mitigation incorporated.
P-22	NICOL	Per the City of Perris' 2016 IS/MND, the project proposed a 380,000-sf warehouse building on 21.63 acres. The project would have a less than significant impact on air quality with mitigation incorporated.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
P-23	Westcoast Textiles	Per the City of Perris' 2016 IS, the project proposed construction of a 187,850 sf industrial/manufacturing building on 9 acres. The project will have a less than significant impact on air quality.
P-24	Optimus Logistics Center 1	Per the City of Perris' 2016 EIR, the project proposed to construct a high-cube warehouse consisting of two buildings totaling 1,455,781 sf on 68.99 acres. The project would have a cumulative impact on air quality.
P-25	Optimus Logistics Center 2	Per the City of Perris' 2015 EIR, the project proposed construction of warehouse development site encompassing 1,037,811 square feet in two buildings on 48.4 acres. The project would have significant air quality impacts on air pollutant emissions.
P-26	Duke Warehouse	Per the City of Perris' 2017 IS, the project proposed construction and operation of approximately 811,620 square feet (sf) of industrial high-cube, non-refrigerated warehouse/distribution uses on the approximate 37.3-acre site. The project would have a potentially significant impact on air quality.
P-27	Perris DC (Industrial Property Trust)/Integra	Per the City of Perris' 2014 EIR, the project proposed construction and operation of up to 864,000 square feet (sf) of industrial warehouse/distribution uses on the approximate 43.2-acre site. The project has mitigation measures for air quality impacts, no information given on significance of impacts after mitigation.
P-28	Duke Warehouse	Per the City of Perris' 2017 IS, the project proposed construction and operation of approximately 1,189,860 square feet (sf) of high-cube warehouse/distribution uses on the approximate 55-acre Project site. The project would have significant impacts on air quality.
P-30	Avelina	Per the City of Perris' 2003 IS, the project proposed to increase residential density on a 158.2-acre property to 475 dwelling units. The project would have a less than significant impact on air quality.
P-31	Perris Family Apartments	Per the City of Perris' 2013 IS, the project proposed to construct a 75-unit multi-family apartment complex on 7 vacant acres. The project would have a less than significant impact on air quality with mitigation incorporated.
P-32	Lewis Retail Center	Per the City of Perris' 2009 IS, the project proposed to construct 643,000 sf of commercial shopping center on 68 acres. Per the City of Perris' 2009 Initial Study, the project would have a potentially significant impact on air quality.
P-35	Verano Apartments	Per the City of Perris' 2013 IS, the project proposed increasing the number of residential units from 19 to 40 and reducing the commercial component from 17,000 sq. ft. to 1,000 sq. ft. for retail and to allow a 2,000 sq. ft. day care facility. The project would have a less than significant impact on air quality.
P-37	Cabrillo	Per the City of Perris' Initial Study, the project proposed to amend the General Plan (GP) and Zoning designation of approximately 36.21 acres of land from R-6,000 to MFR-14 Residential, along with a Text Amendment to narrow the lot frontage from 50 feet to 45 feet for lots greater than 4,500 square feet to facilitate the entitlement of Tentative Tract Map (TTM) 36343, a 184 lot residential subdivision. The project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
P-58	Jordan Distribution	Per the City of Perris's June 2008 Notice of Determination, the project would develop a 378,521 square foot tilt-up industrial building for warehouse distribution uses on 17.1 acres. The project would not have a significant impact on air quality.
R-1	Sycamore Canyon Business Park – Bldgs 1&2	Per the City of Riverside's January 2017 Final EIR, the project would develop approximately 1.43 million square feet of business park uses on approximately 920 acres. The project would have cumulatively significant impacts to air quality.
R-2	Alessandro Business Center (Western Realco)	Per the City of Riverside's February 2015 Addendum to the Final EIR, the project would develop 662,018 square feet of industrial warehouse uses on 36.7 acres. The project would have significant air quality impacts, even with mitigation incorporated.
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	Per the City of Riverside's December 2009 Final EIR, the project would develop a 36.91-acre business park development for light industrial, warehouse distribution, and office uses on 80.07 acres. The project would have significant air quality impacts, even with mitigation incorporated.
R-4	Quail Run	Per the City of Riverside's January 2016 Initial Study, the project would develop a 13-building apartment complex on approximately 16 acres of a 30.9-acre site that also would include parking structures and spaces, and open space. The project would have a less than significant impact on air quality.
R-5	Canyon Springs Healthcare Campus Specific Plan	Per the City of Riverside's July 2017 Draft EIR, the project would develop a healthcare campus on 50.85 acres, including an approximately 234-unit senior housing facility; approximately 310,200 square foot (267-unit, 290-bed) independent living/memory care, assisted living, and skilled nursing facility; an approximately 324,000 square foot (180-bed) hospital; approximately 22,000 square foot central energy plant; approximately 70,000 square foot medical office building; an additional 300,000 square foot of medical office building uses with retail; multiple multi-level parking structures; and an approximately 180,000 square foot (100-bed) hospital addition. A helipad/helistop also is proposed. The project would have significant impacts on air quality.
R-16	Sycamore Canyon Specific Plan	Per the City of Riverside's 1993 amended Specific Plan/EIR, the Sycamore Canyon Business Park Specific Plan describes a planned industrial park consisting of approximately 920 acres of industrial and commercial uses within a 1,400-acre project area. Approximately 480 acres of the total 1,500-acre Sycamore Canyon Wilderness Park is located within the Plan area. The project would have potentially significant impacts on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
RC-5	Villages of Lakeview – Residential/Commercial Development	Per Riverside County's August 2016 Draft EIR, the Villages of Lakeview project proposes a master-planned community comprised of approximately 2,800 acres in the Lakeview/Nuevo area of Riverside County. Proposed land uses within the Specific Plan include a wide range of residential products, mixed uses, retail, schools with joint use parks, public and private amenities, an array of parks, trails, open space, roads, and other infrastructure. Existing infrastructure such as water, sewer, storm drain, and roadways will also be expanded as part of the Villages of Lakeview project. The project would have significant impacts to air quality.
RC-9	Oleander Business Park, PP20699	Per what appear to be public meeting slides presenting information about Riverside County's May 2008 Final EIR for this project, the project would subdivide approximately 68.8 acres to develop approximately 1,206,710 square feet of industrial buildings. The project would have significant air quality impacts of Short term and long term cumulative impacts of VOC, NO <sub>x</sub> , CO, PM <sub>10</sub> and PM <sub>2.5</sub> .
RC-10	Majestic Freeway Business Center, SP 341 / PP21552	Per Riverside County's December 2006 Initial Study, the project would develop 947,000 square feet of light industrial warehouse and distribution uses and a 1.62 acre detention basin on 47.25 acres. The project would have no impact on air quality.
RC-11	Alessandro Commerce Center	Per Riverside County's April 2009 screencheck draft EIR, the project would develop 409,000 square feet of warehouse, 42,000 square feet of light industrial, 10,000 square feet of retail/restaurant, and 258,000 square feet of office uses, associated parking, and three detention basins on 54.4 acres. The project would have significant impacts on air quality.
RC-12	Cores Industrial Partners	Per Riverside County's October 2010 ND, the project proposes to bring the Zoning Code into compliance with SB 1627 and to strengthen the development standards for wireless telecommunications facilities in order to ensure high quality design and compatibility with surrounding uses. The project would have a less than significant impact on air quality.
RC-13	Sunny Cal Specific Plan (#40)	Per the City of Beaumont's June 2007 Response to Late Comments on the EIR, the project would develop a 907-unit housing project on up to 323.3 acres. The project would have a significant impact on air quality.
RC-34	Emerald Acres SP (SP00381)	Per Riverside County's January 2016 Initial Study, the project would develop the approximately 332.6-acre site as a residential community consisting of a maximum of 355 single family dwelling units on 76.3 acres; 179 multi-family dwelling units on 16.7 acres; 4.88 acres of commercial uses; a community park on 6.8 acres; 209.7 acres of open space; a 0.9 acre sewer lift station; and roadway improvements. The project would have a significant impact on air quality.
RC-35	TR34677, TR31100, TR32391, TR33448, TR31101, TR31009, TR32282	Per Riverside County's February 2004 environmental assessment form/initial study, the project would subdivide 6.7 acres of a 71-acre parcel into 8 single-family residential lots, a detention basin, and 2.2 acres of open space. The project would have a less than significant impact on air quality with mitigation incorporated.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
RC-37	TR36504	Per Riverside County's IS, the project proposes a Schedule 'A' subdivision of 162.05-acre gross area into 527 single-family residential lots. In addition to 527 residential lots, the subdivision also includes an 8.54-acre lot for a park, a 4.7-acre lot for a detention/debris basin, and an approximately 18-acre open space lot. The project would have a less than significant impact on air quality with mitigation incorporated.
RC-38	San Geronio Crossings	Per Riverside County's May 2017 Recirculated Draft EIR, the project would develop two house high-cube warehouse buildings on an approximately 220-acre site, of which approximately 16 acres are located within the City of Calimesa. Approximately 140.23 acres of the site would be included within the developed portion of the project; 84.8 acres would remain natural open space. The project would have significant impacts to air quality.
RD-1	Tract 18988	Per the City of Redlands' June 2015 MND, the project would widen Pioneer Avenue to preserve existing deodar cedar trees along an approximately 1,100 linear foot segment between Texas Street and Furlow Drive. The project also would develop 82 single-family residential lots on 30.51 acres. The project would have less than significant impacts to air quality.
RD-3	Newland Homes Tract	Per the City of Redlands' March 2018 ISMND, the Project would result in the construction of 105 single-family detached dwelling units and a neighborhood park on 30.84 acres. The project would have a less than significant impact on air quality.
RD-4	Redlands Pennsylvania Tract	Per the City of Redlands' March 2018 ISMND, the Project would result in the subdivision of a 24.87-acre project site into 67 residential lots and 10 lots as open space. Additionally, the Project seeks approval to remove 5 acres from an Agricultural Preserve. The project would have less than significant impacts on air quality. The project would have a less than significant impact on air quality with mitigation incorporated.
RD-6	Woodsprings Hotel	Per the City of Redlands' March 2018 IS, the Project would result in the construction of a 124-room hotel on a 2.68-acre property.
RD-10	Park Ave Industrial Center	Per the City of Redlands' March 2014 MND, the project would develop approximately 170,000 square feet of light industrial uses, including 289 parking spaces and 12,500 square feet of office space. The project would have a less than significant impact on air quality with mitigation incorporated.
RD-11	Marriott Springhill Suites	Per the August 2016 technical memorandum regarding the Trip Generation, Distribution, and Assignment Analysis for the project, the project would develop a four-story 88-room hotel with rooms, suites, and 97 parking spaces. The project would have a less than significant impact on air quality.
RD-12	I-10 Redlands LC - B	Per the August 2014 letter responding to comments on the proposed MND, the project would develop approximately 1.1 million square feet for warehousing/fulfillment/distribution center uses on 50.67 acres. Project would have a less than significant impact on air quality with mitigation incorporated.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
RD-14	Redlands DC 772,000 SF (2015)	Per the City of Redlands' September 2013 MND, the project would develop 771,839 square feet of warehouse distribution center on 35.59 acres and related parking. The project would have a less than significant impact on air quality with mitigation incorporated.
RD-16	APL Logistics	Per the May 2012 City of Redlands Commission Review and Approval No. 873, the project would develop 809,338 square feet of warehouse uses on 37.4 acres. The project would have a less than significant impact on air quality with mitigation incorporated.
SB-1	Redlands Gateway Logistics – B	Per the County of San Bernardino's 2009 IS, the project would result in the construction of 5 two-story structures and 7 single-story structures with a maximum floor area of 216,500 square feet, and a three-story hotel with 180 rooms and a floor area of 80,000 square feet. The project would have a less than significant impact on air quality with mitigation incorporated.
SB-2	Redlands Gateway Logistics – A	Per the County of San Bernardino's 2014 IS, the project proposes to subdivide 42.66 acres into 2 lots. Parcel 1 is 14.81 acres and Parcel 2 is 27.85. The project would have a less than significant impact on air quality with mitigation incorporated.
SB-3	Prologis #12	Per the County of San Bernardino's 2013 IS, the project would result in a conditional use permit to establish a 593,916 square foot industrial building to be use as a "high cube" warehouse distribution facility, a tentative parcel map for a one lot subdivision, and a general plan amendment to change the official land use district from East Valley/General commercial to East Valley/regional industrial on 27.42 acres. The project would have a less than significant impact on air quality with mitigation incorporated.
SB-4	Prologis #17	Per the County of San Bernardino's April 2014 MND, the Project would result in the construction of a 777,620 square foot industrial building and the relocation of an existing telecommunication tower on a 35.98 acre site. The project would have a less than significant impact on air quality with mitigation incorporated.
SB-6	Prologis #8	The project would have a less than significant impact on air quality.
SB-7	Sam Redlands Tract	Per the City of Redlands' March 2017 ISMND, the Project would result in the subdivision of an 11.97 acre site into 34 single family residential lots, 4 lettered lots, and the demolition of existing structures. The project would have a less than significant impact on air quality.
SB-8	Jacinto Tract	Per the City of Redlands' July 2016 ISMND, the Project would result in the subdivision of an 18.54 acre site into 40 residential lots. The project would have a less than significant impact on air quality.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
SJWA-1	San Jacinto Wildlife Land Management Plan	Per the California Department of Fish and Wildlife's 2017 Draft PEIR, the project involves the proposed Land Management Plan (LMP) for the approximately 20,126-acre San Jacinto Wildlife Area. Public uses that would continue to be permitted under the draft LMP include waterfowl and upland small game hunting, bird watching, hiking, hunting dog training, fishing, horseback riding, nature study, photography, and mountain biking. The project would have a less than significant impact on air quality with mitigation incorporated.

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
B-1	Fairway Canyon SPCGA Tract Nos. 31462, 36558, and 36783 (#29)	SF	3,300 DU
B-10	Tract No. 32850 (#39)	SF	95 DU
B-11	San Geronio Village, Phase 2 (#45)	RC	225 KSF
B-12	Beaumont Commercial Center	MF	279 DU
B-13	Four Seasons (#23) Tract Nos. 32260 and 33096	SF	1,890 DU
B-14	Potrero Creek Estates (#26)	SF	700 DU
B-2	Tournament Hills 3, TM 36307	MF	571 DU
B-3	Heartland	SF	922 DU
B-4	Hidden Canyon	LI	1,734 KSF
B-5	ProLogis/Rolling Hills Ranch	HI	2,565.68 KSF
B-6	Mountain Bridge Regional Commercial Planned Commu*	BP	1,853.25 KSF
B-7	Kirkwood Ranch (#14)	SF	403 DU
B-8	Noble Creek Vistas (#10)	SF	648 DU
B-9	Sundance (#17)	SF	4,450 DU
C-1	TTM 33931 Fiesta Oak Valley/Mesa Verde Estates	RC	200 KSF
C-2	Summerwind Ranch	BP	1,579 KSF
C-2	Summerwind Ranch	BP	1,000 KSF
C-3	JP Ranch	RC	72.7 KSF
H-1	TTM 36841	SF	588 DU
H-10	Downtown Hemet Specific Plan	**	**
H-2	Rancho Diamante	SF	440 DU
H-3	Tres Cerritos Specific Plan	SF	931 DU
H-4	Sanderson Square	LI	734.98 KSF
H-4	Sanderson Square	LI	995.15 KSF
H-5	Mc Sweeny Farms SP	RC	20.90 KSF
H-6	Ramona Creek	RC	680.788 KSF
H-7	Peppertree Specific Plan	SR	358 KSF
H-8	Florida Promenade Residential SP	SF	145 DU
H-9	TTM 31807 / 31808	SR	599 KSF
M-1	Amstar/Kaliber Development PP22925	HI	409.312 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

M-10	<u>Airport Master Plan</u>	WH	559 KSF
M-11	<u>PA 06-0014 (Pierce Hardy Limited Partnership)</u>	RC	67 KSF
M-2	<u>Meridian Business Park</u>	LI	487.8 KSF
M-3	<u>Meridian Business Park - Phase 3</u>	WH	2,900 KSF
M-4	<u>March Business Center - South Campus</u>	RC	108.9 KSF
M-5	<u>Meridian LNR</u>	OG	232.76 KSF
M-6	<u>Ben Clark Training Facility</u>	BP	219.35 KSF
M-7	<u>Meridian Business Park - Phase K4</u>	WH	675.5 KSF
M-8	<u>March LifeCare Campus Specific Plan</u>	MO	2,930 KSF
M-9	<u>TM 34748</u>	SE	135 DU
MV-1	<u>Auto Mall SP</u>	RC	304.5 KSF
MV-10	<u>TR30998 / Pacific Communities</u>	SE	47 DU
MV-100	<u>Scottish Village</u>	MF	194 DU
MV-101	<u>Restaurant</u>	RC	9 KSF
MV-102	<u>Moreno Valley Professional Center</u>	OG	84 KSF
MV-103	<u>Gateway Business Park</u>	LI	184 KSF
MV-104	<u>373K Industrial Facility</u>	WH	373.03 KSF
MV-105	<u>35369 Tason Myers Property</u>	ME	12 DU
MV-106	<u>35304 Jimmy Lee</u>	ME	12 DU
MV-107	<u>32711 Isaac Genah</u>	SE	9 DU
MV-108	<u>O'Reilly Automotive</u>	RC	2.97 KSF
MV-109	<u>Quail Ranch</u>	SE	1,105 DU
MV-11	<u>TR30411 / Pacific Communities</u>	SE	24 DU
MV-110	<u>TM 33417</u>	ME	60 DU
MV-111	<u>35769 Michael Chen</u>	ME	16 DU
MV-112	<u>PA09-0006 Jim Nydam</u>	ME	15 DU
MV-113	<u>Ironwood Residential</u>	SE	144 DU
MV-114	<u>Stoneridge Town Centre - Vacant Restaurant</u>	RC	5.7 KSF
MV-115	<u>Olivewood Plaza - Office Building</u>	OG	0.02 KSF
MV-116	<u>31621 Peter Sanchez</u>	SE	25 DU
MV-117	<u>MV-101</u>	OG	52 KSF
MV-118	<u>28860 Professor's Fun IV</u>	SE	9 DU
MV-119	<u>32126 Salvador Torres</u>	SE	35 DU
MV-12	<u>Moreno Medical Campus</u>	MO	80 KSF
MV-120	<u>Moreno Valley Shopping Center</u>	RC	189.52 KSF
MV-121	<u>Yum Donut Shop</u>	RC	4.35 KSF
MV-122	<u>Centerpointe Business Park</u>	**	**
MV-123	<u>Rancho Belago Plaza - Retail</u>	RC	14 KSF
MV-124	<u>Alessandro &amp; Lasselle</u>	RC	140 KSF
MV-125	<u>32756 Jimmy Lee</u>	ME	24 DU
MV-126	<u>TTM 33222</u>	SE	235 DU
MV-13	<u>Cresta Bella</u>	OG	30 KSF
MV-14	<u>TR32548 / Gabel, Cook &amp; Assoc</u>	SE	107 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-15	<u>TR32218 / Whitney</u>	SF	63 DU
MV-16	<u>TR32284 / 26th Corporation &amp; Granite Capitol</u>	SF	32 DU
MV-17	<u>TR31590 / Winchester Associates</u>	SF	96 DU
MV-18	<u>Convenience Store / Fueling Station</u>	RC	5.5 KSF
MV-19	<u>Senior Assisted Living</u>	SR	139 KSF
MV-2	<u>TR35823 / Stowe Passco Devel.</u>	SF	262 DU
MV-20	<u>Moreno Marketplace</u>	RC	93.79 KSF
MV-21	<u>PEN16-0053 Medical Center</u>	MO	80 KSF
MV-22	<u>TR36882 (PA15-0010) SFR</u>	SF	40 DU
MV-23	<u>PEN16-0129/0130 MV Ranch Apartments</u>	ME	417 DU
MV-24	<u>TM 36436 (PA12-0005)</u>	SF	159 DU
MV-25	<u>TR32142</u>	SF	81 DU
MV-26	<u>TR 30268 (PA01-0072) Pacific Communities</u>	SF	100 DU
MV-27	<u>TR32917 / Empire land</u>	ME	54 DU
MV-28	<u>TR34329 / Granite Capitol</u>	ME	90 DU
MV-29	<u>TR36340</u>	SF	275 DU
MV-3	<u>ProLogis</u>	WH	1,901 KSF
MV-30	<u>PA03-0168 TR 31517</u>	SF	83 DU
MV-31	<u>PA15-0034 TR 36983</u>	SF	53 DU
MV-32	<u>TTM 31592 (P13-078) SFR</u>	SF	115 DU
MV-33	<u>TR32645 / Winchester Assoc</u>	SF	54 DU
MV-34	<u>TR34397/Winchester Assoc</u>	SF	52 DU
MV-35	<u>TR31771 / Sanchez</u>	SF	25 DU
MV-36	<u>TM 31618 (PA03-0106)</u>	ME	56 DU
MV-37	<u>Vogel /PA09-004</u>	HI	1,616.13 KSF
MV-38	<u>Vogel Properties</u>	LI	434 KSF
MV-39	<u>VIP Moreno Valley (SaresRegis/Vogel)</u>	LI	1,600 KSF
MV-4	<u>Westridge Commerce Center</u>	LI	937.26 KSF
MV-40	<u>PEN17-0036 Warehouse</u>	WH	98.40 KSF
MV-41	<u>First Nandina Logistics Center</u>	WH	1,450 KSF
MV-42	<u>Indian Street Commerce Center</u>	WH	446.35 KSF
MV-43	<u>Ivan Devries / PA06-0017</u>	HI	555.67 KSF
MV-44	<u>Modular Logistics Center (Kearny RE Co)</u>	WH	1,109.38 KSF
MV-45	<u>Iris Plaza</u>	RC	87.12 KSF
MV-46	<u>Harley Knox/Redlands Development</u>	WH	382.28 KSF
MV-47	<u>PA07-0129 TR 35606 SFR</u>	SF	16 DU
MV-48	<u>PA11-001 thru 007 March Business Center</u>	BP	1484.50 KSF
MV-49	<u>Indian Business Park</u>	BP	1,560.05 KSF
MV-5	<u>P06-158 / Gascon</u>	RC	116.36 KSF
MV-50	<u>San Michele Industrial Center</u>	LI	354.81 KSF
MV-51	<u>PA07-0165 thru 01667 First Industrial I &amp; II</u>	LI	769.32 KSF
MV-52	<u>First Industrial III &amp; IV</u>	LI	878.96 KSF
MV-53	<u>I-215 Logistics Center</u>	WH	1,250 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-54	Moreno Valley Logistics Center (Prologis)	WH	1,738 KSF
MV-55	MV Commerce Park II (Alere) - Built before 2012	**	**
MV-56	Tract Map 33810	SF	16 DU
MV-57	Tract Map 34151	SF	37 DU
MV-58	Tract Map 33024	SF	8 DU
MV-59	Tract Map 31442	SF	63 DU
MV-6	Highland Fairview Corporate Park	WH	750 KSF
MV-60	Tract Map 36401	SF	92 DU
MV-61	Walmart & Gas Station	RC	180 KSF
MV-62	Tract Map 22180	SF	543 DU
MV-63	PA14-0053 (TTM 36760) Legacy Park	SF	221 DU
MV-64	TR22180 / Young Homes	SF	87 DU
MV-65	TR33607 / TL Group	MF	52 DU
MV-66	TR34988 / Stratus Properties	MF	251 DU
MV-67	TR32515	SF	161 DU
MV-68	PA07-0035	HI	207.09 KSF
MV-69	PA07-0039 (Industrial Area SP)	HI	409.60 KSF
MV-7	TR33962 / Pacific Scene Homes	SF	31 DU
MV-70	TR32756 / CTK, Inc.	ME	241 DU
MV-71	TR34681 / Perris Pacific Co.	ME	49 DU
MV-72	35861 Frederick Homes	ME	24 DU
MV-73	TR36038 / Alessandro Village Plaza LLC	ME	96 DU
MV-74	TR34216 / Creative Design Assoc	SR	189 KSF
MV-75	Aqua Bella Specific Plan	SR	1,461 KSF
MV-76	Commercial Medical Plaza PA09-0033 thru 0039, and*	RC	311.63 KSF
MV-77	Minka Lighting	LI	533 KSF
MV-78	Overton Moore Properties PA08-0072	LI	520 KSF
MV-79	Shaw Development	WH	367 KSF
MV-8	TR32460 / Sussex Capital	SF	58 DU
MV-80	PA15-0032 MV Cactus Center	RC	44.3 KSF
MV-81	Ridge Property Trust PA07-0147 & PA 07-0157	WH	700 KSF
MV-82	Centerpointe Bus. Ctr	WH	500 KSF
MV-83	Centerpointe Business Park	LI	356 KSF
MV-84	PA16-0075 Brodiaea Business Center	LI	99.98 KSF
MV-85	Retail Center / Winco Foods	RC	140 KSF
MV-86	TR32505 / DR Horton	SF	71 DU
MV-87	TR31814 / Moreno Valley Investors	ME	60 DU
MV-88	TR33771 / Creative Design Assoc	ME	12 DU
MV-89	TR35663 / Kha	ME	12 DU
MV-9	TR32459 / Sussex Capital	SF	11 DU
MV-90	PEN16-0110 Commercial Pad H	RC	7.31 KSF
MV-91	TR31305 / Richmond American	SF	87 DU
MV-92	TR 33256	SF	99 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-93	PA14-0042 Edgemont Apartments	MF	112 DU
MV-94	PA15-0002 Box Springs Apartments	MF	266 DU
MV-95	Moreno Beach Market PLace/Lowes	RC	175 KSF
MV-96	31394 Pigeon Pass, Ltd.	SF	78 DU
MV-97	32005 Red Hill Village, LLC	SF	214 DU
MV-98	33388 SCH Development, LLC	SF	16 DU
MV-99	36038 Alessandro Village Plaza, LLC	MF	96 DU
P-1	TR32707	SF	137 DU
P-10	IDS	WH	1,700 KSF
P-11	Ridge II	HI	1,224.99 KSF
P-12	Starcrest P011-0005; 08-11-0006	LI	454.09 KSF
P-13	Ridge	**	**
P-14	Rados Distribution Center	WH	1,200 KSF
P-15	Duke Perris Logistics Center	WH	780.82 KSF
P-16	Perris Ridge Commerce Center I	WH	1,310 KSF
P-17	SRG Perris LC	WH	580 KSF
P-18	P07-07-0029	WH	1,547 KSF
P-19	P05-0192	WH	697.6 KSF
P-2	TR34716	WH	600 KSF
P-20	P05-0113	WH	871.5 KSF
P-21	P07-09-0018	WH	170 KSF
P-22	NICOL	WH	380 KSF
P-23	Westcoast Textiles	WH	180 KSF
P-24	Optimus Logistics Center 1	WH	1,464 KSF
P-25	Optimus Logistics Center 2	WH	1,038 KSF
P-26	Duke Warehouse	LI	811.62 KSF
P-27	Perris DC (Industrial Property Trust)	WH	864 KSF
P-28	Duke Warehouse	LI	670 KSF
P-29	P06-0411	**	**
P-3	P05-0477	WH	462.3 KSF
P-30	Avelina	SF	492 DU
P-31	Perris Family Apartments	MF	75 DU
P-32	Lewis Retail Center	RC	643 KSF
P-33	Harvest Landing Specific Plan	SF	1,860 DU
P-34	South Perris Industrial Phase 3	WH	3,166.86 KSF
P-35	Verano Apartments	MF	40 DU
P-36	South Perris Industrial Phase 2	WH	3,448.73 KSF
P-37	Cabrillo	SF	183 DU
P-38	Sequoia	SF	223 DU
P-39	South Perris Industrial Phase 1	WH	783.7 KSF
P-4	Bookend	LI	172 KSF
P-40	TR 32041	SF	122 DU
P-41	P 06-0228	LI	149.74 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

P-42	TR 31650	SF	61 DU
P-43	TR 31225	SF	57 DU
P-44	TR 33193	ME	94 DU
P-45	P 12-05-0013	ME	75 DU
P-46	P 06-0378	SR	429 KSF
P-47	Park West Specific Plan	SF	521 DU
P-48	TR 33338	SF	75 DU
P-49	TR 31240	SF	114 DU
P-5	Markham East	WH	460 KSF
P-50	P 11-09-0011	RC	80 KSF
P-51	TR 30973	SF	35 DU
P-52	TR 31226	SF	82 DU
P-53	TR 31659	SF	161 DU
P-54	TTM 32708	SF	238 DU
P-55	Perris Marketplace	RC	450 KSF
P-56	PM 34199 / TPM 34697	LI	9.85 KSF
P-57	P 04-0343	WH	41.65 KSF
P-58	Jordan Distribution	HI	378 KSF
P-59	TR 31407	SF	243 DU
P-6	Perris Circle Industrial Park	LI	600 KSF
P-60	Retail on Redlands	RC	4.5 KSF
P-61	TR32707	WH	350 KSF
P-7	Duke Warehouse	LI	1,189.9 KSF
P-8	First Perry Logistics Project	LI	241 KSF
P-9	Aiere	HI	642 KSF
R-1	Sycamore Canyon Business Park - Bldgs 1&2	BP	1,375.17 KSF
R-10	SR-91/ Van Buren Commercial	RC	23.57 KSF
R-11	Citrus Business Park Specific Plan	BP	340.66 KSF
R-12	Sycamore Canyon Business Park Specific Plan	RC	61.38 KSF
R-13	14601 Dauchy Av. - TM 36370	SF	3 DU
R-14	360 Alessandro Boulevard	RC	3.86 KSF
R-15	Mission Grove Specific Plan	SF	171.70 DU
R-16	Sycamore Canyon Specific Plan	SF	1.53 DU
R-17	5940-5980 Sycamore Canyon Boulevard	ME	275 DU
R-18	Hunter Business Park	LI	9,037.83 KSF
R-19	807 Blaine Street	ME	55 DU
R-2	Alessandro Business Center (Western Realco)	WH	582.77 KSF
R-20	474 Palmyrita Avenue	WH	1,461.45 KSF
R-21	1006 & 1008 Clark Street	SF	15 DU
R-22	3719 Strong Street	SF	9 DU
R-23	1710 Main Street (P12-0717)	RC	8.04KSF
R-24	Downtown Specific Plan	SF	5,000 DU
R-25	P14-0045 thru -0048	ME	208 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

R-26	Marketplace Specific Plan	LI	943.51 KSF
R-27	2586 University Avenue	RC	3.62 KSF
R-28	2340 Fourteenth Street	SR	134 KSF
R-29	6570 Magnolia Avenue; 3739 & 3747 Central Avenue	RC	3.80 KSF
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	LI	652.02 KSF
R-30	3545 Central Avenue	RC	208.57 KSF
R-31	P08- 0396 / P08-0397 Thru -0399 / TM 35620	ME	36 DU
R-32	Walmart Expansion	RC	22.27 KSF
R-33	5731, 5741, 5761 & 5797 Pickler Street	ME	30 DU
R-34	4247 Van Buren Boulevard	OG	12.17 KSF
R-35	3990 Reynolds Road	ME	102 DU
R-36	Magnolia Garden Condominiums	ME	62 DU
R-37	3705 Tyler Street	RC	6 KSF
R-38	Park Sierra Avenue	RC	3.5 KSF
R-39	Riverwalk Vista Specific Plan	SF	402 DU
R-4	Quail Run	ME	216 DU
R-40	P12- 0019 / P12-0156 / P12-0158	RC	2.4 KSF
R-41	4824 Jones Avenue	OG	23.12 KSF
R-42	Rancho La Sierra Specific Plan	SF	598 DU
R-43	P05-1528 \ P09-0087 \ TM 34509	SF	50 DU
R-44	6465 Sycamore Canyon Boulevard	RC	4 KSF
R-45	P06-0591	OG	37.94 KSF
R-46	Sycamore-Highlands Specific Plan	SF	35.84 DU
R-47	P06-0160 / P06-1281	WH	107.73 KSF
R-48	P06-1408	RC	75.3 KSF
R-49	Canyon Springs Specific Plan	SR	310 KSF
R-5	Canyon Springs Healthcare Campus	MO	500 KSF
R-50	Orangecrest Specific Plan	SF	3.83 DU
R-51	P10-0808 / P10-0708	RC	2.36 KSF
R-52	19811 Lurin Avenue	SF	32 DU
R-53	P06-1404 / Lurin Avenue / TM 33482	SF	29 DU
R-54	P06-1396 / Mariposa Avenue / TM 33481	SF	25 DU
R-55	P06-0900 / P08- 0269 / P08-0270 / TTM 32301	SF	20 DU
R-56	Office, Magnon & Panattoni	OG	131 KSF
R-57	SEC Sycamore Canyon Boulevard & Box Springs Road	LI	171.62 KSF
R-58	Canyon / Valley Springs Parkway	RC	2.75 KSF
R-59	Alessandro and Gorgonio	RC	4.05 KSF
R-6	2450 Market Street	ME	77 DU
R-60	Alessandro Bl.	BP	101.58 KSF
R-61	Gless Ranch	RC	425.45 KSF
R-62	6091 Victoria Avenue (P13-0432)	RC	1.83 KSF
R-63	8616 California Avenue (P08-0084; PM 35852)	ME	21 DU
R-64	P13-0389 / TM 36579	SF	5 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

R-65	<u>P13-0723; P13-0724; P13-0725; TM 36654</u>	SF	62 DU
R-66	<u>Azar Plaza</u>	RC	6.15 KSF
R-7	<u>2861 Mary Street</u>	RC	56.10 KSF
R-8	<u>5938-5944 Grand Avenue</u>	SR	37 KSF
R-9	<u>Magnolia Avenue Specific Plan</u>	RC	8,777.62 KSF
RC-1	<u>TR35530 / Quail Ranch Specific Plan</u>	SF	1,251 DU
RC-10	<u>Majestic Freeway Business Center</u>	LI	6,200 KSF
RC-11	<u>Alessandro Commerce Center</u>	WH	814 KSF
RC-12	<u>Cores Industrial Partners</u>	LI	423.67 KSF
RC-13	<u>Sunny-Cal Specific Plan (#40)</u>	SF	497 DU
RC-14	<u>University Highlands</u>	ME	320 DU
RC-15	<u>TTM 33410 Box Springs</u>	SF	142 DU
RC-16	<u>Sycamore Canyon Specific Plan</u>	**	**
RC-17	<u>PP 24608</u>	RC	9.28 KSF
RC-18	<u>TR 32406</u>	SF	15 DU
RC-19	<u>CUP 03599</u>	RC	52.80 KSF
RC-2	<u>Jack Rabbit Trail</u>	SF	2,000 DU
RC-20	<u>PP 25699</u>	RC	2.8 KSF
RC-21	<u>CUP 03527</u>	WH	8 KSF
RC-22	<u>TR 30592</u>	SF	131 DU
RC-23	<u>PP 25768</u>	LI	52.45 KSF
RC-24	<u>PP 21144</u>	LI	190.80 KSF
RC-25	<u>PP 16976</u>	LI	85 KSF
RC-26	<u>PM 32699</u>	SF	2 DU
RC-27	<u>Yocum Baldwin</u>	LI	188.70 KSF
RC-28	<u>CUP 03315</u>	RC	5.6 KSF
RC-29	<u>18580 Van Buren Boulevard</u>	RC	8.14 KSF
RC-3	<u>The Preserve / Legacy Highlands SP - Commercial and Residential</u>	SF	3,412 DU
RC-30	<u>Knox Logistics</u>	WH	1,259.05 KSF
RC-31	<u>PP 23342</u>	LI	180.6 KSF
RC-32	<u>TTM 31537</u>	SF	726 DU
RC-33	<u>TTM 34130</u>	SF	384 DU
RC-34	<u>Emerald Acres SP #381</u>	SF	432 DU
RC-35	<u>TR 34677,31100,32391,33448,31101,31009,32282</u>	OG	80 KSF
RC-36	<u>TR36478, TR36480, PP25219</u>	SF	468 DU
RC-37	<u>TR 36504</u>	SF	562 DU
RC-38	<u>San Gorgonio Crossings</u>	WH	1,823.76 KSF
RC-39	<u>Tract 33869</u>	SF	39 DU
RC-4	<u>Badlands Sanitary Landfill</u>	**	**
RC-5	<u>Villages of Lakeview - Commercial Development and Residential Development</u>	SF	750 DU
RC-6	<u>Rider Business Center (Core 5 Industrial Partners)</u>	BP	600 KSF
RC-7	<u>Nuevo Distribution Center</u>	WH	1,586.65 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

RC-8	<u>Trucking DC (Central Freight, LLC)</u>	<u>**</u>	<u>**</u>
RC-9	<u>Oleander Business Park PP20699</u>	<u>OG</u>	<u>34 KSF</u>
RD-1	<u>Tract 18988</u>	<u>SF</u>	<u>82 DU</u>
RD-10	<u>Park Ave Industrial Center</u>	<u>LI</u>	<u>145.26 KSF</u>
RD-11	<u>Marriott Springhill Suites</u>	<u>RC</u>	<u>55.47 KSF</u>
RD-12	<u>I-10 Redlands LC - B</u>	<u>WH</u>	<u>601.29 KSF</u>
RD-13	<u>Ashley Furniture</u>	<u>WH</u>	<u>1,013 KSF</u>
RD-14	<u>Redlands DC 772,000 SF</u>	<u>WH</u>	<u>772 KSF</u>
RD-15	<u>2220 Almond Ave</u>	<u>WH</u>	<u>423 KSF</u>
RD-16	<u>APL Logistics</u>	<u>WH</u>	<u>714.73 KSF</u>
RD-2	<u>Redlands Pioneer Tract</u>	<u>SF</u>	<u>55 DU</u>
RD-3	<u>Newland Homes Tract</u>	<u>SF</u>	<u>103 DU</u>
RD-4	<u>Redlands Pennsylvania Tract</u>	<u>SF</u>	<u>67 DU</u>
RD-5	<u>I-10 Redlands LC - A</u>	<u>WH</u>	<u>500.60 KSF</u>
RD-6	<u>Woodsprings Hotel</u>	<u>RC</u>	<u>48.22 KSF</u>
RD-7	<u>RV Storage Facility</u>	<u>RC</u>	<u>127.75 KSF</u>
RD-8	<u>Liberty Lane Apartments</u>	<u>MF</u>	<u>80 DU</u>
RD-9	<u>Hilton Home2 Suites</u>	<u>RC</u>	<u>43.80 KSF</u>
SB-1	<u>Redlands Gateway Logistics - B</u>	<u>WH</u>	<u>614.33 KSF</u>
SB-2	<u>Redlands Gateway Logistics - A</u>	<u>WH</u>	<u>313.47 KSF</u>
SB-3	<u>Prologis 12</u>	<u>WH</u>	<u>593.56 KSF</u>
SB-4	<u>Prologis 17</u>	<u>WH</u>	<u>777.62 KSF</u>
SB-5	<u>Prologis #13</u>	<u>WH</u>	<u>282 KSF</u>
SB-6	<u>Prologis #8</u>	<u>WH</u>	<u>542.98 KSF</u>
SB-7	<u>Sam Redlands Tract</u>	<u>SF</u>	<u>34 DU</u>
SB-8	<u>Jacinto Tract</u>	<u>SF</u>	<u>40 DU</u>
SJ-1	<u>Gateway Area Specific Plan</u>	<u>RC</u>	<u>1,678.24 KSF</u>
SJ-2	<u>TR 31886</u>	<u>SF</u>	<u>321 DU</u>
SJ-3	<u>TR 30598</u>	<u>SF</u>	<u>580 DU</u>
SJ-4	<u>TR 32955</u>	<u>SF</u>	<u>613 DU</u>
SJWA-1	<u>San Jacinto Wildlife Land Management Plan</u>	<u>**</u>	<u>**</u>
<p>1 <u>BP Business Park</u>  <u>HI Heavy Industrial</u>  <u>LI Light Industrial</u>  <u>MF Multifamily Residential</u>  <u>MO Medical Office</u>  <u>OG General Office</u>  <u>RC Retail/Unspecified Commercial</u>  <u>SF Single Family Residential</u>  <u>SR Senior Residential</u>  <u>WH Warehouse-Logistics</u></p> <p>2 <u>DU Dwelling Units</u>  <u>KSF Thousand Square Feet</u></p> <p><u>** Project information not available or planning level document with no direct development proposed.</u></p>			

**6.3.2.1.1 Cumulative Operational Emissions**

Operational emissions were accumulated from the environmental documents that were gathered for the cumulative analysis. For projects that did not have an environmental document with quantitative emissions available, emissions were modeled utilizing default emission rates and factors from California Emissions Estimator Model (CalEEMod) (version 2016.3.2) and the California Air Resources Board's (CARB) mobile source emissions inventory (EMFAC2017). Cumulative operational emissions include the following: off-site mobile emissions (EMFAC2017), paved on-road dust, area energy emissions from natural gas usage, area source emissions from consumer products usage, and landscaping emissions. Exhaust emissions from truck refrigeration units (TRUs) are also included for medium and heavy duty truck trips generated from retail/commercial, senior housing and warehousing land uses. All cumulative project-level emissions were based on each land use and specific size for all projects for build out year 2035 on a consistent basis with the project buildout year 2035. This assures consistency in the calculations and the most current EMFAC2017 emission factors for each project.

Results of the cumulative operational emissions analysis are provided in Table 6.3-2.

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
B-001	139.12	124.91	682.82	1.90	36.81	17.35
B-002	14.37	15.71	101.66	0.25	4.90	2.29
B-003	38.87	34.90	190.78	0.53	10.28	4.85
B-004	39.14	47.55	146.98	0.71	13.02	6.06
B-005	56.94	60.33	176.22	0.86	15.61	7.45
B-006	44.55	72.13	295.58	1.28	24.43	10.19
B-007	16.99	15.25	83.39	0.23	4.50	2.12
B-008	27.32	24.53	134.08	0.37	7.23	3.41
B-009	187.60	168.44	920.77	2.56	49.64	23.40
B-010	4.00	3.60	19.66	0.05	1.06	0.50
B-011	12.39	98.54	140.66	0.27	5.55	2.60
B-012	7.02	7.67	49.67	0.12	2.40	1.12
B-013	79.68	71.54	391.07	1.09	21.08	9.94
B-014	29.51	26.50	144.84	0.40	7.81	3.68
C-001	11.01	87.59	125.03	0.24	4.93	2.31
C-002	93.01	499.42	877.00	2.29	45.48	20.22
C-003	4.00	31.84	45.45	0.09	1.79	0.84
H-001	24.79	22.26	121.67	0.34	6.56	3.09
H-002	18.55	16.65	91.04	0.25	4.91	2.31
H-003	39.25	35.24	192.64	0.54	10.38	4.90
H-004	40.51	58.89	221.02	0.99	18.64	8.04
H-005	1.15	9.16	13.07	0.03	0.52	0.24
H-006	37.48	298.17	425.61	0.81	16.79	7.85
H-007	8.66	7.11	48.10	0.08	1.70	0.87
H-008	16.76	14.22	89.12	0.19	3.71	1.83
H-009	14.49	11.89	80.48	0.14	2.84	1.46

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
M-001	16.55	22.80	69.14	0.30	5.60	2.52
M-002	118.54	303.00	298.23	2.27	38.11	16.79
M-003	61.97	176.72	128.30	1.17	19.11	8.43
M-004	6.00	47.70	68.08	0.13	2.69	1.26
M-005	94.76	222.58	253.57	1.79	30.44	13.57
M-006	5.27	8.54	34.98	0.15	2.89	1.21
M-007	14.43	41.16	29.88	0.27	4.45	1.96
M-008	124.11	532.68	1,476.21	5.11	98.21	41.66
M-009	5.69	5.11	27.93	0.08	1.51	0.71
M-010	11.95	34.06	24.73	0.23	3.68	1.63
M-011	3.69	29.34	41.89	0.08	1.65	0.77
MV-001	16.76	133.36	190.36	0.36	7.51	3.51
MV-002	16.48	15.86	92.67	0.24	4.78	2.24
MV-003	48.91	125.91	115.21	0.92	15.28	6.81
MV-004	21.16	25.70	79.45	0.38	7.04	3.27
MV-005	6.41	50.96	72.74	0.14	2.87	1.34
MV-006	16.03	45.70	33.18	0.30	4.94	2.18
MV-007	1.31	1.17	6.41	0.02	0.35	0.16
MV-008	2.45	2.20	12.00	0.03	0.65	0.31
MV-009	0.46	0.42	2.28	0.01	0.12	0.06
MV-010	1.98	1.78	9.73	0.03	0.52	0.25
MV-011	1.01	0.91	4.97	0.01	0.27	0.13
MV-012	2.45	7.07	29.64	0.12	2.26	0.94
MV-013	0.69	0.89	3.63	0.02	0.30	0.12
MV-014	4.51	4.05	22.14	0.06	1.19	0.56
MV-015	2.66	2.38	13.04	0.04	0.70	0.33
MV-016	1.35	1.21	6.62	0.02	0.36	0.17
MV-017	4.05	3.63	19.86	0.06	1.07	0.50
MV-018	0.30	2.41	3.44	0.01	0.14	0.06
MV-019	3.36	2.76	18.68	0.03	0.66	0.34
MV-020	5.16	41.08	58.63	0.11	2.31	1.08
MV-021	2.45	7.07	29.64	0.12	2.26	0.94
MV-022	1.69	1.51	8.28	0.02	0.45	0.21
MV-023	10.49	11.47	74.24	0.18	3.58	1.67
MV-024	6.70	6.02	32.90	0.09	1.77	0.84
MV-025	3.41	3.07	16.76	0.05	0.90	0.43
MV-026	4.22	3.79	20.69	0.06	1.12	0.53
MV-027	1.36	1.49	9.61	0.02	0.46	0.22
MV-028	2.26	2.48	16.02	0.04	0.77	0.36

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<u>MV-029</u>	<u>11.59</u>	<u>10.41</u>	<u>56.90</u>	<u>0.16</u>	<u>3.07</u>	<u>1.45</u>
<u>MV-030</u>	<u>3.50</u>	<u>3.14</u>	<u>17.17</u>	<u>0.05</u>	<u>0.93</u>	<u>0.44</u>
<u>MV-031</u>	<u>2.23</u>	<u>2.01</u>	<u>10.97</u>	<u>0.03</u>	<u>0.59</u>	<u>0.28</u>
<u>MV-032</u>	<u>4.85</u>	<u>4.35</u>	<u>23.80</u>	<u>0.07</u>	<u>1.28</u>	<u>0.60</u>
<u>MV-033</u>	<u>2.28</u>	<u>2.04</u>	<u>11.17</u>	<u>0.03</u>	<u>0.60</u>	<u>0.28</u>
<u>MV-034</u>	<u>2.19</u>	<u>1.97</u>	<u>10.76</u>	<u>0.03</u>	<u>0.58</u>	<u>0.27</u>
<u>MV-035</u>	<u>1.05</u>	<u>0.95</u>	<u>5.17</u>	<u>0.01</u>	<u>0.28</u>	<u>0.13</u>
<u>MV-036</u>	<u>1.41</u>	<u>1.54</u>	<u>9.97</u>	<u>0.02</u>	<u>0.48</u>	<u>0.22</u>
<u>MV-037</u>	<u>35.87</u>	<u>38.00</u>	<u>111.00</u>	<u>0.54</u>	<u>9.83</u>	<u>4.69</u>
<u>MV-038</u>	<u>9.80</u>	<u>11.90</u>	<u>36.79</u>	<u>0.18</u>	<u>3.26</u>	<u>1.52</u>
<u>MV-039</u>	<u>36.12</u>	<u>43.88</u>	<u>135.62</u>	<u>0.65</u>	<u>12.01</u>	<u>5.59</u>
<u>MV-040</u>	<u>2.10</u>	<u>6.00</u>	<u>4.35</u>	<u>0.04</u>	<u>0.65</u>	<u>0.29</u>
<u>MV-041</u>	<u>30.99</u>	<u>88.36</u>	<u>64.15</u>	<u>0.59</u>	<u>9.56</u>	<u>4.22</u>
<u>MV-042</u>	<u>9.54</u>	<u>27.20</u>	<u>19.75</u>	<u>0.18</u>	<u>2.94</u>	<u>1.30</u>
<u>MV-043</u>	<u>12.33</u>	<u>13.07</u>	<u>38.17</u>	<u>0.19</u>	<u>3.38</u>	<u>1.61</u>
<u>MV-044</u>	<u>23.71</u>	<u>67.60</u>	<u>49.08</u>	<u>0.45</u>	<u>7.31</u>	<u>3.23</u>
<u>MV-045</u>	<u>4.80</u>	<u>38.16</u>	<u>54.46</u>	<u>0.10</u>	<u>2.15</u>	<u>1.00</u>
<u>MV-046</u>	<u>8.17</u>	<u>23.30</u>	<u>16.91</u>	<u>0.15</u>	<u>2.52</u>	<u>1.11</u>
<u>MV-047</u>	<u>0.67</u>	<u>0.61</u>	<u>3.31</u>	<u>0.01</u>	<u>0.18</u>	<u>0.08</u>
<u>MV-048</u>	<u>35.69</u>	<u>57.78</u>	<u>236.77</u>	<u>1.03</u>	<u>19.57</u>	<u>8.17</u>
<u>MV-049</u>	<u>37.50</u>	<u>60.72</u>	<u>248.81</u>	<u>1.08</u>	<u>20.57</u>	<u>8.58</u>
<u>MV-050</u>	<u>8.01</u>	<u>9.73</u>	<u>30.08</u>	<u>0.14</u>	<u>2.66</u>	<u>1.24</u>
<u>MV-051</u>	<u>17.37</u>	<u>21.10</u>	<u>65.21</u>	<u>0.31</u>	<u>5.78</u>	<u>2.69</u>
<u>MV-052</u>	<u>19.84</u>	<u>24.10</u>	<u>74.51</u>	<u>0.36</u>	<u>6.60</u>	<u>3.07</u>
<u>MV-053</u>	<u>26.71</u>	<u>76.17</u>	<u>55.30</u>	<u>0.50</u>	<u>8.24</u>	<u>3.63</u>
<u>MV-054</u>	<u>37.14</u>	<u>105.91</u>	<u>76.89</u>	<u>0.70</u>	<u>11.45</u>	<u>5.05</u>
<u>MV-056</u>	<u>0.67</u>	<u>0.61</u>	<u>3.31</u>	<u>0.01</u>	<u>0.18</u>	<u>0.08</u>
<u>MV-057</u>	<u>1.56</u>	<u>1.40</u>	<u>7.66</u>	<u>0.02</u>	<u>0.41</u>	<u>0.19</u>
<u>MV-058</u>	<u>0.34</u>	<u>0.30</u>	<u>1.66</u>	<u>0.00</u>	<u>0.09</u>	<u>0.04</u>
<u>MV-059</u>	<u>2.66</u>	<u>2.38</u>	<u>13.04</u>	<u>0.04</u>	<u>0.70</u>	<u>0.33</u>
<u>MV-060</u>	<u>3.88</u>	<u>3.48</u>	<u>19.04</u>	<u>0.05</u>	<u>1.03</u>	<u>0.48</u>
<u>MV-061</u>	<u>9.91</u>	<u>78.83</u>	<u>112.53</u>	<u>0.22</u>	<u>4.44</u>	<u>2.08</u>
<u>MV-062</u>	<u>22.89</u>	<u>20.55</u>	<u>112.36</u>	<u>0.31</u>	<u>6.06</u>	<u>2.86</u>
<u>MV-063</u>	<u>9.32</u>	<u>8.36</u>	<u>45.73</u>	<u>0.13</u>	<u>2.47</u>	<u>1.16</u>
<u>MV-064</u>	<u>3.67</u>	<u>3.29</u>	<u>18.00</u>	<u>0.05</u>	<u>0.97</u>	<u>0.46</u>
<u>MV-065</u>	<u>1.31</u>	<u>1.43</u>	<u>9.26</u>	<u>0.02</u>	<u>0.45</u>	<u>0.21</u>
<u>MV-066</u>	<u>6.32</u>	<u>6.90</u>	<u>44.69</u>	<u>0.11</u>	<u>2.16</u>	<u>1.01</u>
<u>MV-067</u>	<u>6.79</u>	<u>6.09</u>	<u>33.31</u>	<u>0.09</u>	<u>1.80</u>	<u>0.85</u>
<u>MV-068</u>	<u>4.60</u>	<u>4.87</u>	<u>14.22</u>	<u>0.07</u>	<u>1.26</u>	<u>0.60</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<u>MV-069</u>	<u>9.09</u>	<u>9.63</u>	<u>28.13</u>	<u>0.14</u>	<u>2.49</u>	<u>1.19</u>
<u>MV-070</u>	<u>6.06</u>	<u>6.63</u>	<u>42.91</u>	<u>0.10</u>	<u>2.07</u>	<u>0.97</u>
<u>MV-071</u>	<u>1.23</u>	<u>1.35</u>	<u>8.72</u>	<u>0.02</u>	<u>0.42</u>	<u>0.20</u>
<u>MV-072</u>	<u>0.60</u>	<u>0.66</u>	<u>4.27</u>	<u>0.01</u>	<u>0.21</u>	<u>0.10</u>
<u>MV-073</u>	<u>2.42</u>	<u>2.64</u>	<u>17.09</u>	<u>0.04</u>	<u>0.82</u>	<u>0.39</u>
<u>MV-074</u>	<u>4.57</u>	<u>3.75</u>	<u>25.39</u>	<u>0.04</u>	<u>0.90</u>	<u>0.46</u>
<u>MV-075</u>	<u>35.35</u>	<u>29.00</u>	<u>196.29</u>	<u>0.34</u>	<u>6.93</u>	<u>3.56</u>
<u>MV-076</u>	<u>17.16</u>	<u>136.49</u>	<u>194.82</u>	<u>0.37</u>	<u>7.69</u>	<u>3.59</u>
<u>MV-077</u>	<u>12.03</u>	<u>14.62</u>	<u>45.18</u>	<u>0.22</u>	<u>4.00</u>	<u>1.86</u>
<u>MV-078</u>	<u>11.74</u>	<u>14.26</u>	<u>44.08</u>	<u>0.21</u>	<u>3.90</u>	<u>1.82</u>
<u>MV-079</u>	<u>7.84</u>	<u>22.36</u>	<u>16.24</u>	<u>0.15</u>	<u>2.42</u>	<u>1.07</u>
<u>MV-080</u>	<u>2.44</u>	<u>19.40</u>	<u>27.69</u>	<u>0.05</u>	<u>1.09</u>	<u>0.51</u>
<u>MV-081</u>	<u>14.96</u>	<u>42.66</u>	<u>30.97</u>	<u>0.28</u>	<u>4.61</u>	<u>2.04</u>
<u>MV-082</u>	<u>10.68</u>	<u>30.47</u>	<u>22.12</u>	<u>0.20</u>	<u>3.30</u>	<u>1.45</u>
<u>MV-083</u>	<u>8.04</u>	<u>9.76</u>	<u>30.18</u>	<u>0.15</u>	<u>2.67</u>	<u>1.24</u>
<u>MV-084</u>	<u>2.26</u>	<u>2.74</u>	<u>8.47</u>	<u>0.04</u>	<u>0.75</u>	<u>0.35</u>
<u>MV-085</u>	<u>7.71</u>	<u>61.32</u>	<u>87.52</u>	<u>0.17</u>	<u>3.45</u>	<u>1.61</u>
<u>MV-086</u>	<u>2.99</u>	<u>2.69</u>	<u>14.69</u>	<u>0.04</u>	<u>0.79</u>	<u>0.37</u>
<u>MV-087</u>	<u>1.51</u>	<u>1.65</u>	<u>10.68</u>	<u>0.03</u>	<u>0.52</u>	<u>0.24</u>
<u>MV-088</u>	<u>0.30</u>	<u>0.33</u>	<u>2.14</u>	<u>0.01</u>	<u>0.10</u>	<u>0.05</u>
<u>MV-089</u>	<u>0.30</u>	<u>0.33</u>	<u>2.14</u>	<u>0.01</u>	<u>0.10</u>	<u>0.05</u>
<u>MV-090</u>	<u>0.40</u>	<u>3.20</u>	<u>4.57</u>	<u>0.01</u>	<u>0.18</u>	<u>0.08</u>
<u>MV-091</u>	<u>3.67</u>	<u>3.29</u>	<u>18.00</u>	<u>0.05</u>	<u>0.97</u>	<u>0.46</u>
<u>MV-092</u>	<u>4.17</u>	<u>3.75</u>	<u>20.48</u>	<u>0.06</u>	<u>1.10</u>	<u>0.52</u>
<u>MV-093</u>	<u>2.82</u>	<u>3.08</u>	<u>19.94</u>	<u>0.05</u>	<u>0.96</u>	<u>0.45</u>
<u>MV-094</u>	<u>6.69</u>	<u>7.32</u>	<u>47.36</u>	<u>0.12</u>	<u>2.28</u>	<u>1.07</u>
<u>MV-095</u>	<u>9.63</u>	<u>76.64</u>	<u>109.40</u>	<u>0.21</u>	<u>4.32</u>	<u>2.02</u>
<u>MV-096</u>	<u>3.29</u>	<u>2.95</u>	<u>16.14</u>	<u>0.04</u>	<u>0.87</u>	<u>0.41</u>
<u>MV-097</u>	<u>9.02</u>	<u>8.10</u>	<u>44.28</u>	<u>0.12</u>	<u>2.39</u>	<u>1.13</u>
<u>MV-098</u>	<u>0.67</u>	<u>0.61</u>	<u>3.31</u>	<u>0.01</u>	<u>0.18</u>	<u>0.08</u>
<u>MV-099</u>	<u>2.42</u>	<u>2.64</u>	<u>17.09</u>	<u>0.04</u>	<u>0.82</u>	<u>0.39</u>
<u>MV-100</u>	<u>4.88</u>	<u>5.34</u>	<u>34.54</u>	<u>0.08</u>	<u>1.67</u>	<u>0.78</u>
<u>MV-101</u>	<u>0.50</u>	<u>3.94</u>	<u>5.63</u>	<u>0.01</u>	<u>0.22</u>	<u>0.10</u>
<u>MV-102</u>	<u>1.94</u>	<u>2.48</u>	<u>10.15</u>	<u>0.04</u>	<u>0.83</u>	<u>0.35</u>
<u>MV-103</u>	<u>4.15</u>	<u>5.05</u>	<u>15.60</u>	<u>0.08</u>	<u>1.38</u>	<u>0.64</u>
<u>MV-104</u>	<u>7.97</u>	<u>22.73</u>	<u>16.50</u>	<u>0.15</u>	<u>2.46</u>	<u>1.08</u>
<u>MV-105</u>	<u>0.30</u>	<u>0.33</u>	<u>2.14</u>	<u>0.01</u>	<u>0.10</u>	<u>0.05</u>
<u>MV-106</u>	<u>0.30</u>	<u>0.33</u>	<u>2.14</u>	<u>0.01</u>	<u>0.10</u>	<u>0.05</u>
<u>MV-107</u>	<u>0.38</u>	<u>0.34</u>	<u>1.86</u>	<u>0.01</u>	<u>0.10</u>	<u>0.05</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<u>MV-108</u>	<u>0.16</u>	<u>1.30</u>	<u>1.86</u>	<u>0.00</u>	<u>0.07</u>	<u>0.03</u>
<u>MV-109</u>	<u>46.58</u>	<u>41.82</u>	<u>228.64</u>	<u>0.64</u>	<u>12.33</u>	<u>5.81</u>
<u>MV-110</u>	<u>1.51</u>	<u>1.65</u>	<u>10.68</u>	<u>0.03</u>	<u>0.52</u>	<u>0.24</u>
<u>MV-111</u>	<u>0.40</u>	<u>0.44</u>	<u>2.85</u>	<u>0.01</u>	<u>0.14</u>	<u>0.06</u>
<u>MV-112</u>	<u>0.38</u>	<u>0.41</u>	<u>2.67</u>	<u>0.01</u>	<u>0.13</u>	<u>0.06</u>
<u>MV-113</u>	<u>6.07</u>	<u>5.45</u>	<u>29.80</u>	<u>0.08</u>	<u>1.61</u>	<u>0.76</u>
<u>MV-114</u>	<u>0.31</u>	<u>2.50</u>	<u>3.56</u>	<u>0.01</u>	<u>0.14</u>	<u>0.07</u>
<u>MV-115</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
<u>MV-116</u>	<u>1.05</u>	<u>0.95</u>	<u>5.17</u>	<u>0.01</u>	<u>0.28</u>	<u>0.13</u>
<u>MV-117</u>	<u>1.20</u>	<u>1.54</u>	<u>6.29</u>	<u>0.03</u>	<u>0.51</u>	<u>0.21</u>
<u>MV-118</u>	<u>0.38</u>	<u>0.34</u>	<u>1.86</u>	<u>0.01</u>	<u>0.10</u>	<u>0.05</u>
<u>MV-119</u>	<u>1.48</u>	<u>1.32</u>	<u>7.24</u>	<u>0.02</u>	<u>0.39</u>	<u>0.18</u>
<u>MV-120</u>	<u>10.43</u>	<u>83.00</u>	<u>118.48</u>	<u>0.23</u>	<u>4.67</u>	<u>2.19</u>
<u>MV-121</u>	<u>0.24</u>	<u>1.91</u>	<u>2.72</u>	<u>0.01</u>	<u>0.11</u>	<u>0.05</u>
<u>MV-123</u>	<u>0.77</u>	<u>6.13</u>	<u>8.75</u>	<u>0.02</u>	<u>0.35</u>	<u>0.16</u>
<u>MV-124</u>	<u>7.71</u>	<u>61.32</u>	<u>87.52</u>	<u>0.17</u>	<u>3.45</u>	<u>1.61</u>
<u>MV-125</u>	<u>0.60</u>	<u>0.66</u>	<u>4.27</u>	<u>0.01</u>	<u>0.21</u>	<u>0.10</u>
<u>MV-126</u>	<u>9.91</u>	<u>8.89</u>	<u>48.63</u>	<u>0.14</u>	<u>2.62</u>	<u>1.24</u>
<u>MV-127</u>	<u>7.27</u>	<u>20.72</u>	<u>15.04</u>	<u>0.14</u>	<u>2.24</u>	<u>0.99</u>
<u>MV-129</u>	<u>35.66</u>	<u>43.33</u>	<u>133.93</u>	<u>0.64</u>	<u>11.86</u>	<u>5.52</u>
<u>MV-130</u>	<u>4.74</u>	<u>13.52</u>	<u>9.82</u>	<u>0.09</u>	<u>1.46</u>	<u>0.65</u>
<u>MV-131</u>	<u>32.05</u>	<u>91.41</u>	<u>66.36</u>	<u>0.61</u>	<u>9.89</u>	<u>4.36</u>
<u>MV-132</u>	<u>23.51</u>	<u>67.03</u>	<u>48.67</u>	<u>0.44</u>	<u>7.25</u>	<u>3.20</u>
<u>P-001</u>	<u>5.78</u>	<u>5.19</u>	<u>28.35</u>	<u>0.08</u>	<u>1.53</u>	<u>0.72</u>
<u>P-002</u>	<u>12.82</u>	<u>36.56</u>	<u>26.54</u>	<u>0.24</u>	<u>3.95</u>	<u>1.74</u>
<u>P-003</u>	<u>9.88</u>	<u>28.17</u>	<u>20.45</u>	<u>0.19</u>	<u>3.05</u>	<u>1.34</u>
<u>P-004</u>	<u>3.88</u>	<u>4.72</u>	<u>14.58</u>	<u>0.07</u>	<u>1.29</u>	<u>0.60</u>
<u>P-005</u>	<u>9.83</u>	<u>28.03</u>	<u>20.35</u>	<u>0.19</u>	<u>3.03</u>	<u>1.34</u>
<u>P-006</u>	<u>13.54</u>	<u>16.45</u>	<u>50.86</u>	<u>0.24</u>	<u>4.50</u>	<u>2.10</u>
<u>P-007</u>	<u>26.86</u>	<u>32.63</u>	<u>100.86</u>	<u>0.49</u>	<u>8.93</u>	<u>4.16</u>
<u>P-008</u>	<u>5.44</u>	<u>6.61</u>	<u>20.43</u>	<u>0.10</u>	<u>1.81</u>	<u>0.84</u>
<u>P-009</u>	<u>14.25</u>	<u>15.10</u>	<u>44.09</u>	<u>0.21</u>	<u>3.91</u>	<u>1.86</u>
<u>P-010</u>	<u>36.33</u>	<u>103.60</u>	<u>75.21</u>	<u>0.69</u>	<u>11.20</u>	<u>4.94</u>
<u>P-011</u>	<u>27.19</u>	<u>28.80</u>	<u>84.14</u>	<u>0.41</u>	<u>7.45</u>	<u>3.56</u>
<u>P-012</u>	<u>10.25</u>	<u>12.45</u>	<u>38.49</u>	<u>0.19</u>	<u>3.41</u>	<u>1.59</u>
<u>P-014</u>	<u>25.64</u>	<u>73.13</u>	<u>53.09</u>	<u>0.48</u>	<u>7.91</u>	<u>3.49</u>
<u>P-015</u>	<u>16.69</u>	<u>47.58</u>	<u>34.54</u>	<u>0.32</u>	<u>5.15</u>	<u>2.27</u>
<u>P-016</u>	<u>27.99</u>	<u>79.83</u>	<u>57.96</u>	<u>0.53</u>	<u>8.63</u>	<u>3.81</u>
<u>P-017</u>	<u>12.39</u>	<u>35.34</u>	<u>25.66</u>	<u>0.23</u>	<u>3.82</u>	<u>1.69</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-018	33.06	94.27	68.44	0.62	10.20	4.50
P-019	14.91	42.51	30.86	0.28	4.60	2.03
P-020	18.62	53.11	38.56	0.35	5.74	2.53
P-021	3.63	10.36	7.52	0.07	1.12	0.49
P-022	8.12	23.16	16.81	0.15	2.50	1.10
P-023	3.85	10.97	7.96	0.07	1.19	0.52
P-024	31.28	89.21	64.77	0.59	9.65	4.26
P-025	22.18	63.25	45.92	0.42	6.84	3.02
P-026	18.32	22.26	68.80	0.33	6.09	2.83
P-027	18.46	52.65	38.22	0.35	5.69	2.51
P-028	15.12	18.37	56.79	0.27	5.03	2.34
P-030	20.74	18.62	101.80	0.28	5.49	2.59
P-031	1.89	2.06	13.35	0.03	0.64	0.30
P-032	35.40	281.62	401.98	0.77	15.86	7.42
P-033	78.41	70.40	384.86	1.07	20.75	9.78
P-034	67.67	192.98	140.11	1.28	20.87	9.21
P-035	1.01	1.10	7.12	0.02	0.34	0.16
P-036	76.45	232.06	183.83	1.45	23.96	10.60
P-037	7.71	6.93	37.87	0.11	2.04	0.96
P-038	9.40	8.44	46.14	0.13	2.49	1.17
P-039	16.75	47.76	34.67	0.32	5.17	2.28
P-040	5.14	4.62	25.24	0.07	1.36	0.64
P-041	3.38	4.11	12.69	0.06	1.12	0.52
P-042	2.57	2.31	12.62	0.04	0.68	0.32
P-043	2.40	2.16	11.79	0.03	0.64	0.30
P-044	2.37	2.59	16.73	0.04	0.81	0.38
P-045	1.89	2.06	13.35	0.03	0.64	0.30
P-046	10.38	8.52	57.64	0.10	2.04	1.04
P-047	21.96	19.72	107.80	0.30	5.81	2.74
P-048	3.16	2.84	15.52	0.04	0.84	0.39
P-049	4.81	4.31	23.59	0.07	1.27	0.60
P-050	4.40	35.04	50.01	0.10	1.97	0.92
P-051	1.48	1.32	7.24	0.02	0.39	0.18
P-052	3.46	3.10	16.97	0.05	0.91	0.43
P-053	6.79	6.09	33.31	0.09	1.80	0.85
P-054	10.03	9.01	49.25	0.14	2.65	1.25
P-055	24.77	197.09	281.32	0.54	11.10	5.19
P-056	0.22	0.27	0.84	0.00	0.07	0.03
P-057	0.89	2.54	1.84	0.02	0.27	0.12

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-058	8.39	8.89	25.96	0.13	2.30	1.10
P-059	10.24	9.20	50.28	0.14	2.71	1.28
P-060	0.25	1.97	2.81	0.01	0.11	0.05
P-061	7.48	21.33	15.48	0.14	2.31	1.02
R-001	33.06	53.52	219.33	0.95	18.13	7.56
R-002	12.45	35.51	25.78	0.24	3.84	1.69
R-003	14.72	17.88	55.27	0.27	4.89	2.28
R-004	5.44	5.94	38.45	0.09	1.85	0.87
R-005	15.31	44.19	185.24	0.74	14.13	5.88
R-006	1.94	2.12	13.71	0.03	0.66	0.31
R-007	3.09	24.57	35.07	0.07	1.38	0.65
R-008	0.90	0.73	4.97	0.01	0.18	0.09
R-009	483.24	3,844.34	5,487.47	10.50	216.49	101.24
R-010	1.30	10.32	14.73	0.03	0.58	0.27
R-011	8.19	13.26	54.33	0.24	4.49	1.87
R-012	3.38	26.88	38.37	0.07	1.51	0.71
R-013	0.13	0.11	0.62	0.00	0.03	0.02
R-014	0.21	1.69	2.41	0.00	0.10	0.04
R-015	7.24	6.50	35.53	0.10	1.92	0.90
R-016	0.06	0.06	0.32	0.00	0.02	0.01
R-017	6.92	7.56	48.96	0.12	2.36	1.10
R-018	204.00	247.84	766.09	3.69	67.84	31.56
R-019	1.38	1.51	9.79	0.02	0.47	0.22
R-020	31.23	89.06	64.66	0.59	9.63	4.25
R-021	0.63	0.57	3.10	0.01	0.17	0.08
R-022	0.38	0.34	1.86	0.01	0.10	0.05
R-023	0.44	3.52	5.03	0.01	0.20	0.09
R-024	210.79	189.25	1,034.58	2.88	55.77	26.29
R-025	5.23	5.72	37.03	0.09	1.79	0.84
R-026	46.06	169.90	321.69	0.98	19.01	8.64
R-027	0.20	1.58	2.26	0.00	0.09	0.04
R-028	3.24	2.66	18.00	0.03	0.64	0.33
R-029	0.21	1.66	2.37	0.00	0.09	0.04
R-030	11.48	91.35	130.39	0.25	5.14	2.41
R-031	0.91	0.99	6.41	0.02	0.31	0.14
R-032	1.23	9.75	13.92	0.03	0.55	0.26
R-033	0.75	0.83	5.34	0.01	0.26	0.12
R-034	0.28	0.36	1.47	0.01	0.12	0.05
R-035	2.57	2.81	18.16	0.04	0.88	0.41

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<u>Project ID</u>	<u>VOC</u>	<u>NOx</u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
<u>R-036</u>	<u>1.56</u>	<u>1.71</u>	<u>11.04</u>	<u>0.03</u>	<u>0.53</u>	<u>0.25</u>
<u>R-037</u>	<u>0.33</u>	<u>2.63</u>	<u>3.75</u>	<u>0.01</u>	<u>0.15</u>	<u>0.07</u>
<u>R-038</u>	<u>0.19</u>	<u>1.53</u>	<u>2.19</u>	<u>0.00</u>	<u>0.09</u>	<u>0.04</u>
<u>R-039</u>	<u>16.95</u>	<u>15.22</u>	<u>83.18</u>	<u>0.23</u>	<u>4.48</u>	<u>2.11</u>
<u>R-040</u>	<u>0.13</u>	<u>1.05</u>	<u>1.50</u>	<u>0.00</u>	<u>0.06</u>	<u>0.03</u>
<u>R-041</u>	<u>0.53</u>	<u>0.68</u>	<u>2.80</u>	<u>0.01</u>	<u>0.23</u>	<u>0.10</u>
<u>R-042</u>	<u>25.21</u>	<u>22.63</u>	<u>123.74</u>	<u>0.34</u>	<u>6.67</u>	<u>3.14</u>
<u>R-043</u>	<u>2.11</u>	<u>1.89</u>	<u>10.35</u>	<u>0.03</u>	<u>0.56</u>	<u>0.26</u>
<u>R-044</u>	<u>0.22</u>	<u>1.75</u>	<u>2.50</u>	<u>0.00</u>	<u>0.10</u>	<u>0.05</u>
<u>R-045</u>	<u>0.88</u>	<u>1.12</u>	<u>4.59</u>	<u>0.02</u>	<u>0.37</u>	<u>0.16</u>
<u>R-046</u>	<u>1.51</u>	<u>1.36</u>	<u>7.42</u>	<u>0.02</u>	<u>0.40</u>	<u>0.19</u>
<u>R-047</u>	<u>2.30</u>	<u>6.57</u>	<u>4.77</u>	<u>0.04</u>	<u>0.71</u>	<u>0.31</u>
<u>R-048</u>	<u>4.15</u>	<u>32.98</u>	<u>47.07</u>	<u>0.09</u>	<u>1.86</u>	<u>0.87</u>
<u>R-049</u>	<u>7.50</u>	<u>6.15</u>	<u>41.65</u>	<u>0.07</u>	<u>1.47</u>	<u>0.75</u>
<u>R-050</u>	<u>0.16</u>	<u>0.15</u>	<u>0.79</u>	<u>0.00</u>	<u>0.04</u>	<u>0.02</u>
<u>R-051</u>	<u>0.13</u>	<u>1.03</u>	<u>1.48</u>	<u>0.00</u>	<u>0.06</u>	<u>0.03</u>
<u>R-052</u>	<u>1.35</u>	<u>1.21</u>	<u>6.62</u>	<u>0.02</u>	<u>0.36</u>	<u>0.17</u>
<u>R-053</u>	<u>1.22</u>	<u>1.10</u>	<u>6.00</u>	<u>0.02</u>	<u>0.32</u>	<u>0.15</u>
<u>R-054</u>	<u>1.05</u>	<u>0.95</u>	<u>5.17</u>	<u>0.01</u>	<u>0.28</u>	<u>0.13</u>
<u>R-055</u>	<u>0.84</u>	<u>0.76</u>	<u>4.14</u>	<u>0.01</u>	<u>0.22</u>	<u>0.11</u>
<u>R-056</u>	<u>3.03</u>	<u>3.87</u>	<u>15.84</u>	<u>0.07</u>	<u>1.29</u>	<u>0.54</u>
<u>R-057</u>	<u>3.87</u>	<u>4.71</u>	<u>14.55</u>	<u>0.07</u>	<u>1.29</u>	<u>0.60</u>
<u>R-058</u>	<u>0.15</u>	<u>1.20</u>	<u>1.72</u>	<u>0.00</u>	<u>0.07</u>	<u>0.03</u>
<u>R-059</u>	<u>0.22</u>	<u>1.77</u>	<u>2.53</u>	<u>0.00</u>	<u>0.10</u>	<u>0.05</u>
<u>R-060</u>	<u>2.44</u>	<u>3.95</u>	<u>16.20</u>	<u>0.07</u>	<u>1.34</u>	<u>0.56</u>
<u>R-061</u>	<u>23.42</u>	<u>186.33</u>	<u>265.97</u>	<u>0.51</u>	<u>10.49</u>	<u>4.91</u>
<u>R-062</u>	<u>0.10</u>	<u>0.80</u>	<u>1.14</u>	<u>0.00</u>	<u>0.05</u>	<u>0.02</u>
<u>R-063</u>	<u>0.53</u>	<u>0.58</u>	<u>3.74</u>	<u>0.01</u>	<u>0.18</u>	<u>0.08</u>
<u>R-064</u>	<u>0.21</u>	<u>0.19</u>	<u>1.03</u>	<u>0.00</u>	<u>0.06</u>	<u>0.03</u>
<u>R-065</u>	<u>2.61</u>	<u>2.35</u>	<u>12.83</u>	<u>0.04</u>	<u>0.69</u>	<u>0.33</u>
<u>R-066</u>	<u>0.34</u>	<u>2.69</u>	<u>3.84</u>	<u>0.01</u>	<u>0.15</u>	<u>0.07</u>
<u>RC-001</u>	<u>52.74</u>	<u>47.35</u>	<u>258.85</u>	<u>0.72</u>	<u>13.95</u>	<u>6.58</u>
<u>RC-002</u>	<u>84.32</u>	<u>75.70</u>	<u>413.83</u>	<u>1.15</u>	<u>22.31</u>	<u>10.52</u>
<u>RC-003</u>	<u>143.84</u>	<u>129.15</u>	<u>706.00</u>	<u>1.96</u>	<u>38.06</u>	<u>17.94</u>
<u>RC-005</u>	<u>31.62</u>	<u>28.39</u>	<u>155.19</u>	<u>0.43</u>	<u>8.37</u>	<u>3.94</u>
<u>RC-006</u>	<u>14.42</u>	<u>23.35</u>	<u>95.70</u>	<u>0.41</u>	<u>7.91</u>	<u>3.30</u>
<u>RC-007</u>	<u>33.91</u>	<u>96.69</u>	<u>70.19</u>	<u>0.64</u>	<u>10.46</u>	<u>4.61</u>
<u>RC-009</u>	<u>26.81</u>	<u>28.58</u>	<u>84.66</u>	<u>0.41</u>	<u>7.47</u>	<u>3.54</u>
<u>RC-010</u>	<u>139.95</u>	<u>170.02</u>	<u>525.55</u>	<u>2.53</u>	<u>46.54</u>	<u>21.65</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NOx</b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
RC-011	17.39	49.60	36.01	0.33	5.36	2.37
RC-012	9.56	11.62	35.91	0.17	3.18	1.48
RC-013	20.95	18.81	102.84	0.29	5.54	2.61
RC-014	8.05	8.80	56.97	0.14	2.75	1.28
RC-015	5.99	5.37	29.38	0.08	1.58	0.75
RC-017	0.51	4.06	5.80	0.01	0.23	0.11
RC-018	0.63	0.57	3.10	0.01	0.17	0.08
RC-019	2.91	23.12	33.01	0.06	1.30	0.61
RC-020	0.15	1.23	1.75	0.00	0.07	0.03
RC-021	0.17	0.49	0.35	0.00	0.05	0.02
RC-022	5.52	4.96	27.11	0.08	1.46	0.69
RC-023	1.18	1.44	4.45	0.02	0.39	0.18
RC-024	4.31	5.23	16.17	0.08	1.43	0.67
RC-025	1.92	2.33	7.21	0.03	0.64	0.30
RC-026	0.08	0.08	0.41	0.00	0.02	0.01
RC-027	4.26	5.17	16.00	0.08	1.42	0.66
RC-028	0.31	2.45	3.50	0.01	0.14	0.06
RC-029	0.45	3.57	5.09	0.01	0.20	0.09
RC-030	26.90	76.73	55.70	0.51	8.30	3.66
RC-031	4.08	4.95	15.31	0.07	1.36	0.63
RC-032	30.61	27.48	150.22	0.42	8.10	3.82
RC-033	16.19	14.53	79.46	0.22	4.28	2.02
RC-034	18.21	16.35	89.39	0.25	4.82	2.27
RC-035	121.40	110.21	602.02	1.68	32.62	15.33
RC-036	19.73	17.71	96.84	0.27	5.22	2.46
RC-037	23.69	21.27	116.29	0.32	6.27	2.96
RC-038	38.97	111.14	80.69	0.74	12.02	5.30
RC-039	1.64	1.48	8.07	0.02	0.44	0.21
RD-001	3.46	3.10	16.97	0.05	0.91	0.43
RD-002	2.32	2.08	11.38	0.03	0.61	0.29
RD-003	4.34	3.90	21.31	0.06	1.15	0.54
RD-004	2.82	2.54	13.86	0.04	0.75	0.35
RD-005	10.70	30.51	22.15	0.20	3.30	1.46
RD-006	2.65	21.12	30.15	0.06	1.19	0.56
RD-007	7.03	55.95	79.86	0.15	3.15	1.47
RD-008	2.01	2.20	14.24	0.03	0.69	0.32
RD-009	2.41	19.18	27.38	0.05	1.08	0.51
RD-010	3.28	3.98	12.31	0.06	1.09	0.51
RD-011	3.05	24.29	34.67	0.07	1.37	0.64

**Table 6.3-2: Cumulative Daily Operational Emissions (lbs/day)**

<u>Project ID</u>	<u>VOC</u>	<u>NOx</u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
<u>RD-012</u>	<u>12.85</u>	<u>36.64</u>	<u>26.60</u>	<u>0.24</u>	<u>3.96</u>	<u>1.75</u>
<u>RD-013</u>	<u>21.65</u>	<u>61.73</u>	<u>44.82</u>	<u>0.41</u>	<u>6.68</u>	<u>2.95</u>
<u>RD-014</u>	<u>16.50</u>	<u>47.04</u>	<u>34.15</u>	<u>0.31</u>	<u>5.09</u>	<u>2.24</u>
<u>RD-015</u>	<u>9.04</u>	<u>25.78</u>	<u>18.71</u>	<u>0.17</u>	<u>2.79</u>	<u>1.23</u>
<u>RD-016</u>	<u>15.27</u>	<u>43.56</u>	<u>31.62</u>	<u>0.29</u>	<u>4.71</u>	<u>2.08</u>
<u>SB-001</u>	<u>13.13</u>	<u>37.44</u>	<u>27.18</u>	<u>0.25</u>	<u>4.05</u>	<u>1.79</u>
<u>SB-002</u>	<u>6.70</u>	<u>19.10</u>	<u>13.87</u>	<u>0.13</u>	<u>2.07</u>	<u>0.91</u>
<u>SB-003</u>	<u>12.68</u>	<u>36.17</u>	<u>26.26</u>	<u>0.24</u>	<u>3.91</u>	<u>1.73</u>
<u>SB-004</u>	<u>16.62</u>	<u>47.39</u>	<u>34.40</u>	<u>0.31</u>	<u>5.12</u>	<u>2.26</u>
<u>SB-005</u>	<u>6.03</u>	<u>17.18</u>	<u>12.48</u>	<u>0.11</u>	<u>1.86</u>	<u>0.82</u>
<u>SB-006</u>	<u>11.60</u>	<u>33.09</u>	<u>24.02</u>	<u>0.22</u>	<u>3.58</u>	<u>1.58</u>
<u>SB-007</u>	<u>1.43</u>	<u>1.29</u>	<u>7.04</u>	<u>0.02</u>	<u>0.38</u>	<u>0.18</u>
<u>SB-008</u>	<u>1.69</u>	<u>1.51</u>	<u>8.28</u>	<u>0.02</u>	<u>0.45</u>	<u>0.21</u>
<u>SJ-001</u>	<u>92.39</u>	<u>735.02</u>	<u>1,049.18</u>	<u>2.01</u>	<u>41.39</u>	<u>19.36</u>
<u>SJ-002</u>	<u>13.53</u>	<u>12.15</u>	<u>66.42</u>	<u>0.18</u>	<u>3.58</u>	<u>1.69</u>
<u>SJ-003</u>	<u>24.45</u>	<u>21.95</u>	<u>120.01</u>	<u>0.33</u>	<u>6.47</u>	<u>3.05</u>
<u>SJ-004</u>	<u>25.84</u>	<u>23.20</u>	<u>126.84</u>	<u>0.35</u>	<u>6.84</u>	<u>3.22</u>
<u>Total</u>	<u>5,915.42</u>	<u>15,683.32</u>	<u>31,942.02</u>	<u>107.61</u>	<u>2,015.08</u>	<u>921.24</u>
<u>Proposed Project</u>	<u>363</u>	<u>1,432</u>	<u>978</u>	<u>10</u>	<u>388</u>	<u>125</u>

**6.3.2.1.2 Cumulative Construction Emissions**

Detailed research was conducted to identify as much information on the remaining projects that did not have environmental documents with construction and operational emissions available. However, complete project descriptions and detailed construction schedules were not available for every single project within the cumulative analysis limits. Therefore, with the information that was accumulated, modeling was conducted to estimate construction emissions generated from these cumulative projects. Due to the high number of projects that required modeling, project construction phase duration was based on CalEEMod default lengths and equipment based on site acreage. Construction work days was based on a 6-day work week. Default construction phase equipment levels out at a 200-acre project site. Therefore, all projects larger than 200 acres utilizes assumptions for a 200-acre site and a multiplier is used for the remaining acreage.

Offsite mobile source emissions related to construction are calculated using EMFAC2017 and include construction worker commuting (for all phases of construction), vendor trucks (during building construction phase) and haul trucks (during site prep and excavation phases for projects from 5-40 acres in construction area).

Trip rates are based on the ITE 10<sup>th</sup> Edition with the trip lengths for all other land uses based on CalEEMod defaults including primary trips, diverted trips, and pass-by trip lengths. Vehicle distribution between vehicle categories for these land uses are based on EMFAC2017 vehicle distribution for SCAQMD for 2020. The EMFAC vehicle categories are re-grouped into the same 4 groups used for logistics calculations (Passenger Cars, Light Trucks, Medium Trucks and Heavy Truck).

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Out of the 359 cumulative projects that were evaluated, 67 were found to be completed with construction or currently undergoing construction as of November 2019 and have not been included in the analysis. Therefore, 289 potentially cumulative projects could undergo construction activities during the project's 15-year construction period. Results of the cumulative construction emissions analysis is provided in Table 6.3-3

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<u>Project ID</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
B-001	44.69	376.90	473.29	1.42	102.99	39.27
B-003	24.45	125.63	81.59	0.18	21.06	13.09
B-004	292.73	62.82	57.85	0.17	11.53	6.55
B-006	312.85	62.82	60.42	0.18	12.22	6.55
B-007	20.93	62.82	40.79	0.08	10.53	6.55
B-008	17.31	125.63	81.59	0.16	21.06	13.09
B-009	73.24	546.63	794.59	2.46	181.44	58.73
B-010	30.79	73.66	43.56	0.11	10.53	6.54
B-011	104.50	42.48	22.27	0.05	20.47	12.01
B-013	26.80	251.27	215.45	0.60	42.12	26.18
B-014	18.67	125.63	81.59	0.16	21.06	13.09
C-001	103.21	42.48	22.27	0.05	10.53	6.54
C-002	319.38	62.82	71.93	0.23	15.36	6.55
C-003	67.60	26.80	16.20	0.04	4.54	2.64
H-001	30.44	62.82	40.79	0.08	10.53	6.55
H-002	22.83	62.82	40.79	0.08	10.53	6.55
H-003	24.69	125.63	81.59	0.18	21.06	13.09
H-004	292.08	62.82	57.77	0.17	11.51	6.55
H-005	38.99	9.21	8.05	0.01	0.92	0.66
H-006	315.70	62.82	40.79	0.08	10.53	6.54
H-007	30.23	62.82	40.79	0.08	10.53	6.55
H-008	20.38	62.82	40.79	0.08	10.53	6.55
M-001	333.75	106.20	51.85	0.21	11.65	6.54
M-003	359.18	66.98	83.09	0.27	18.36	6.55
M-004	101.14	26.80	16.81	0.04	4.54	2.64
M-005	184.81	89.12	114.68	0.39	26.92	8.65
M-006	101.90	42.48	22.27	0.05	20.47	12.01
M-007	313.29	73.66	43.56	0.11	10.53	6.54
M-008	300.51	125.63	94.68	0.32	21.51	13.09
M-009	27.88	62.82	40.79	0.08	10.53	6.55
M-010	259.30	68.24	42.18	0.10	10.53	6.54
M-011	62.32	21.38	16.09	0.03	4.05	2.46
MV-001	141.34	42.48	22.27	0.06	20.47	12.01
MV-002	39.47	62.82	40.79	0.08	10.53	6.55
MV-003	280.95	62.82	69.47	0.22	14.67	6.55

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-005	108.06	26.80	16.98	0.04	4.54	2.64
MV-006	347.82	73.66	43.56	0.11	10.53	6.54
MV-007	17.70	42.48	22.27	0.05	20.47	12.01
MV-008	32.90	68.24	42.18	0.10	10.53	6.54
MV-009	7.12	42.48	22.27	0.04	10.53	6.54
MV-010	26.70	68.24	42.18	0.10	10.53	6.54
MV-011	13.75	42.48	22.27	0.05	20.47	12.01
MV-013	55.83	9.32	8.06	0.01	0.92	0.66
MV-014	22.14	73.66	43.56	0.11	10.53	6.55
MV-015	35.69	73.66	43.56	0.11	10.53	6.54
MV-016	18.26	68.24	42.18	0.10	10.53	6.54
MV-017	31.11	73.66	43.56	0.11	10.53	6.54
MV-021	74.37	26.80	16.67	0.04	4.54	2.64
MV-023	74.90	73.66	43.56	0.11	10.53	6.54
MV-024	24.12	62.82	40.79	0.08	10.53	6.55
MV-025	26.27	73.66	43.56	0.11	10.53	6.54
MV-026	32.40	73.66	43.56	0.11	10.53	6.54
MV-027	19.03	42.48	22.27	0.04	10.53	6.54
MV-028	28.42	42.48	22.27	0.05	20.47	12.01
MV-029	28.42	62.82	40.79	0.08	10.53	6.55
MV-030	26.91	73.66	43.56	0.11	10.53	6.54
MV-031	30.08	68.24	42.18	0.10	10.53	6.54
MV-032	23.78	73.66	43.56	0.11	10.53	6.55
MV-033	30.64	68.24	42.18	0.10	10.53	6.54
MV-034	29.52	68.24	42.18	0.10	10.53	6.54
MV-035	14.32	42.48	22.27	0.05	20.47	12.01
MV-040	91.42	21.38	17.08	0.03	4.05	2.46
MV-041	384.38	62.82	51.66	0.15	10.53	6.54
MV-042	207.10	68.24	42.18	0.10	10.53	6.54
MV-044	294.12	73.66	43.95	0.12	10.53	6.54
MV-045	80.96	26.80	16.44	0.04	4.54	2.64
MV-047	9.25	42.48	22.27	0.05	20.47	12.01
MV-054	293.41	62.82	57.90	0.17	11.54	6.55
MV-056	9.25	42.48	22.27	0.05	20.47	12.01
MV-057	21.07	68.24	42.18	0.10	10.53	6.54
MV-059	35.69	73.66	43.56	0.11	10.53	6.54
MV-060	29.81	73.66	43.56	0.11	10.53	6.54
MV-061	92.91	42.48	22.27	0.05	10.53	6.54
MV-062	28.13	62.82	40.79	0.08	10.53	6.55

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-063	33.43	62.82	40.79	0.08	10.53	6.55
MV-064	28.20	73.66	43.56	0.11	10.53	6.54
MV-065	18.33	42.48	22.27	0.04	10.53	6.54
MV-066	78.83	68.24	42.18	0.10	10.53	6.54
MV-067	24.42	62.82	40.79	0.08	10.53	6.55
MV-068	106.87	42.48	22.27	0.05	10.53	6.54
MV-070	75.70	68.24	42.18	0.10	10.53	6.54
MV-071	17.29	42.48	22.27	0.04	10.53	6.54
MV-072	15.26	21.38	15.73	0.03	4.05	2.46
MV-073	30.30	42.48	22.27	0.05	20.47	12.01
MV-074	21.80	62.82	40.79	0.08	10.53	6.55
MV-075	22.55	125.63	136.89	0.35	28.53	13.09
MV-076	144.64	42.48	22.32	0.06	20.47	12.01
MV-077	247.25	73.66	43.56	0.11	10.53	6.54
MV-079	170.32	42.48	24.86	0.06	20.47	12.01
MV-080	41.29	21.38	15.72	0.03	4.05	2.46
MV-085	72.32	42.48	22.27	0.05	10.53	6.54
MV-087	21.11	42.48	22.27	0.04	10.53	6.54
MV-088	15.26	9.05	8.05	0.01	0.92	0.66
MV-089	15.26	9.05	8.05	0.01	0.92	0.66
MV-090	13.79	9.03	8.05	0.01	0.92	0.66
MV-091	28.20	73.66	43.56	0.11	10.53	6.54
MV-094	83.53	73.66	43.56	0.11	10.53	6.54
MV-095	90.34	42.48	22.27	0.05	10.53	6.54
MV-096	44.13	73.66	43.56	0.11	10.53	6.54
MV-097	32.38	62.82	40.79	0.08	10.53	6.55
MV-098	9.25	42.48	22.27	0.05	20.47	12.01
MV-099	30.30	42.48	22.27	0.05	20.47	12.01
MV-100	60.98	68.24	42.18	0.10	10.53	6.54
MV-101	16.92	9.03	8.05	0.01	0.92	0.66
MV-102	78.08	26.80	16.75	0.04	4.54	2.64
MV-103	94.99	42.48	22.27	0.05	10.53	6.54
MV-104	173.12	42.48	24.97	0.06	20.47	12.01
MV-105	15.26	9.05	8.05	0.01	0.92	0.66
MV-106	15.26	9.05	8.05	0.01	0.92	0.66
MV-107	10.37	21.38	15.09	0.03	4.05	2.46
MV-108	5.75	8.94	8.05	0.01	0.92	0.66
MV-109	29.21	125.63	81.59	0.20	21.06	13.09
MV-110	21.11	42.48	22.27	0.04	10.53	6.54

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<u>Project ID</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
MV-111	10.26	21.38	15.45	0.03	4.05	2.46
MV-112	19.01	9.06	8.05	0.01	0.92	0.66
MV-113	29.72	62.82	40.79	0.08	10.53	6.55
MV-114	10.81	8.94	8.05	0.01	0.92	0.66
MV-115	0.90	8.94	8.05	0.01	0.92	0.66
MV-116	14.32	42.48	22.27	0.05	20.47	12.01
MV-117	48.43	21.38	16.04	0.03	4.05	2.46
MV-118	10.37	21.38	15.09	0.03	4.05	2.46
MV-119	19.95	68.24	42.18	0.10	10.53	6.54
MV-120	97.82	42.48	22.27	0.05	10.53	6.54
MV-121	8.31	8.94	8.05	0.01	0.92	0.66
MV-123	26.18	9.12	8.05	0.01	0.92	0.66
MV-124	72.32	42.48	22.27	0.05	10.53	6.54
MV-125	15.26	21.38	15.73	0.03	4.05	2.46
MV-126	24.32	62.82	40.79	0.08	10.53	6.55
MV-127	157.82	42.48	24.23	0.05	20.47	12.01
MV-129	266.75	62.82	54.48	0.16	10.62	6.55
MV-130	103.06	42.48	22.27	0.05	20.47	12.01
MV-131	253.26	62.82	52.74	0.15	10.53	6.55
MV-132	291.63	73.66	43.76	0.12	10.53	6.54
P-004	88.81	42.48	22.27	0.05	10.53	6.54
P-005	213.42	68.24	42.18	0.10	10.53	6.54
P-006	278.31	73.66	43.56	0.11	10.53	6.54
P-007	315.44	62.82	45.72	0.13	10.53	6.54
P-008	111.93	42.48	22.27	0.05	20.47	12.01
P-009	297.77	73.66	43.56	0.11	10.53	6.54
P-012	210.69	68.24	42.18	0.10	10.53	6.54
P-014	318.13	73.66	45.91	0.13	10.53	6.54
P-022	176.35	42.48	25.12	0.06	20.47	12.01
P-023	92.93	42.48	22.27	0.05	10.53	6.54
P-024	388.08	62.82	51.96	0.15	10.53	6.54
P-025	481.27	73.66	43.56	0.12	10.53	6.54
P-026	376.38	73.66	43.56	0.11	10.53	6.54
P-028	310.75	73.66	43.56	0.11	10.53	6.54
P-030	25.50	62.82	40.79	0.08	10.53	6.55
P-031	26.33	42.48	22.27	0.05	10.53	6.54
P-032	298.19	62.82	40.79	0.08	10.53	6.54
P-033	33.66	188.45	159.91	0.44	31.59	19.64
P-034	392.21	71.06	88.92	0.29	19.94	6.63

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-035	25.27	21.38	16.24	0.03	4.05	2.46
P-036	295.79	76.13	95.90	0.32	21.83	7.18
P-039	363.44	73.66	43.56	0.11	10.53	6.54
P-040	25.21	73.66	43.56	0.11	10.53	6.55
P-041	77.34	42.48	22.27	0.05	10.53	6.54
P-042	34.59	68.24	42.18	0.10	10.53	6.54
P-043	32.33	68.24	42.18	0.10	10.53	6.54
P-044	29.67	42.48	22.27	0.05	20.47	12.01
P-045	26.33	42.48	22.27	0.05	10.53	6.54
P-046	24.80	62.82	40.79	0.08	10.53	6.55
P-047	26.99	62.82	40.79	0.08	10.53	6.55
P-048	42.44	73.66	43.56	0.11	10.53	6.54
P-049	23.58	73.66	43.56	0.11	10.53	6.55
P-050	74.37	26.80	16.33	0.04	4.54	2.64
P-051	19.95	68.24	42.18	0.10	10.53	6.54
P-052	26.59	73.66	43.56	0.11	10.53	6.54
P-053	24.42	62.82	40.79	0.08	10.53	6.55
P-054	24.63	62.82	40.79	0.08	10.53	6.55
P-055	208.76	73.66	43.56	0.11	10.53	6.54
P-056	18.50	9.04	8.05	0.01	0.92	0.66
P-057	77.42	9.50	8.32	0.01	0.92	0.66
P-058	175.42	42.48	25.05	0.06	20.47	12.01
P-059	25.14	62.82	40.79	0.08	10.53	6.55
P-060	8.58	8.94	8.05	0.01	0.92	0.66
R-004	67.87	68.24	42.18	0.10	10.53	6.54
R-005	231.96	73.66	43.56	0.11	10.53	6.54
R-006	27.03	42.48	22.27	0.05	10.53	6.54
R-007	52.22	21.38	15.90	0.03	4.05	2.46
R-008	11.83	42.48	22.27	0.05	20.47	12.01
R-009	188.82	306.26	346.75	1.31	85.98	26.96
R-010	43.91	9.22	8.05	0.01	0.92	0.66
R-011	158.12	42.48	24.27	0.06	20.47	12.01
R-012	57.11	21.38	16.01	0.03	4.05	2.46
R-013	7.00	8.94	8.05	0.01	0.92	0.66
R-014	7.39	8.94	8.05	0.01	0.92	0.66
R-015	26.03	62.82	40.79	0.08	10.53	6.55
R-016	3.68	8.94	8.05	0.01	0.92	0.66
R-017	86.35	73.66	43.56	0.11	10.53	6.54
R-018	195.56	320.38	432.25	1.53	108.77	33.16

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<u>Project ID</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
R-019	19.37	42.48	22.27	0.04	10.53	6.54
R-020	387.41	62.82	51.92	0.15	10.53	6.54
R-021	9.63	42.48	22.27	0.04	10.53	6.54
R-022	10.37	21.38	15.09	0.03	4.05	2.46
R-023	15.14	9.03	8.05	0.01	0.92	0.66
R-024	79.77	591.67	872.83	2.73	202.55	64.74
R-025	65.37	68.24	42.18	0.10	10.53	6.54
R-026	268.27	62.82	53.47	0.16	10.53	6.55
R-027	6.95	8.94	8.05	0.01	0.92	0.66
R-028	24.21	73.66	43.56	0.11	10.53	6.54
R-029	7.28	8.94	8.05	0.01	0.92	0.66
R-030	107.62	42.48	22.27	0.05	10.53	6.54
R-031	22.77	21.38	16.09	0.03	4.05	2.46
R-032	41.51	9.22	8.05	0.01	0.92	0.66
R-033	19.02	21.38	15.92	0.03	4.05	2.46
R-034	22.79	9.04	8.05	0.01	0.92	0.66
R-035	32.18	42.48	22.27	0.05	20.47	12.01
R-036	21.81	42.48	22.27	0.04	10.53	6.54
R-037	11.36	8.94	8.05	0.01	0.92	0.66
R-038	6.73	8.94	8.05	0.01	0.92	0.66
R-039	20.88	62.82	40.79	0.08	10.53	6.55
R-040	4.69	8.94	8.05	0.01	0.92	0.66
R-041	43.09	9.22	8.05	0.01	0.92	0.66
R-042	30.95	62.82	40.79	0.08	10.53	6.55
R-043	28.39	68.24	42.18	0.10	10.53	6.54
R-044	7.66	8.94	8.05	0.01	0.92	0.66
R-045	70.54	9.49	8.23	0.01	0.92	0.66
R-046	20.42	68.24	42.18	0.10	10.53	6.54
R-047	100.07	21.38	17.27	0.03	4.05	2.46
R-048	70.01	26.80	16.26	0.04	4.54	2.64
R-049	26.21	62.82	40.79	0.08	10.53	6.55
R-050	4.56	21.38	15.01	0.03	4.05	2.46
R-051	4.62	8.94	8.05	0.01	0.92	0.66
R-052	18.26	68.24	42.18	0.10	10.53	6.54
R-053	16.57	42.48	22.27	0.05	20.47	12.01
R-054	14.32	42.48	22.27	0.05	20.47	12.01
R-055	11.50	42.48	22.27	0.05	20.47	12.01
R-056	67.70	42.48	22.27	0.05	10.53	6.54
R-057	88.61	42.48	22.27	0.05	10.53	6.54

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<b>Project ID</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-058	5.33	8.94	8.05	0.01	0.92	0.66
R-059	7.75	8.94	8.05	0.01	0.92	0.66
R-060	94.37	26.80	17.12	0.04	4.54	2.64
R-061	197.38	42.48	24.31	0.06	20.47	12.01
R-062	3.64	8.94	8.05	0.01	0.92	0.66
R-063	13.39	21.38	15.65	0.03	4.05	2.46
R-064	5.87	21.38	15.01	0.03	4.05	2.46
R-065	35.15	68.24	42.18	0.10	10.53	6.54
R-066	11.64	9.03	8.05	0.01	0.92	0.66
RC-001	22.86	188.45	127.47	0.33	31.59	19.64
RC-002	28.29	251.27	223.10	0.62	43.72	26.18
RC-003	45.70	376.90	485.41	1.46	106.26	39.27
RC-005	19.97	125.63	81.59	0.16	21.06	13.09
RC-006	278.31	62.82	40.79	0.08	10.53	6.54
RC-007	267.88	62.82	54.66	0.16	10.66	6.55
RC-009	319.91	62.82	46.13	0.13	10.53	6.54
RC-010	262.94	125.63	154.62	0.54	37.73	13.09
RC-011	377.48	73.66	43.56	0.11	10.53	6.54
RC-012	196.58	42.48	26.05	0.06	20.47	12.01
RC-013	25.76	62.82	40.79	0.08	10.53	6.55
RC-014	100.41	73.66	43.56	0.11	10.53	6.54
RC-015	29.31	62.82	40.79	0.08	10.53	6.55
RC-017	17.44	9.03	8.05	0.01	0.92	0.66
RC-018	9.63	42.48	22.27	0.04	10.53	6.54
RC-019	49.16	21.38	15.83	0.03	4.05	2.46
RC-020	5.43	8.94	8.05	0.01	0.92	0.66
RC-021	15.07	9.03	8.05	0.01	0.92	0.66
RC-022	27.06	62.82	40.79	0.08	10.53	6.55
RC-023	48.84	21.38	16.08	0.03	4.05	2.46
RC-024	98.49	42.48	22.27	0.05	10.53	6.54
RC-025	79.01	21.38	16.75	0.03	4.05	2.46
RC-026	4.75	8.94	8.05	0.01	0.92	0.66
RC-027	97.40	42.48	22.27	0.05	10.53	6.54
RC-028	10.62	8.94	8.05	0.01	0.92	0.66
RC-029	15.33	9.03	8.05	0.01	0.92	0.66
RC-030	333.77	73.66	47.21	0.13	10.53	6.54
RC-031	93.24	42.48	22.27	0.05	10.53	6.54
RC-032	19.35	125.63	81.59	0.16	21.06	13.09
RC-033	19.95	62.82	40.79	0.08	10.53	6.55

**Table 6.3-3: Cumulative Maximum Daily Construction Emissions (lbs/day)**

<u>Project ID</u>	<u>VOC</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>PM<sub>10</sub></u>	<u>PM<sub>2.5</sub></u>
RC-034	22.42	62.82	40.79	0.08	10.53	6.55
RC-035	77.66	314.09	373.58	1.10	80.19	32.73
RC-036	24.27	62.82	40.79	0.08	10.53	6.55
RC-037	29.10	62.82	40.79	0.08	10.53	6.55
RC-038	307.88	62.82	59.75	0.18	12.04	6.55
RC-039	22.20	68.24	42.18	0.10	10.53	6.54
RD-003	33.37	73.66	43.56	0.11	10.53	6.54
RD-004	37.94	73.66	43.56	0.11	10.53	6.54
RD-006	44.93	21.38	15.76	0.03	4.05	2.46
RD-007	118.61	26.80	17.13	0.04	4.54	2.64
RD-008	25.29	42.48	22.27	0.05	20.47	12.01
RD-009	40.83	21.38	15.72	0.03	4.05	2.46
RD-010	75.04	42.48	22.27	0.05	10.53	6.54
RD-011	51.63	21.38	15.90	0.03	4.05	2.46
SB-007	19.39	68.24	42.18	0.10	10.53	6.54
SB-008	22.76	68.24	42.18	0.10	10.53	6.54
SJ-001	283.22	62.82	49.56	0.15	10.53	6.55
SJ-002	16.72	62.82	40.79	0.08	10.53	6.55
SJ-003	30.03	62.82	40.79	0.08	10.53	6.55
SJ-004	31.72	62.82	40.79	0.08	10.53	6.55
<u>Total</u>	<u>24,780.64</u>	<u>17,509.64</u>	<u>13,633.42</u>	<u>35.53</u>	<u>3,808.65</u>	<u>2,049.37</u>
<u>Proposed Project</u>	<u>164</u>	<u>191</u>	<u>993</u>	<u>2</u>	<u>174</u>	<u>44</u>

**6.3.2.1.3 Localized Operations and Construction**

The localized significance threshold (LST) analysis includes three cumulative projects (MV-5, MV-6, and MV-126) that are located within 1,000 feet of the proposed Project boundary (see Figure 6.3-2) and is focused on two scenarios:

1. Construction year (2020) when all cumulative projects and the proposed Project are assumed to begin construction.
2. Full Build Out (2035) when all cumulative projects and the proposed Project are assumed to begin full operations.

It is assumed that the construction start year of 2020 is the worst-case overlap condition for cumulative projects and the proposed Project. The duration of construction for cumulative projects was estimated using CalEEMod default assumes based on site acreage. Based on site acreage, total construction duration for cumulative projects MV-5 and MV-6 are assumed to be approximately one year and MV-126 is assumed to be approximately 5.6 years. Because MV-5 and MV-6 are only anticipated to require one year of construction (2020), the first year of Project construction (2020) is when the assumed overlap would occur. Therefore, the cumulative LST analysis assumes a worst-case construction overlap year of 2020.

Pursuant to the SCAQMD's LST methodology, only emissions generated from emission sources located within and along the project boundaries are included in the LST assessment. These emission

sources include vehicle travel on the roadway network within and along the borders of the project and emissions from support equipment including forklifts, yard/hostler trucks, and emergency standby electric generators.

The cumulative projects' emissions that were accumulated and calculated then served as input into the air dispersion model (AERMOD) to derive estimates of the projects' localized air quality impacts for each potential scenario.

#### **6.3.2.1.4 Health Risk**

##### *Geographic Scope of the Cumulative Health Risk Assessment (HRA)*

To assess the regional cumulative impact of the identified 359 projects in addition to that of the Project's, both the universe of the emission sources and air dispersion model receptors were greatly expanded in this cumulative HRA. The air dispersion models included 99 grid area sources (each grid cell is 5 km by 5 km) covering an area of 2,475 square kilometers (km<sup>2</sup>) to represent the onsite and surface street emissions of all cumulative projects, and 63 freeway mainline segments for warehouse projects in the region that may overlap with the traffic routes of the Project. The modeled freeway segments extended from North Palm Springs to Long Beach in the east-west direction and from Rancho Cucamonga to Hemet/San Jacinto in the north-south direction, roughly an area of 3,500 square miles radiating from the cumulative project sites to the north, south, east, and west. The analysis covered major portions of the following freeways from North Palm Springs to the ports of Los Angeles and Long Beach: Interstate 10, State Route 60, State Route 91, Interstate 215, and Interstate 710.

The expanded geographic scope of the assessment also necessitated an expansion in the locations of the receptors where the cumulative projects' impacts were calculated. This expanded network included grid receptors that cover the entire study domain, locations of individual schools within 0.5 mile of the modeled freeway segments and those in the Moreno Valley School District, and over 2,300 census tract centroid locations.

Finally, it is recognized that because of the large geographical extent of the region covered in this cumulative HRA, meteorological conditions differ for different portions of the study region. The air dispersion modeling was separated into two separate pieces as follows. Those emission sources located east of SR-71 were assumed to be influenced by the meteorological conditions represented by the Riverside meteorological (MET) data. Those emission sources located west of SR-71 were assumed to be influenced by the meteorological conditions represented by the Fullerton MET data. The air dispersion modeling was done separately for the region east of SR-71 and for the region west of SR-71. The air pollutant concentrations at each receptor location were then comprised of the sum of the emission impacts from those sources located east of SR-71 and west of SR-71 as influenced by their respective meteorological conditions.

##### *Dispersion Modeling*

The cumulative HRA uses the same air dispersion modeling and health risk calculation methodologies used in the project-level HRA; however, the operational AERMOD model was updated to include emissions sources from the 359 cumulative projects and an expanded receptor grid that covers most of the South Coast Air Basin. Operational emissions sources were classified as freeway or non-freeway emissions. Non-freeway emissions included onsite and surface street emissions, and were modeled as large area sources with release heights of 2 meters for the operation scenario and 5 meters for the construction scenario. The freeway emissions for CA-60, I-215, CA-91, and I-710 were modeled as line volume sources with a release height of 2 meters. To minimize the number of AERMOD runs, unit emission rate was utilized in the dispersion modeling. The modeled freeway segments were divided into nine source groups for flexibility in assigning emission rates that represent the varying trip distribution patterns among those warehouse projects. Two AERMOD runs were conducted, one for emission sources that are east of SR-71, and the other one for freeway emission sources that are west of the SR-71. Pre-processed AERMOD-ready MET data were downloaded from the SCAQMD website.

the former model run used the Riverside MET data and the last model run used the Fullerton MET data. Both model runs used the same expanded receptor grid, which includes 5,298 receptors covering areas from North Palm Springs to Long Beach in the east-west direction and from Rancho Cucamonga to Hemet/San Jacinto in the north-south direction, roughly an area of 3,500 square miles radiating from the project site to the north, south, east, and west.

### Construction Emissions Inventory

As mentioned above, the environmental document research conducted for the project found that 67 projects are either completely constructed or currently undergoing construction. Therefore, the cumulative construction analysis was conducted for the 289 potentially cumulative projects that could undergo construction activities during the project's 15-year construction period. The analysis compiled a construction emissions inventory based on previously completed CEQA documents for each of the cumulative projects where such documents were available. In most cases, toxic air contaminant (TAC) emissions data were lacking but that of total PM10 and total organic gas (TOG) emissions were presented in available CEQA documents; therefore, maximum daily construction total PM10 and TOG emissions data was obtained, which was speciated using the speciation profile developed for the Project HRA presented in Section 4.3 of this Draft Recirculated RSFEIR. For projects where emissions data was unavailable in available CEQA documents, their emissions were estimated based on the land use type and building square footage instead, see details in the air quality section above for detail.

### Operational Emissions Inventory

The analysis also compiled an inventory of operational TAC emissions based on previously completed CEQA documents for each of the cumulative projects and included the following two steps:

- Step 1: calculate total freeway and non-freeway diesel particulate matter (DPM) emissions. Because in most cases, operational emissions data were lacking, the operational emission inventory was compiled using a similar method as that of the construction emission inventory. Where a project's emissions were presented in available CEQA documents, maximum daily operational total emissions data was obtained and speciated to individual TAC species using the TAC speciation profile developed under the Project HRA; where a project's emissions data were unavailable in available CEQA documents, emissions were estimated based on building square footage and land use type.

To be conservative, the operational emissions used 2020 emission factors, which considering the continuing advancement in clean combustion technologies and more stringent emission regulations, were expected to result in higher emission rates than if based on emission factors for the future years.

- Step 2: distribute the total freeway and non-freeway emissions to specific source groups. To model the TAC concentrations at specific receptor locations for use in risk calculations, the total TAC emissions need to be distributed to specific sources spatially to match the source groups in AERMOD setup. Due to a lack of readily available information to distribute each of the 359 projects' emissions spatially, this analysis evenly distributed all the non-freeway emissions (e.g., onsite construction and operational emissions, and mobiles source emissions on surface streets) among the 99 area sources for all non-warehouse land use. The analysis developed a ratio of freeway-to-non-freeway traffic based off of the Project HRA trip data. The analysis distributed the freeway emissions evenly across the modeled freeway segments based on segment length and non-freeway emissions to the corresponding area source. The daily TAC emissions in units of pounds per day (lbs/day) were converted to unit of grams per second (g/s) by assuming that all of the cumulative projects will have continuous operation schedules (8,760 hours per year) and construction schedule of 10 hours per day, from 7 am to 5pm. Detailed calculations can be found in Appendix A.3.

### Risk Calculations

Two sets of 30-year cancer risk calculations were performed for the identified cumulative projects, one includes the cancer risks from exposure to construction plus operation (Cumulative Construction & Operation HRA), and the other includes 30-year exposure to the full operation of the 359 cumulative projects in addition to the Project (Cumulative Operation HRA). An average construction duration was determined for each of the 99 area sources, with the operation duration of each source equaling the 30 years minus the construction duration.

TAC concentrations at each receptor location were obtained by multiplying the actual TAC emissions in the developed emission inventory with the AERMOD-generated TAC dispersion coefficient (ground level TAC concentration generated using unitized emission rate), which were used to estimate the cancer risk and non-cancer HI at each receptor location, using the same calculation method as described in Section 4.3.6 for the project-level HRA. The following conservative assumptions were made for the cancer risk calculations:

- Cumulative Construction & Operation HRA assumed that a fetus in the 3rd trimester (within the mother's womb) commences its lifetime exposure at beginning of construction so that it is exposed to the full construction impact plus full operational impact;
- Cancer risk calculations for the operational exposure portion of the Cumulative Construction & Operation HRA and those for the 30-year exposure of the Operation HRA were conservatively used the same TAC emission rate that were calculated based on 2020 emission factors for all these years;
- All 5,298 receptors were modeled as residential receptors.

#### **6.3.2.1.5 Cumulative Health Effects**

Potential health effects from the cumulative project emissions are generally characterized using the Project level modeling results (discussed further in Section 4.3) and a comparison of overall emissions. Maximum daily operational and construction emissions were estimated for 349 projects in the region surrounding the Project. Maximum daily operational emissions for all cumulative projects are reflective of year 2035, consistent with the full buildout year for the Project. Construction emissions vary by project but occur within years 2020 through year 2035. To capture both potential operational and construction emissions from the cumulative projects in a single year, either maximum daily operational or construction emissions were used for each project, evaluated on a pollutant basis.

Emissions from cumulative projects would be subject to the similar meteorological and photochemical reaction conditions as the Project assessment. The application of an overall scaling factor based on emissions is likely conservative since the cumulative projects are unlikely to have the same distribution of mobile emissions to the Los Angeles area as the Project. Details on estimated health effects from cumulative projects are shown in Appendix A.2.

#### **6.3.3 Cumulative Impact Evaluation**

According to the SCAQMD, "Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."<sup>6</sup> A significant impact may occur if a project would exceed an applicable federal or state pollutant threshold.

<sup>6</sup> South Coast Air Quality Management District, Potential Control Strategies to Address [Cumulative Impacts from Air Pollution, White Paper](http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4), Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Page D-2. Accessed September 29, 2019.

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

~~A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the Air Basin is currently in nonattainment of the Federal ambient air quality standards for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, related projects could exceed an air quality standard or contribute to an existing or projected air quality exceedance.~~

### 6.3.3.1 Odors

*Impact: The project's contribution to cumulative objectionable odors would be less than cumulatively considerable.*

Threshold:	Would the project create objectionable odors affecting a substantial number of people?
------------	--

### Cumulative Impact Analysis

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

As stated previously in Section 4.3.5.1, diesel exhaust and volatile organic compounds (VOCs) would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Currently, there are six occupied single-family homes and associated ranch/farm buildings in various locations on the project site. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, west of Redlands Boulevard, and scattered residences along Gilman Springs Road north of Alessandro Boulevard. Diesel exhaust would also be emitted during operation of the project from the trucks that would visit the project site. However, the concentrations would not be at a level to result in a negative odor response at nearby sensitive or worker receptors. In addition, modern emission control systems on diesel vehicles since 2007 virtually eliminate diesel's characteristic odor. Further, project mitigation requires that 2010 or newer diesel vehicles be used during construction.

During blow-down maintenance activities, natural gas odors will be present around the SDG&E Compressor Plant located south of the project site. When this portion of the Project WLC Specific Plan is developed, these odors will occasionally be detectable from the industrial warehouse properties adjacent to the SDG&E facility. These odors will be infrequent and odorized natural gas will not be present in high concentrations. Therefore, potential odor impacts from on-site natural gas operations are considered to be less than significant and do not require mitigation.

Adherence to applicable provisions of these rules is standard for all development within the Basin. In addition, conditions for the design of waste storage areas on the proposed site would be established through the permit process to ensure enclosures are appropriately designed and maintained to prevent the proliferation of odors. Solid waste generated by the proposed on-site uses will be collected by a contracted waste hauler, ensuring that any odors resulting from on-site uses would be adequately managed.

Of the ~~162~~173 environmental documents that were evaluated, all found that the respective projects would not create objectionable odors that will affect a substantial number of people and many projects were found to have a less than significant impact or no impact at all. None of the projects were of the type described by the SCAQMD as being associated with substantial odors such as agricultural uses, wastewater treatment plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Furthermore, Project-specific impacts would be less than significant and would not exceed the

AQMDs significance threshold for odors.<sup>7</sup> Therefore, impacts associated with this issue would be considered cumulatively less than significant and no mitigation is required.

**Significance Level Before Mitigation:** Less than significant.

**Mitigation Measures:** No mitigation measures are required.

**Significance Level After Mitigation:** Less than significant.

#### 6.3.3.2 Long-term Microscale (CO Hot Spot) Emissions

*Impact:* The project's contribution to cumulative impacts associated with the violation of any air quality standard would be less than cumulatively considerable.

Threshold:	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?  For CO, the applicable thresholds are: <ul style="list-style-type: none"><li>• –California State one-hour CO standard of 20.0 ppm; and</li><li>• –California State eight-hour CO standard of 9.0 ppm.</li></ul>
------------	--

#### Cumulative Impact Analysis

As identified in Section 4.3.5.2, no significant CO hot spot impacts would occur due to project operations. The SCAQMD anticipates that CO emissions in the future will decrease with advances in technology. As previously identified, background concentrations in future years are anticipated to continue to decrease as the concerted effort to improve regional air quality progresses. Therefore, ambient CO concentrations, from cumulative projects ~~within the Basin~~, in the future years would generally be lower than existing conditions.

For this project analysis, peak hour traffic volumes, at the intersections with the highest traffic volumes and LOS E or F before mitigation were identified and evaluated for each condition analyzed. In addition, the emission factors for "all" vehicle classes are not adjusted for a project-specific fleet to provide a worst-case scenario. In addition, the emission factors do not take into account the project mitigation reductions from requiring that all diesel trucks are model year 2010 or newer. The project evaluation found that no CO hot spot impacts would occur at intersections with the highest traffic volumes and ranged as LOS E or F.

Furthermore, out of the ~~162173~~ environmental documents ~~within the Basin~~ that were reviewed, all projects found that no hot spot impacts would occur with their respective projects. Similar to the project, intersections with the highest traffic volumes and worst LOS were identified and evaluated. No exceedance of significance thresholds was estimated. Furthermore, Project-specific impacts would be less than significant and would not exceed the AQMDs significance threshold for CO hot spot emissions.<sup>8</sup> Based on the analysis and SCAQMD methodology, it is reasonable to assume that a less than significant cumulative CO impact would occur.

<sup>7</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>8</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

**Significance Level Before Mitigation:** Less than significant.

**Mitigation Measures:** No mitigation measures are required.

**Significance Level After Mitigation:** Less than significant.

6.3.3.3 Air Quality Plan Management Plan Consistency

*Impact: The project's contribution to the cumulative conflict with implementation of the applicable air quality plan would be cumulatively considerable.*

Threshold:	Would the project conflict with or obstruct implementation of the applicable air quality plan?
------------	--

**Cumulative Impact Analysis**

As previously stated in Section 4.3.6, according to the SCAQMD, the project is consistent with the AQMP if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (SCAQMD 1993, page 12-3).

As discussed previously in Section 4.3.6.2 Construction Emissions, construction activities associated with the project would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NOx, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>.

In addition, out of the ~~162359~~ environmental documents cumulative projects that were evaluated, ~~6267~~ were found to be completed with construction or currently undergoing construction. Therefore, ~~62289~~ potentially cumulative projects ~~are located within the Basin~~ that could undergo construction activities during the project's 15-year construction period. However, even if none of these ~~62289~~ Basin-wide cumulative projects undergo construction while the project is under construction, a cumulatively considerable impact will occur because projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>9</sup> As previously stated the Project-specific construction emissions presented in Section 4.3.6.2 exceed the applicable SCAQMD significance thresholds for VOC, NOx, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, a cumulatively considerable impact will occur, despite any potential construction activity associated with another ~~Basin-wide~~ project.

The SCAB is classified as nonattainment for the Federal ambient air quality standards for ozone, PM<sub>10</sub>, or PM<sub>2.5</sub>; therefore, according to this criterion, the project would not be consistent with the AQMP. The regional emissions assume a zero baseline for existing emissions on the project site and therefore assumes that the AQMP had no emissions for the project site. The regional significance thresholds can be interpreted to mean that if project emissions exceed the thresholds, then the project would also not be consistent with the assumptions in the AQMP. The project does not meet this criterion. As previously identified in Section 4.3.6.4 Long-Term Operational Emissions, the long-term operation and combined construction and operational emissions of the project would contribute to long-term regional air pollutants despite implementation of mitigation measures.

As shown in Table 6.3-2 operational emissions gathered from the environmental documents and modeling show that out of the ~~162359~~ Basin-wide environmental documents cumulative projects, five basin-wide ~~25~~ cumulative projects were identified as exceeding VOC significance thresholds and seven~~59~~ projects were identified as exceeding NOx emission thresholds. Table 6.3-3 provides the construction emissions gathered from the environmental documents and modeling. The results show that out of the 359 cumulative projects, 95 cumulative projects were identified as exceeding VOC

<sup>9</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

significance thresholds and 22 projects were identified as exceeding NO<sub>x</sub> thresholds. Those projects that were found to exceed the SCAQMD thresholds were primarily industrial land uses or larger single-family residential developments. The number of each project type is provided in Table 6.3B6.3-4. As shown, in Table 6.3B6.3-4, up to 1843 multi-family residential projects have been proposed in the Basin, in combination with 43 115 single-family residences and 3610 heavy industrial projects.

The cumulative impacts of all 360359 projects have been taken into consideration with the SCAQMD thresholds. However, a cumulatively considerable impact will occur because projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>10</sup> As previously stated the Project-specific operation emissions presented in Section 4.3.6.4 exceed the applicable SCAQMD significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, a cumulatively considerable impact will occur, despite the potential operation of any of the identified Basin-wide cumulative projects.

**Table 6.3-24: Air Quality Cumulative Operation Emissions**

Type of Project	Number Identified within Moreno Valley Cumulative Analysis Limits
Business Park, <del>Light Industrial</del>	<u>511</u>
Heavy Industrial	<u>3610</u>
Hotel, <del>Light Industrial</del>	<u>139</u>
Medical	<u>24</u>
Mixed Use	<u>4</u>
Office	<u>13</u>
Residential - Assisted Living	<u>10</u>
<del>Mixed Use Residential</del>	<u>3</u>
Single-Family Residential	<u>43115</u>
Multi-Family Residential	<u>1843</u>
Warehouse	<u>64</u>
Retail	<u>1165</u>

Notes:

1) The total number of identified projects exceeds 359 due to the multi-use projects that were identified. These multi-use projects may include residential, retail, and office land uses within one project description.

Source: City of Moreno Valley, 2018

Mixed Use = Retail and residential combined plans

Mixed Use - Residential = Single and Multi-Family Residences

**Significance Level Before Mitigation:** Project Construction of the cumulative projects along with the project would result in cumulatively considerable and potentially significant cumulative air impacts. Implementation of the project would contribute to significant long-term cumulative air quality impacts.

**Mitigation Measures:** As indicated in Section 4.3.6.1 Air Quality Management Plan Consistency, to facilitate monitoring and compliance, applicable SCAQMD regulatory requirements will be implemented. **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B,**

<sup>10</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

**4.3.6.3C, 4.3.6.3D, and 4.3.6.4A** are required and shall be incorporated in all project plans, specifications, and contract documents.

**Significance Level After Mitigation: Significant and Unavoidable.** As noted above, construction and operation of the cumulative projects along with the project would exceed applicable thresholds for all criteria pollutants, with the exception of SO<sub>x</sub>. Despite the implementation of mitigation measures, emissions associated with the project cannot be reduced below the applicable thresholds. The project in the absence of feasible mitigation to reduce the project's emission of criteria pollutants to below SCAQMD construction and operation thresholds, potential air quality impacts resulting from construction and operation will remain significant and unavoidable. Projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>11</sup> Even with mitigation the Project-specific emissions in combination with any of the Basin-wide cumulative projects that have been identified, will result in a cumulative considerable impact.

#### 6.3.3.4 Construction Emissions

*Impact: The project's contribution to the cumulative exceedance of applicable daily thresholds that may affect sensitive receptors would be cumulatively considerable.*

Threshold: Would the project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?

For construction operations, the applicable daily thresholds are:

- –75 pounds per day of ROC/VOC;
- –100 pounds per day of NO<sub>x</sub>;
- –550 pounds per day of CO;
- –150 pounds per day of PM<sub>10</sub>;
- –150 pounds per day of SO<sub>x</sub>; and
- –55 pounds per day of PM<sub>2.5</sub>.

### Cumulative Impact Analysis

The construction analysis discussed in Section 4.3.6.2 Construction Emissions found that construction activities associated with the project would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>. Fugitive dust and exhaust emissions during the anticipated peak construction day for the project would also exceed SCAQMD daily construction thresholds. The percentage of dust and exhaust varies by year but for PM<sub>10</sub> is an average of 8885 percent dust and 4215 percent exhaust. PM<sub>2.5</sub> has an average of 5054 percent dust and 5046 percent exhaust. Accordingly, projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>12</sup>

In addition, oOut of the 162359 environmental documents cumulative projects that were evaluated, 6267 were found to be completed with construction or currently undergoing construction as of May 2018 November 2019. Therefore, 62289 potentially cumulative projects are located within the Basin that could undergo construction activities during the project's 15-year construction period. Construction emissions gathered from the environmental documents and modeling show that out of the 289

<sup>11</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>12</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

cumulative projects, 95 cumulative projects were identified as exceeding VOC significance thresholds, 22 projects were identified as exceeding NO<sub>x</sub> thresholds, and 2 projects would exceed CO, PM<sub>2.5</sub> and PM<sub>10</sub> thresholds. However, even if none of these ~~62289~~ Basin-wide potential cumulative projects undergo construction while the project is under construction, a cumulatively considerable impact will occur because projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>13</sup> As previously stated the Project-specific construction emissions presented in Section 4.3.6.2 exceed the applicable SCAQMD significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, a cumulatively considerable impact will occur, despite any potential construction activity associated with another Basin-wide project.

**Significance Level Before Mitigation:** Project cConstruction of the cumulative projects along with the project would result in cumulatively considerable and potentially significant cumulative air impacts.

**Mitigation Measures:** As identified in Section 4.3.6.2, **Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C and 4.3.6.2D** to reduce construction emissions of criteria pollutants are required. The project will also be required to comply with SCAQMD Rules 402 and 403.

**Significance Level After Mitigation:** Despite the implementation of mitigation measures, emissions associated with construction of the pProject cannot be reduced below the applicable thresholds. In the absence of feasible mitigation to reduce the project's emission of criteria pollutants to below SCAQMD thresholds, potential air quality impacts resulting from construction of the Project and potential construction of any of the identified Basin-wide cumulative projects will still be considered cumulatively significant and unavoidable.

#### 6.3.3.5 Localized Construction and Operational Air Quality Impacts

*Impact: The project's contribution to the cumulative exceedance of localized daily thresholds that may affect sensitive receptors would be cumulatively considerable.*

Threshold:	Would the project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?  The applicable localized thresholds are: <ul style="list-style-type: none"><li>• –20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction or operation;</li><li>• –0.18 ppm (State 1 hour), 0.100 ppm (National 1 hour), and 0.030 ppm (Annual) of NO<sub>x</sub> during construction or operation;</li><li>• –10.4 µg/m<sup>3</sup> (24 hours) 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction</li><li>• –2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub>; during operation and</li><li>• –2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operation</li><li>• –During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operations to assess the significance of the activities.</li></ul>
------------	--

### Cumulative Impact Analysis

The localized construction and operational analyses provided in Section 4.3.6.3, Localized Construction and Operational Air Quality Impacts, found that without mitigation, the pProject would exceed the localized significance thresholds for PM<sub>10</sub> for one or more of the LST assessment years (2022, 2025, 2032, or 2040~~2035~~) analyzed under this revised LST assessment. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an

<sup>13</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

exceedance of the ambient air quality standards for PM<sub>10</sub>. Accordingly, projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>14</sup>

Out of the 35359 environmental documents cumulative projects that provided estimated project emissions were identified, three cumulative projects (MV-5, MV-6, and MV-126) are located within 1,000 feet of the proposed Project boundary seven of those documents provided a quantitative analysis for localized construction thresholds. Of those seven quantitative localized construction threshold analyses, six of the identified projects were found to have a less than significant impact and one project was found to have a significant and unavoidable impact. However, none of these seven projects are within 500 feet of the project site. Despite the results of the environmental document review, due to the findings of the project's localized threshold analysis the air pollutant emissions from the project would result in a significant cumulative impact and could exceed or contribute to an exceedance of the ambient air quality standards for PM<sub>10</sub>. As previously stated, the cumulative analysis focused on two cumulative scenarios: Construction start year (2020) and Full Build Out (2035).

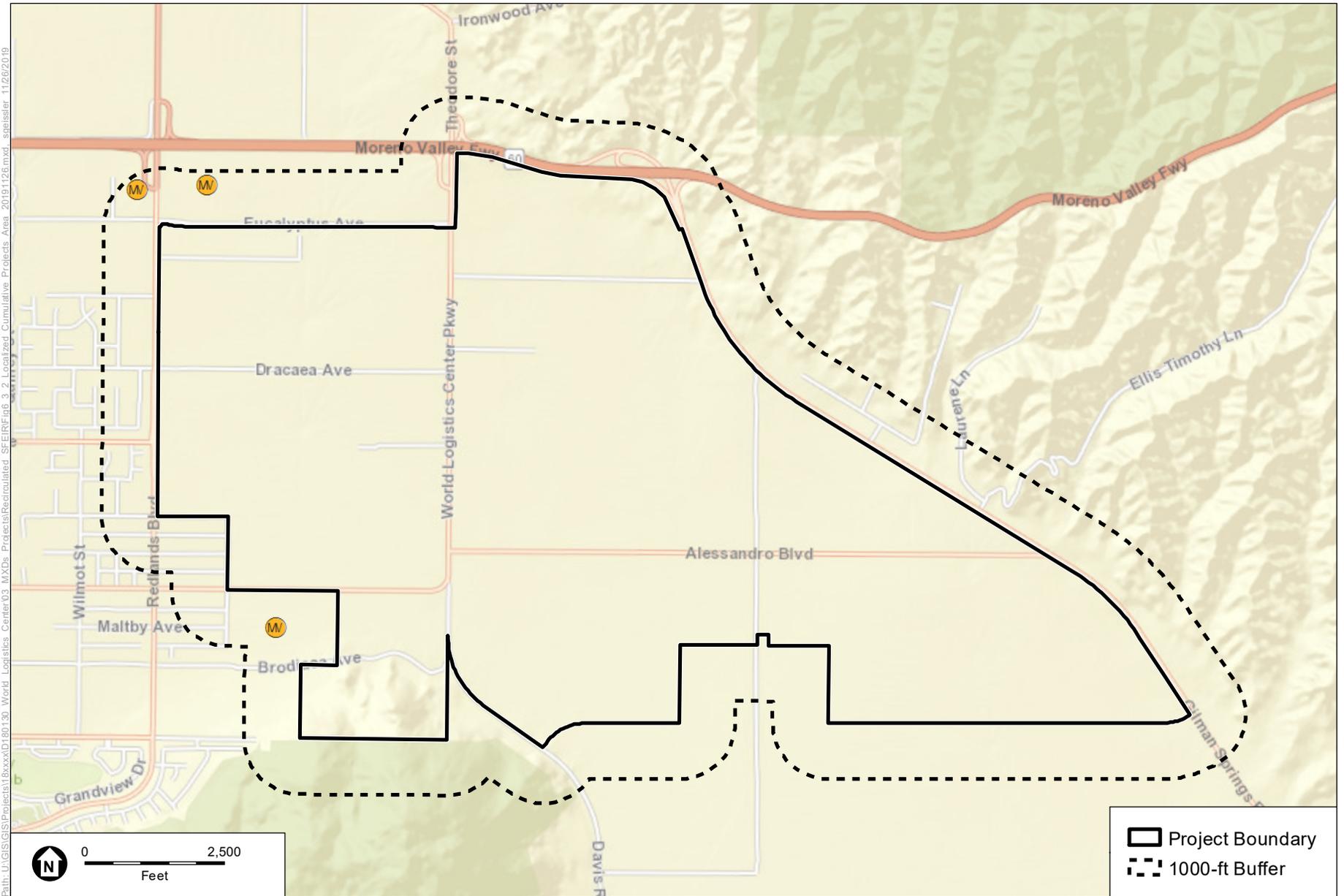
### **Construction Start Year (2020) LST Assessment**

It was assumed that all cumulative projects would commence construction in January 2020, consistent with the Project. Off-road construction equipment emissions were estimated based on CalEEMod default factors based on construction site acreage. On-road trips were estimated based on project square footage and assumed hauling activity and emissions calculated utilizing EMFAC2017 emission factors. The cumulative localized assessment results for the Construction Start Year (2020) condition are provided in Table 6.3-5 for receptors located within the project boundaries and in Table 6.3-6 for receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.<sup>15</sup>

As noted from Table 6.3-5, the project in addition to cumulative projects would exceed the SCAQMD's localized significance thresholds for the national 1-hour NO<sub>2</sub> and annual PM<sub>10</sub> threshold at a receptor located within the project boundaries. As shown in Table 6.3-6, the project in addition to cumulative projects would exceed the SCAQMD's localized significance thresholds for the national 1-hour NO<sub>2</sub> threshold at a receptor located outside the project boundaries.

<sup>14</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

<sup>15</sup> In keeping with the SCAQMD recommendations, background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average. Historical data for years 2016, 2017, and 2018 were obtained from SCAQMD's Riverside-Rubidoux air monitoring station.



SOURCE: ESRI; ESA; Highland Fairview 3/29/2018

World Logistics Center  
**Figure 6.3-2**  
 Localized Cumulative Projects Area

**Full Buildout (2035) LST Assessment**

The cumulative on-site emissions for the Project were estimated from the traffic-generated by the various project vehicles as provided by the TIA. Vehicle emissions were assumed to be representative of the calendar year 2020 vehicle fleet. Also included were emissions from various support equipment including forklifts, yard trucks, and standby emergency generators. Onsite emissions from the cumulative projects include landscaping equipment, consumer products, and on-site energy usage (natural gas) based on total square footage. Mobile emissions from the cumulative projects were estimated using ITE 10<sup>th</sup> Edition trip rates per 1,000 square feet and EMFAC2017 emission factors. The cumulative localized assessment results for the Project Full Build Out (2035) condition are provided in Table 6.3-7 for receptors located within the project boundaries and in Table 6.3-8 for receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.<sup>16</sup>

As noted from Table 6.3-7, the project would exceed the SCAQMD's significance thresholds for the 24-hour PM<sub>10</sub> and annual PM<sub>10</sub> thresholds for receptors located within the project's boundaries. As shown in Table 6.3-8, the project would exceed the SCAQMD's significance thresholds for the 24-hour PM<sub>10</sub>, annual PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> threshold for receptors located outside the project's boundaries.

---

<sup>16</sup> In keeping with the SCAQMD recommendations, background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average. Historical data for years 2016, 2017, and 2018 were obtained from SCAQMD's Riverside-Rubidoux air monitoring station.

**Table 6.3-5: Cumulative Localized Assessment of Construction Start year (2020) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

<u>Pollutant</u>	<u>Averaging Time, Units</u>	<u>Existing Background<sup>1</sup></u>	<u>Air Concentration<sup>2</sup></u>		<u>Standard/Threshold</u>	<u>Total Impact Exceeds Threshold</u>
			<u>Project Local Increase</u>	<u>Total (Background + Project)</u>		
<u>Carbon Monoxide</u>	<u>1 hour, ppm</u>	<u>2.2</u>	<u>0.16</u>	<u>2.4</u>	<u>20.0</u>	<u>No</u>
	<u>8 hour, ppm</u>	<u>2.0</u>	<u>0.03</u>	<u>2.0</u>	<u>9.0</u>	<u>No</u>
<u>Nitrogen Dioxide</u>	<u>State 1 hour, ppm</u>	<u>0.073</u>	<u>0.093</u>	<u>0.166</u>	<u>0.180</u>	<u>No</u>
	<u>National 1 hour, ppm</u>	<u>0.058</u>	<u>0.062</u>	<u>0.120</u>	<u>0.100</u>	<u>Yes</u>
	<u>Annual, ppm</u>	<u>0.015</u>	<u>0.002</u>	<u>0.017</u>	<u>0.030</u>	<u>No</u>
<u>PM<sub>10</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>8.5</u>	<u>8.5</u>	<u>10.4</u>	<u>No</u>
	<u>Annual, µg/m<sup>3</sup></u>	<u>NA</u>	<u>2.6</u>	<u>2.6</u>	<u>1.0</u>	<u>Yes</u>
<u>PM<sub>2.5</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>2.4</u>	<u>2.4</u>	<u>10.4</u>	<u>No</u>

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences within the project boundaries.

Source: *ESA, 2019*

**Table 6.3-6: Cumulative Localized Assessment of Construction Start Year (2020) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation)**

<u>Pollutant</u>	<u>Averaging Time, Units</u>	<u>Existing Background<sup>1</sup></u>	<u>Air Concentration<sup>2</sup></u>		<u>Standard/Threshold</u>	<u>Total Impact Exceeds Threshold</u>
			<u>Project Local Increase</u>	<u>Total (Background + Project)</u>		
<u>Carbon Monoxide</u>	<u>1 hour, ppm</u>	<u>2.2</u>	<u>0.13</u>	<u>2.3</u>	<u>20.0</u>	<u>No</u>
	<u>8 hour, ppm</u>	<u>2.0</u>	<u>0.03</u>	<u>2.0</u>	<u>9.0</u>	<u>No</u>
<u>Nitrogen Dioxide</u>	<u>State 1 hour, ppm</u>	<u>0.073</u>	<u>0.077</u>	<u>0.150</u>	<u>0.180</u>	<u>No</u>
	<u>National 1 hour, ppm</u>	<u>0.058</u>	<u>0.065</u>	<u>0.123</u>	<u>0.100</u>	<u>Yes</u>
	<u>Annual, ppm</u>	<u>0.015</u>	<u>0.001</u>	<u>0.016</u>	<u>0.030</u>	<u>No</u>
<u>PM<sub>10</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>4.8</u>	<u>4.8</u>	<u>10.4</u>	<u>No</u>
	<u>Annual, µg/m<sup>3</sup></u>	<u>NA</u>	<u>0.5</u>	<u>0.5</u>	<u>1.0</u>	<u>No</u>
<u>PM<sub>2.5</sub></u>	<u>24 hour, µg/m<sup>3</sup></u>	<u>NA</u>	<u>2.2</u>	<u>2.2</u>	<u>10.4</u>	<u>No</u>

**Table 6.3-6: Cumulative Localized Assessment of Construction Start Year (2020) Emissions Maximum Impacts Outside of the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 6.3-7: Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Within the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.07	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.018	0.091	0.180	No
	National 1 hour, ppm	0.058	0.016	0.074	0.100	No
	Annual, ppm	0.015	0.003	0.018	0.030	No
PM <sub>10</sub>	24 hour, $\mu\text{g}/\text{m}^3$	NA	9.3	9.3	2.5	Yes
	Annual, $\mu\text{g}/\text{m}^3$	NA	4.7	4.7	1.0	Yes
PM <sub>2.5</sub>	24 hour, $\mu\text{g}/\text{m}^3$	NA	2.4	2.4	2.5	No

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Table 6.3-8: Cumulative Localized Assessment of Full Build Out (2035) Emissions Maximum Impacts Outside the Project Boundaries (without mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.06	2.1	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.019	0.092	0.180	No
	National 1 hour, ppm	0.058	0.017	0.075	0.100	No
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	9.3	9.3	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	3.0	3.0	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.6	2.6	2.5	Yes

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Report, 2019.

**Summary.** The cumulative localized significance analysis demonstrates that without mitigation, the cumulative projects would exceed the localized significance thresholds for national 1-hour NO<sub>2</sub>, annual PM<sub>10</sub>, 24-hour PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> for one or more of the LST assessment years (2020 or 2035) analyzed. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an exceedance of the national 1-hour NO<sub>2</sub>, annual PM<sub>10</sub>, 24-hour PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> ambient air quality standards. Despite the results of the environmental document review, due to the findings of the project's localized threshold analysis the air pollutant emissions from the project would result in a significant cumulative impact and could exceed or contribute to an exceedance of the ambient air quality standards for NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

**Significance Level Before Mitigation: Potentially Significant.** Project construction and operation Construction and operation of the cumulative projects along with the Project would result in cumulatively considerable significant air impacts.

**Mitigation Measures:** As identified in Section 4.3.6.2, Mitigation Measures 4.3.6.2A, 4.3.6.2B, 4.3.6.2C and 4.3.6.2D to reduce construction emissions of criteria pollutants are required. The project will also be required to comply with SCAQMD Rules 402 and 403. Additionally, Mitigation Measures 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D and 4.3.6.3E are required to reduce emissions of criteria pollutants during project operations.

**Significance Level After Mitigation: Significant and unavoidable.** Significant and unavoidable. After application of mitigation, the pProject, along with cumulative projects MV-5, MV-6, and MV-126 would continue to exceed the localized significance thresholds at one or more of the existing residences located within the project boundaries for the national 1-hour NO<sub>2</sub> and PM<sub>10</sub> (24-hour and annual) all assessment conditions. In addition, the project would continue to exceed the localized significance thresholds at offsite receptors for NO<sub>2</sub> (national 1-hour), PM<sub>10</sub> (24-hour and annual), and PM<sub>2.5</sub> (24-

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

hour). Projects that exceed the Project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.<sup>17</sup>

~~In summary, those residents inside and outside the project boundaries could be exposed to significant short-term and long-term PM<sub>10</sub> concentrations on an ongoing basis. The health effects from particulate matter were discussed earlier and could include the following:~~

- ~~• Particulate matter can cause the following health effects from short-term (24-hour) exposure: irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; and/or those with heart disease can suffer heart attacks and arrhythmias.~~

~~Particulate matter can cause the following health effects from long-term exposure (annual): reduced lung function; chronic bronchitis; changes in lung morphology; and/or death.~~

### 6.3.3.6 Long-Term Operational Emissions

*Impact: The project's contribution to the exceedance of cumulative operational thresholds would be cumulatively considerable.*

Threshold: Would the project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?

For long-term operations, the applicable daily thresholds are:

- –55 pounds of VOC;
- –55 pounds of NO<sub>x</sub>;
- –550 pounds of CO;
- –150 pounds of PM<sub>10</sub>;
- –55 pounds of PM<sub>2.5</sub>; and
- –150 pounds of SO<sub>x</sub>.

## Cumulative Impact Analysis

Long-term air pollutant emission impacts that would result from the project are those associated with stationary sources and mobile sources involving any project-related change (e.g., emissions from the use of motor vehicles by project-generated traffic). Cumulative long-term impacts would take into consideration both the ~~p~~Project related emissions and those generated by the ~~360~~359 Basin-wide cumulative projects that have been identified.

As identified in Section 4.3.6.4 Long-Term Operation Emissions, operational emissions for the project would exceed SCAQMD daily operational thresholds for all criteria pollutants with the exception of SO<sub>x</sub> for the “worst-case” ~~2018~~2020 scenario. Furthermore, emissions of VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> are significant after ~~completion of Phase 1 and after~~ full buildout.

As shown, in Table 6.3.2 operational emissions gathered from the environmental documents and modeling show that out of the 359 cumulative projects, 25 cumulative projects were identified as exceeding VOC significance thresholds, 59 projects were identified as exceeding NO<sub>x</sub> thresholds, and 16 projects were identified as exceeding CO thresholds. None of the 359 projects would exceed the

<sup>17</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

PM<sub>2.5</sub> and PM<sub>10</sub> significance thresholds. However, because the project-specific emissions exceed the SCAQMD significance thresholds, this pProject is considered by the SCAQMD to be cumulatively considerable, despite the potential operation of any of the identified ~~Basin-wide~~ cumulative projects.

**Significance Level Before Mitigation: Potentially Significant.** Operation of the cumulative projects along with the pProject would result in potentially significant cumulative long term air quality impacts.

**Mitigation Measures:** Section 4.3.6.3 Localized Construction and Operational Air Quality Impacts identified **Mitigation Measures 4.3.6.3A through 4.3.6.3E** that would reduce operational emissions of criteria pollutants associated with the project. Additionally, **Mitigation Measure 4.3.6.4A**, was provided in Section 4.3.6.4 Long-Term Operational Emissions and is required to further reduce operational emissions.

**Significance Level After Mitigation: Significant and unavoidable.** Even with mitigation, operational emissions generated by the pProject are still significant. Mitigated operational pProject emissions of criteria pollutants in combination with the ~~360359~~ cumulative projects ~~that have been identified in the Basin, emissions of criteria pollutants~~ will still exceed SCAQMD significance thresholds resulting in a significant and unavoidable cumulative operational air quality impact.

#### 6.3.3.7 Impacts to Sensitive Receptors

*Impact: The project's contribution to the cumulative exposure of substantial pollutant concentrations on sensitive receptors would be cumulatively considerable.*

Threshold: Would the project expose sensitive receptors to substantial pollutant concentrations?

For localized air quality impacts, the applicable thresholds are:

- –20 ppm (1 hour) and 9 ppm (8 hours) of CO during construction and operation;
- –0.18 ppm (State 1 hour), 0.100 ppm National 1 hour), and 0.030 ppm (Annual) of NOX during construction and operation;
- –10.4 µg/m<sup>3</sup> (24-hours) and 1 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during construction
- –2.5 µg/m<sup>3</sup> (24 hours) and 1.0 µg/m<sup>3</sup> (Annual) of PM<sub>10</sub> during operations; and
- –2.5 µg/m<sup>3</sup> (24 hours) of PM<sub>2.5</sub> during operations.
- –During time periods when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance threshold for operations.

For health risk impacts, the applicable thresholds are:

- –Maximum Individual Cancer Risk: An increased cancer risk greater than 10 in 1 million at any receptor location;
- –Cancer burden: An increase in cancer burden of 0.5 or
- –Non-cancer hazard indices (HI): A cumulative increase for any target organ system exceeding 3.0 at any receptor location.

### Cumulative Impact Analysis

#### ~~Project-Specific Localized Risks~~

The SCAQMD uses the same significance thresholds for project specific and cumulative health risk impacts. The only case where the significance thresholds for project specific and cumulative impacts

---

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

---

differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is  $HI > 1.0$  while the cumulative (facility-wide) is  $HI > 3.0$ .

Because the cumulative HRA included emissions from both the Project and the 359 cumulative projects, the cancer risks and CHIs calculated are the cumulative health risk values that will be compared to the selected cumulative HRA threshold.

*Cancer Risk for Sensitive/Residential Receptors.* The analysis performed in Section 4.3.6.5 Impacts to Sensitive Receivers, found that the project would exceed the SCAQMD's cancer risk significance threshold of 10 in a million prior to the application of mitigation and would represent a significant impact. Construction impacts contribute the greatest proportion of the total impact presented in the findings presented in Section 4.2.6.5. In addition, the estimated maximum cancer risk anywhere in the model domain is less than the 10 in a million threshold, impact will therefore be less than significant without mitigation. Overall, without mitigation, the project is expected to have a significant impact mainly due to diesel PM emissions from construction activities.

Thirty-year exposure to cumulative construction and operations results in a cancer risk of 139.8 in one million at the maximum exposed receptor and thirty year cumulative operations would result in a cancer risk of 171.5 in one million at the maximum exposed receptor. These impacts at the maximum exposed project receptor are above the cumulative cancer threshold of 10 in a million with and without mitigation. Therefore, the construction and operation of cumulative projects in addition to the Project (with mitigation incorporated) is expected to have a significant and unavoidable cumulative impact.

*Estimates of Cancer Risk for School Site Receptors.* Section 4.3.6.5 found that the maximum cancer risk is at Ridgecrest Elementary School at less than 2 in a million. Therefore, impacts at schools are less than the 10 in one million significance threshold prior to mitigation and are less than significant.

*Estimates of Cancer Risk for Worker Receptors.* The highest worker cancer risk estimates, from the project, prior to the application of mitigation is less than 5 in one million and is at an onsite location. Therefore, cancer risk for worker receptors anywhere in the revised HRA's study area is less than the 10 in one million significance threshold. Projected impacts are less than significant without mitigation.

*Non-Cancer Hazard Index (HI).* The non-cancer HI value at each of the modeled receptor locations are less than SCAQMD cumulative threshold of 3.0. Therefore, the project is expected to have a less than significant cumulative impact.

*Estimates of Cancer Burden.* Cumulative Cancer risks, from the project, were estimated at the geographical center (centroid) of census tracts that are within the study area of the HRA. For the 70-year exposure duration with the inclusion of the Current OEHHA Guidance without consideration of the results of the HEI ACERS Study, the cancer burden is estimated to be 0.0972.2 for construction and operations and 90.3 for full operations, out of a population of about 63,090 10.8 million individuals that were conservatively estimated to have a cancer risk of 1 in a million or more for the 359 cumulative projects. This is compared to the Project cancer burden impact, estimated at approximately 0.47. The SCAQMD has established a threshold for cancer burden of 0.5. Therefore, the project would not exceed the SCAQMD's cancer burden significance threshold prior to the application of mitigation. Because the SCAQMD's cancer burden significance threshold is exceeded with and without mitigation for the 359 cumulative projects, the cumulative cancer burden impact is expected to be significant and unavoidable.

*Regional Freeway Network Risk.* The analysis presented in Section 4.3.6.5 found that based on the results for the construction plus operation scenario, without mitigation, only a small segment (approximately one mile) along SR60 that is immediately north of the project boundary will potentially have an incremental cancer risk exceeding the SCAQMD 10 in one million thresholds; at an approximate distance of 2.5 miles away from the project boundary, the potential increment cancer risk along SR60 would be less than 2 in one million. Based on results for 30 years of the full project buildout scenario, without mitigation, no segment along SR60 would exceed the 10 in one million cancer risk threshold; at a distance of less than two miles from the project boundary, the incremental cancer risk is less than 2 in one million.

~~Informational Purposes: Morbidity and Mortality.~~ Exposure to the Project's DPM emissions prior to mitigation would result in an increase in mortality of approximately 0.00011 additional cases per year at the location where the project has its maximum impact from DPM emissions or 0.001 additional cases over all of the census tracts contained in the modeling domain.

Section 4.3.6.5 summarizes the estimates of the various morbidity health endpoints due to the emissions from the project without mitigation. There is no established threshold or approved methodology for calculating morbidity and mortality; however, the project would not result in a single new added case of a quantified health endpoint either at location where the impact would be greatest or cumulatively over the entire air dispersion modeling domain examined in this assessment.

~~Out of the 360 Basin-wide cumulative projects were identified, seven out of those projects provided a quantified health risk assessment and less than significant impacts were identified for all seven projects. However, because the project-specific emissions exceed the SCAQMD significance thresholds, this project is considered by the SCAQMD to be cumulatively considerable, despite the potential operation of any of the identified Basin-wide cumulative projects.~~

**Significance Level Before Mitigation: Potentially significant.** Operation of the cumulative projects along with the pProject would result in potentially significant cumulative airhealth risk impacts.

**Mitigation Measures:** The mitigation measures previously identified in Section 4.3 are required (**Mitigation Measures 4.1.6.1A, 4.3.6.2A, 4.3.6.2B, 4.3.6.2D, 4.3.6.3A, 4.3.6.3B, 4.3.6.3C, 4.3.6.3D, and 4.3.6.3E**) to reduce construction and operational emissions of criteria pollutants would reduce the estimated cancer risks associated with the project. Additionally, **Mitigation Measure 4.3.6.5A** is required to ensure that significant health risk does not occur at on-site residential receptors.

**Significance Level After Mitigation: Significant and unavoidable.** ~~The cancer risks are substantially lower. Project cancer risks are reduced after implementation of mitigation. However, the SCAQMD cancer risk and cancer burden significance threshold would not be exceeded in any areas outside of the project boundary at sensitive receptor locations within the cumulative HRA study area. The large reduction in cancer risk after mitigation is attributable principally to the reduced diesel PM associated with the commitment to Tier 4 construction equipment. The impact of this mitigation is largely felt during the first 3 to 5 years of construction when the "Current OEHHA Guidance" assigns large age sensitivity factors to the first few years of the 30-year exposure duration. The cancer risk value at all sensitive receptor locations will be below the significance threshold after mitigation, the cancer risk impact to sensitive receptors will therefore be less than significant and not result in a cumulatively considerable impact. Therefore, the cancer risk impact to sensitive receptors and cancer burden to general population will be cumulatively significant and unavoidable. As discussed in Section 4.3, the Project impacts would be reduced to less-than-significant levels after implementation of mitigation. However, because the Project would result in an increase in cancer risk of 9.1 under construction + operations and 7.1 30-year operations, the Project contribution would be cumulatively considerable.~~

**6.3.3.8 Cumulative Health Effects**

Tables 6.3-9 and 6.3-10 below show the estimated annual percent of background health incidence for PM2.5 and Ozone health effects associated with cumulative projects (including the unmitigated Project). When taken into context, the small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment.

**Table 6.3-9: Estimated Annual PM<sub>2.5</sub> Health Effects of Cumulative Project Emissions**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.16%	130,805

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Mortality, All Cause [30-99]	0.14%	325,048
Hospital Admissions, Asthma [0-64]	0.09%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.02%	224,047
Hospital Admissions, All Respiratory [65-99]	0.05%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.06%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.07%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.06%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.06%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.06%	40,966
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets. Source: Ramboll, 2019		

Potential PM<sub>2.5</sub>-related health effects associated with increases in ambient air concentrations estimated from cumulative Projects (including the unmitigated Project) include asthma-related emergency room visits (204 incidences per year), asthma-related hospital admissions (16 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (44 incidences per year), all respiratory-related hospital admissions (98 incidences per year), mortality (467 incidences per year), and nonfatal acute myocardial infarction (less than 24 incidences per year for all age groups).

**Table 6.3-10: Estimated Annual Ozone Health Effects of Cumulative Project Emissions**

<u>Health Endpoint<sup>2</sup></u>	<u>Annual Percent of Background Health Incidence (%)</u>	<u>Background Health Incidence (Annual)</u>
Hospital Admissions, All Respiratory [65-99]	0.02%	193,354
Mortality, Non-Accidental [0-99]	0.01%	210,692
Emergency Room Visits, Asthma [0-17]	0.31%	50,722
Emergency Room Visits, Asthma [18-99]	0.23%	80,084
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets. Source: Ramboll, 2019		

Potential ozone-related health effects associated with increases in ambient air concentrations estimated from cumulative Projects (including the unmitigated Project) include respiratory-related hospital admissions (33 incidences per year), mortality (16 incidences per year), and asthma-related emergency room visits for any age range (lower than 188 incidences per year for all age groups).

**Uncertainty.** Analyses that evaluate the increases in concentrations resulting from individual sources, and the health effects of increases or decreases in pollutants as a result of regulation on a localized basis, are routinely done. This analysis does not tie the increase in concentration to a specific health effect in an individual; however, it does use scientific correlations of certain types of health effects from pollution to estimate increases in effects to the population at large.

Aside from the uncertainty as to the causal basis of the statistical associations in air pollution epidemiology studies of PM and mortality, some epidemiological studies have found no correlation between mortality and increased PM (Enstrom, 2005; 2017; Lipfert et al., 2000; Murray and Nelson, 2000; Greven et al., 2011; You et al., 2018; Zhou et al., 2015). Although there are a greater number of publications reporting a positive PM association for mortality compared to those reporting no association.

There is a degree of uncertainty in these results from a combination of the uncertainty in the emissions themselves, the increase in concentration resulting from the PGM and the uncertainty of the application of the C-R increase. All simulations of physical processes, whether ambient air concentrations, or health

effects from air pollution, have a level of uncertainty associated with them, due to simplifying assumptions. The overall uncertainty is a combination of the uncertainty associated with each piece of the modeling study, in this case, the emissions quantification, the emissions model, the PGM, and BenMAP. While these results reflect a level of uncertainty, regulatory agencies, including the USEPA have judged that, even with the uncertainty in the results, the results provide sufficient information to the public to allow them to understand the potential health effects of increases or decreases in air pollution (USEPA 2012).

**NOTE TO READERS:** Section 6.7, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 6.7 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 6.7 replaces the cumulative analysis provided in Section 4.7 of the FEIR prepared in 2015.

## **6.7 Greenhouse Gas Emissions, Climate Change and Sustainability**

Cumulative effects to greenhouse gas (GHG) emissions, climate change and sustainability are described in this section. A summary of the project’s potential impacts related to GHG emissions and consistency with plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs is provided in Section 6.7.1. The cumulative impact geographic area for GHG emissions, climate change, and sustainability issues is provided in Section 6.7.2. The potential cumulative impacts and the project’s contribution to cumulative impacts related to GHG emissions and consistency with plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs are discussed in Section 6.7.3. In addition, a brief summary of the impact significance of the project’s contribution to cumulative impacts for each issue is also provided in Section 6.7.3 as well as applicable mitigation measures and significance determination after mitigation. Cumulative emissions calculations are included as Appendix A.3 of this Draft Recirculated RSFEIR.

The land use assumptions for the identified cumulative projects were taken from either the project-specific information contained in the associated cumulative project CEQA documents, the City of Moreno Valley General Plan, and/or the SCAG Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) 2040 regional population and employment forecasts for all areas outside of the City of Moreno Valley. Where project-specific information was available for the cumulative projects, it was incorporated into the cumulative impact analysis. Where project-specific information was not available, the underlying General Plan or SCAG RTP/SCS land use designations were used. Where project-specific and planned cumulative project land uses were inconsistent, the more intense land use was utilized. Within Moreno Valley, the cumulative analysis assumed build-out of the City’s General Plan except for locations where other past, present, and reasonably foreseeable projects were identified, in which case those were used instead. Because it is unlikely that the city will fully build out by ~~2040~~2035, the cumulative impact analysis assumes worse case cumulative development than is likely to occur and is therefore conservative in the sense that it would over-state cumulative impacts.

The cumulative projects identified in Table 6.7-1 and their respective CEQA documents have been reviewed and evaluated in conjunction with the project to determine if they would contribute to a cumulatively considerable impact to greenhouse gas emissions, climate change and sustainability. These potentially cumulative impacts are documented in the following section.

### **6.7.1 Project Impact Findings**

The project’s effects on greenhouse gas emissions, climate change, and sustainability are summarized in this section, and the impacts have been evaluated against the following thresholds that were developed based on the CEQA Guidelines Appendix G thresholds, as modified to address potential project impacts. After each threshold, a significance determination for the project impacts (~~see Section 4.7 of the Revised Sections of the FEIR~~) is provided as well as a reference to the specific section and impact number if the impact determination is significant.

Could the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., exceeds the SCAQMD’s 10,000 mt CO<sub>2</sub>e emissions screening threshold of significance); **Less than Significant with Mitigation, Section 4.7.6.1.**
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. **Less than Significant with Mitigation, Section 4.7.6.2.**

As shown, there are no unmitigated project-specific significant and unavoidable impacts to greenhouse gas emissions identified in the revised FEIR Section 4.7 of this Draft Recirculated RSFEIR.

### **6.7.2 Geographic and Temporal Scope**

CEQA requires that lead agencies consider the cumulative impacts of GHG emissions from even relatively small (on a global basis) increases in GHG emissions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and therefore significant. In the case of global climate change, the proximity of the project to other GHG emission generating activities is not directly relevant to the determination of a cumulative impact because climate change is a global condition. GHG emission impacts are, by their very nature cumulative, as both the California Natural Resources Agency and CAPCOA have recognized. In addition, the California Supreme Court agrees that GHG emissions are global.

For purposes of this analysis, the cumulative impact geographic area for GHG emissions is based on the limits set forth in the cumulative traffic analysis conducted by the project. This area includes the entire City of Moreno Valley and portions of the Cities of Riverside, Redlands, Beaumont, Perris, San Jacinto, Hemet and Calimesa, as well as portions of unincorporated Riverside and San Bernardino County, and the March JPA. The primary sources of GHG emissions from this project would be related to energy consumption in buildings and related uses (lighting for streets and parking lots, etc.) and in the transport of goods by future tenants. Regulations applicable to the GHG-intensity of power and petroleum production in California are promulgated at the state level. Regulations, policies, and plans to reduce GHGs potentially applicable to the project are adopted by the State of California, regional governmental agencies (such as SCAG and SCAQMD), and local governments, in support of State laws AB32 and SB32.

As part of the GHG cumulative analysis a review of available environmental documents for projects within the Project vicinity was conducted. Approximately ~~360359~~ projects have been identified and in the vicinity of the Project and are listed in Table 6.7-1. ~~Out of those 360359 projects, approximately 162173 environmental documents were available. All 162173 were reviewed to identify project specific GHG analyses quantitative emissions for construction and operation of the respective projects; however, not all environmental documents contained emissions for construction and operation. Emissions from all of the identified cumulative projects were calculated based on available information and methodologies. Out of the 162 environmental documents that were reviewed, 84 were completed in 2008 or earlier, prior to the requirements of AB32 and the mandatory reporting rules for significant sources of GHG emissions. Therefore, those 84 documents did not provide GHG analyses. Out of the 78 documents that were completed after the year 2008, 24 environmental documents provided a GHG analysis. Despite not having a GHG analysis from all 360 cumulative projects, a determination on the project's cumulative impact could still be determined based on the AQMD's strategies in assessing a cumulatively considerable impact, where projects that exceed the project specific significance thresholds are considered by the SCAQMD to be cumulatively considerable.~~<sup>4</sup>

Detailed research was conducted to identify as much information on the remaining projects that did not have environmental documents with construction and operational emissions available. However, complete project descriptions, detailed construction schedules, and any operational efficiencies were not available for every single project within the cumulative analysis limits. Therefore, with the information that was accumulated, modeling was conducted, utilizing CalEEMod and EMFAC2017 default factors, to estimate construction and operational emissions generated from these cumulative projects. The same methodologies used to calculate air quality emissions were also used to calculate GHG emissions, see Section 6.3.2.

<sup>4</sup> South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution, White Paper, Appendix D, 1993, <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf?sfvrsn=4>. Accessed July 2017.

The projects located within the cumulative GHG emissions, climate change and sustainability impact area are shown in Figure 6.7-1 and listed in Table 6.7-1.



**Table 6.7-1: Greenhouse Gas Emissions, Climate Change and Sustainability Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
B-3	Heartland	Per the City of Beaumont Planning Department's 1994 EIR, the Heartland Specific Plan would develop low and medium density housing, and supporting land uses on 417.2 acres. The project would have a significant impact on GHG emissions.
B-4	Hidden Canyon	Per the City of Beaumont Planning Department's 2004 EIR, the Hidden Canyon EIR Addendum to the Beaumont Gateway Specific Plan would result in the development of 426 residential units, commercial space and open space on 196.5 acres. The project would have a significant impact on GHG emissions.
B-5	ProLogis/Rolling Hills Ranch Industrial	Per the City of Beaumont Planning Department's 2004 EIR, the Second Amendment to the Rolling Hills Ranch Specific Plan would change the 152.9 acre property's General Plan land use designation from low density residential to Business Park. The project would have no significant impacts on GHG emissions.
B-7	Kirkwood Ranch (#14)	Per the City of Beaumont Planning Department's 1990 EIR, the Kirkwood Ranch Specific Plan would develop 470 single family detached units and 60 multi-family units on a 128-acre site. The project would have a significant impact on GHG emissions.
B-9	Sundance (#17)	Per the City of Beaumont Planning Department's 2004 EIR, the Sundance Specific Plan Amendment to the Deutsch Specific Plan would result in the development of 1,968 single family units, 2,208 homes, and 540 condo units, commercial space, and supporting land uses on 1,195 acres. The project would have a less than significant impact on GHG emissions.
B-10	Tract No. 32850 (#39)	Per the City of Beaumont Planning Department's 2005 ND, the Tract Map 32850 would divide a 29.09 acre parcel into 103 single family residential lots. The project would have a less than significant impact on GHG emissions.
B-11	San Geronio Village, Phase 2 (#45)	Per the City of Beaumont Planning Department's 2007 MND, the San Gregorio Village Specific Plan would provide for the development of approximately 225,000 square feet of commercial and restaurant uses on approximately 23 acres. The project would have a less than significant impact on GHG emissions.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
B-12	Beaumont Commercial Center	Per the City of Beaumont Planning Department's 2016 IS, the Beaumont Commercial Center would provide for the development of five commercial buildings with 58,603 square feet of retail, service, and restaurant uses. The project would have a less than significant impact on GHG emissions.
B-14	Potrero Creek Estates (#26)	Per the City of Beaumont Planning Department's 1988 EIR, the Potrero Creek Estates Specific Plan would result in the residential development of 1,028 single family lots on 737 acres. The project would have no impact on GHG emissions.
H-3	Tres Cerritos Specific Plan	Per the City of Hemet's NOC, the project proposes to develop 178 single family homes on 51.2 acres. The project would have a less than significant impact on GHG emissions.
H-4	Sanderson Square	Per the City of Hemet's 2006 IS, the Sanderson Square Specific Plan would result in the development of commercial and industrial uses on approximately 45 acres. The project would have a potentially significant impact on air quality.
H-5	McSweeney Farms Specific Plan	Per the City of Hemet's 2003 excerpt of an EIR, the McSweeney Farms Properties Specific Plan would result in the construction of 2,482 residential units within 442 acres. The EIR provides no information on GHG.
H-6	Ramona Creek Specific Plan	Per the City of Hemet's 2014 EIR, the Ramona Creek Specific Plan and General Plan Amendment would result in the development of a multiple use commercial and residential community. The project would have a less than significant impact on GHG emissions with mitigation incorporated.
H-7	Peppertree Specific Plan	Per the City of Hemet's 2003 ISMND, the Peppertree Specific Plan would result in the development of 456 residences, and recreational spaces of 79.2 acres. The project would have a less than significant impact on GHG emissions.
H-9	Pulte Del Web (TTM 31807 and 31808)	Per the City of Hemet's 2005 SEIR, the Tentative Tract Map 31807, Tentative Tract Map 31808, and Specific Plan Amendment SPA 04-1 would result in the amendment of a land use plan for a 10 acre site from commercial to high medium density residential and the division of 154.77 acres into 611 residential lots, an adult community center, and open space. The project would have a less than significant impact on GHG emissions.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
H-10	Downtown Hemet Specific Plan	Per the City of Hemet's 2017 ISMND, the proposed Downtown Hemet Specific Plan is a comprehensive plan that features a land use plan, circulation plan, urban design framework, utility infrastructure plan, development standards, design guidelines, and sustainability plan for future development within a 360-acre area in downtown Hemet. The project would have a less than significant impact on GHG emissions.
M-2	Meridian Business Park Phases I and II	Per the March Joint Powers Authority's 2017 EIR, the project would result in the development of a 130-acre business park. The project would have significant impacts on GHG emissions associated with consistency with the SCAG RTP/SCS and SB 375.
M-8	March LifeCare Campus Specific Plan	Per the March Joint Powers Authority's 2009 EIR, the project would result in the development of a medical campus on approximately 236 acres. The project would have a less than significant impact on GHG emissions.
M-9	TM 34748	Per the March Joint Powers Authority's 2010 ND, the project proposes to build a 135 single-family residential lot subdivision on 40 acres. The project would have a less than significant impact on GHG emissions.
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	Per the March Joint Power's Authority's draft ND, the project would construct a Retail/Storage Lumber Yard Complex (approximately 67,800 square feet of total building space) on 11.0 acres. The project would have a less than significant impact on GHG emissions.
MV-3	ProLogis	E Per the City of Moreno Valley's September 2014 EIR, this project would develop approximately 2,244,638 square feet of distribution warehouse uses on approximately 122.8 acres. There is a less than significant impact on the GHG in the area with mitigation measures.
MV-4	Westridge Commerce Center	Per the City of Moreno Valley's April 2011 Final EIR, the project would develop approximately 937,260 square feet of light industrial warehouse/ distribution uses and related infrastructure on 55 acres. There is a less than significant impact on the GHG in the area.
MV-7	TR33962 / Pacific Scene Homes	Per the City of Moreno Valley's 2006 ND, the project would subdivide 20 acres into 31 single-family residential lots ranging in size from 20,001 sf to 27,562 sf. There is no impact on the GHG in the area.
MV-8	TR32460 / Sussex Capital	Per the City of Moreno Valley's 2006 ND, the project proposes 57 single family residential lots and 2 detention basins on 36.7 acres. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-9	TR32459 / Sussex Capital	Per the City of Moreno Valley's 2006 ND, the project is for a single family residential tract with 11 lots on 13 acres and is zoned R1. The lots range from 41,024 sq ft to 59,627 sq ft in size. There is no impact on the GHG in the area.
MV-10	TR30998 / Pacific Communities	Per the City of Moreno Valley, the project would subdivide 60 acres into 47 single family lots. There is no impact on the GHG in the area.
MV-11	TR30411 / Pacific Communities	Per the City of Moreno Valley's 2002 Negative Declaration, this project would result in 25 single family homes on 30.02 acres. There is no impact on the GHG in the area.
MV-14	TR32548 / Gabel, Cook & Associates	Per the City of Moreno Valley's November 2005 Negative Declaration, this project would subdivide 36.24 acres for residential purposes. There is no impact on the GHG in the area.
MV-15	TR32218 / Whitney	Per the City of Moreno Valley's May 2005 Negative Declaration, this project would subdivide 17.25 acres for 63 single family homes and open space. There is no impact on the GHG in the area.
MV-16	TR32284 / 26th Corporation & Granite Capitol	Per the City of Moreno Valley's October 2004 Negative Declaration, this project would result in the development of 32 residential lots on 8.77 acres. There is no impact on the GHG in the area.
MV-17	TR31590 / Winchester Associates	Per the City of Moreno Valley's May 2005 Negative Declaration, this project would subdivide 30 acres for 96 single family homes. There is no impact on the GHG in the area.
MV-18	Convenience Store / Fueling Station	Per the City of Moreno Valley's environmental checklist/initial study, this project would develop a gas station (including a 4,000 square foot convenience store and an automated drive through car wash) on 4.17 acres. There is no impact on the GHG in the area.
MV-19	Senior Assisted Living	Per the City of Moreno Valley's environmental checklist/initial study, this project would develop a 98,434 square foot, 139 unit (155 bed) senior assisted living facility on 7.33 acres. There is a less than significant impact on the GHG in the area.
MV-20	Moreno Marketplace	Per the City of Moreno Valley's June 2006 Negative Declaration, this project would develop a 95,905 square foot retail center on 10.46 acres. There is no impact on the GHG in the area.
MV-21	PEN16-0053 Medical Center	Per the City of Moreno Valley's November 2017 MND, this project would develop a medical complex on 18.38 acres. There is a less than significant impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-22	TR36882 (PA15-0010) SFR	Per the City of Moreno Valley's June 2015 MND, this project would subdivide 9.4 acres for 40 residential lots. There is a less than significant impact on the GHG in the area.
MV-24	TM 36436 (PA12-0005)	Per the City of Moreno Valley's December 2012 MND, this project would subdivide 43.52 acres for 159 single family residential lots. There is a less than significant impact on the GHG in the area.
MV-25	TR32142	Per the City of Moreno Valley's June 2004 Negative Declaration, this project would result in the development of 172 multi-family residences on 19.3 acres. There is no impact on the GHG in the area.
MV-27	TR32917 / Empire land	Per the City of Moreno Valley's March 2005 Negative Declaration, this project would result in the development of a 227-unit condominium project on 17.9 acres. There is no impact on the GHG in the area.
MV-28	TR34329 / Granite Capitol	Per the City of Moreno Valley's June 2007 initial study/environmental checklist form, this project would result in the development of 90 condominium units on 10.41 acres. There is no impact on the GHG in the area.
MV-29	TR36340	Per the City of Moreno Valley's April 2005 Negative Declaration, this project would develop a 276-unit condominium complex on 32 acres. There is no impact on the GHG in the area.
MV-30	PA03-0168 TR-31517	Per the City of Moreno Valley's November 2004 Negative Declaration, the project would subdivide 31.71 acres for the development of 83 single-family residential lots. There is no impact on the GHG in the area.
MV-32	TTM 31592 (P13-078) SFR	Per the City of Moreno Valley's March 2014 Negative Declaration/Addendum, the project revises downward the level of previously-approved development. As a result, 115 single-family homes would be built on 64.65 acres within an overall project site of 203.52 acres. There is a less than significant impact on the GHG in the area.
MV-33	TR32645 / Winchester Associates	Per the City of Moreno Valley's December 2004 Negative Declaration, the project would subdivide 20 acres for 53 single family residential lots. There is no impact on the GHG in the area.
MV-34	TR34397 / Winchester Associates	Per the City of Moreno Valley's April 2007 initial study/environmental checklist form, the project would subdivide 19 acres for 50 single family residential lots. There is no impact on the GHG in the area.
MV-35	TR31771 / Sanchez	Per the City of Moreno Valley's April 2006 Negative Declaration, the project would subdivide 9.34 acres for 25 single family residential lots and two water quality basins. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-36	TM 31618 (PA03-0106)	Per the City of Moreno Valley's November 2004 Negative Declaration, the project would subdivide 18.99 acres for 56 single-family residential lots. There is no impact on the GHG in the area.
MV-37	Vogel/PA09-004	Per the City of Moreno Valley's June 2012 EIR, the project would develop approximately 1,616,133 square feet of distribution warehouse uses (including business office space and parking) on approximately 71 acres. There is a less than significant impact on the GHG in the area with mitigation measures.
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	Per the City of Moreno Valley's June 2012 EIR, the project would develop approximately 1,616,133 square feet of distribution warehouse uses (including business office space and parking) on approximately 71 acres. There is a less than significant impact on the GHG in the area with mitigation measures.
MV-41	First Nandina Logistics Center	Based on the City of Moreno Valley's October 2014 Facts, Findings, and Statement of Overriding Considerations, the project would develop approximately 1,371,210 square feet of warehouse uses; 12,000 square feet of office space; and 66,790 square feet of mezzanine space on 72.9 acres. There is a significant and unavoidable impact on the GHG in the area.
MV-42	Indian Street Commerce Center	Per the City of Moreno Valley's 2016 FEIR, the project would prepare the Indian Street Commerce Center Project which proposes approximately 446,350 square feet of light industrial uses within an approximately 19.64-acre site. There is a significant and unavoidable impact on the GHG in the area.
MV-43	Ivan Devries / PA06-0017	Per the City of Moreno Valley's 2007 IS and Environmental Checklist, the project would prepare the IS for a hat will build distribution warehouse buildings totaling approximately 569,200 sf on 28.64 acres of land. There is a less than significant impact on the GHG in the area.
MV-44	Modular Logistics Center (Kearny RE Co)	Per the City of Moreno Valley's 2017 FEIR, the project would prepare an EIR that would redevelop 50.84 acres with one logistic warehouse building containing 1,109,378 sf of building space with 256 loading bays. There is a significant and unavoidable impact on the GHG in the area.
MV-45	Iris Plaza	Per the City of Moreno Valley's IS, the project would construct a 109,289 sq. ft. shopping center on approximately 12.4 acres of land within the Community Commercial (CC) land use district. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-47	PA07-0129 TR 35606 SFR	No environmental documentation was available for review. However, there is a planning commission resolution, which states that the project is not likely to cause substantial environmental impact. The resolution does not specifically mention an impact on the GHG in the area.
MV-48	PA11-001 thru 007, March Business Center (Industrial Area SP)	Per the City of Moreno Valley's Environmental Checklist, the project would prepare an EIR to subdivide 75.05-acre property into four parcels with business center land uses. There is a less than significant impact on the GHG in the area with mitigation measures.
MV-49	PA07-0079/0080/0093, & 0121 and PA08-0018, Indian Business Park, (Industrial Area SP)	Per the City of Moreno Valley's IS and Environmental Checklist, the project would prepare an IS for one 1,560,046 sf warehouse building on a project site that is currently vacant and undeveloped. There is no impact on the GHG in the area.
MV-50	San Michele Industrial Center, (Industrial Area SP)	Per the City of Moreno Valley's 2005 ND, the project would prepare an ND for a 414,533-sf warehouse distribution facility on 17.17-net acre site. There is no impact on the GHG in the area.
MV-51	Nandina Distribution Center IDS	Per the City of Moreno Valley's 2007 IS and Environmental Checklist, the project would prepare an MND to construct a 770,867 square foot industrial building located on the southeast corner of Heacock Street and San Michele Road on approximately 38 acres. There is no impact on the GHG in the area.
MV-52	First Industrial III & IV, (Industrial Area SP)	Per the City of Moreno Valley's 2008 IS and Environmental Checklist, the project would prepare an MND for a project that consists of two industrial buildings with a total of approximately 880,000 square feet of warehouse space. There is no impact on the GHG in the area.
MV-53	I-215 Logistics Center (Amazon)	Per the City of Moreno Valley's IS and Environmental Checklist, the project would prepare a MND for the construction of two (2) distribution warehouse buildings totaling 1,705,000 sf on approximately 76 acres of land. There is a less than significant impact on the GHG in the area.
MV-54	Moreno Valley Logistics Center (Prologis)	Per the City of Moreno Valley's 2017 MMP, the project would prepare MMP for the construction and operation of a logistics center with four (4) buildings and a combined 1,736,180 square feet (sf) of total floor space. There is significant and unavoidable impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-56	Tract Map 33810	No environmental documentation was available for review. However, there is a planning commission resolution that states that the project is exempt from the requirements of CEQA guidelines. It does not specifically mention an impact on the GHG in the area.
MV-57	Tract Map 34151	Per the City of Moreno Valley's 2006 General Plan Resolution, the project would subdivide 8.95 acres into 37 single family lots. There is no impact on the GHG in the area.
MV-58	Tract Map 33024	Per the City of Moreno Valley's 2005 General Plan Resolution, the project would subdivide 2.17 net acres into 8 single family lots. The resolution states that there will be no impact on the environment in the area. It does not specifically mention an impact on the GHG in the area.
MV-59	Tract Map 31442	Per the City of Moreno Valley's 2004 MND, the project would subdivide the 15.8 net acres into 63 single family residential lots. There is no impact on the GHG in the area.
MV-60	Tract Map 36401	Per the City of Moreno Valley's 2012 ND, the project would subdivide 19.4 acre project site and 9 common areas lot to build three types of residential product for a total of 216 dwelling units. There is no impact on the GHG in the area.
MV-61	Walmart & Gas Station	Per the City of Moreno Valley's 2015 FEIR, the project would develop approximately 193,000 square feet of new retail/commercial uses on the approximately 22.28-acre site. There is a less than significant impact on the GHG in the area with mitigation measures.
MV-63	PA14-0053 (TTM 36760) Legacy Park	Per the City of Moreno Valley's 2017 MND, the project would subdivide the 53-acre site into a total of 221 single family residential lots. There is a less than significant impact on the GHG in the area.
MV-65	TR33607 / TL Group	Per the City of Moreno Valley's 2006 ND, the project would complete a 52-unit condominium on 4.28 acres. There is no impact on the GHG in the area.
MV-66	TR34988 / Stratus Properties	Per the City of Moreno Valley's 2007 ND, the project would propose 271 units on 3.75 acres of outdoor recreation area. There is no impact on the GHG in the area.
MV-67	TR32515	Per the City of Moreno Valley's 2005 ND, the project would develop 174 senior single-family residential lots and retain natural open space on a 38.4-acre parcel. There is no impact on the GHG in the area.
MV-68	PA07-0035	Per the City of Moreno Valley's 2009 ND, the project would develop six industrial buildings on 19.14-acre parcel. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-69	PA07-0039, (Industrial Area SP)	Per the City of Moreno Valley's 2009 ND, the project would develop six industrial buildings on 19.14 acre parcel. There is no impact on the GHG in the area.
MV-75	Aqua Bella Specific Plan	Per the City of Moreno Valley's 2005 EIR, the project would develop a gated active-adult community containing 2,922 dwelling units on 685 acres. There is a less than significant impact on the GHG in the area.
MV-78	Overton Moore Properties PA08-0072	Per the City of Moreno Valley's 2008 ND, the project would build a 522,772 square foot industrial warehouse building on 25.96 acres of land. There is no impact on the GHG in the area.
MV-79	Shaw Development	Per the City of Moreno Valley's 2014 IS and Environmental Checklist, the project proposes construction and operation of an approximate 366,698 square foot warehouse on approximately 16.07 acres. There is a less than significant impact on the GHG in the area.
MV-80	PA15-0032 MV Cactus Center	Per the City of Moreno Valley's 2017 IS and environmental checklist, the project proposes to develop a 39,950 sf warehouse building, gas station, car wash, and 3 fast food restaurant on 6.3 acres. There is a less than significant impact on the GHG in the area.
MV-81	Ridge Property Trust, PA07-0147 & PA 07-0157	Per the City of Moreno Valley's 2010 IS and environmental checklist, the project proposed to build a 353,859 sf warehouse distribution building on 16.55 acres in a light industrial zone. There is no impact on the GHG in the area.
MV-84	PA16-0075 Brediaea Business Center	Per the City of Moreno Valley's 2017 IS, the project would develop 8 industrial buildings and 1 future industrial building on 126 acres. There is no impact on the GHG in the area.
MV-85	Retail Center / Winco Foods, PA08-0079/0080/0081	Per the City of Moreno Valley's 2010 ND, the project subdivides 16.9 acres into 6 pads for commercial retail use. There is no impact on the GHG in the area.
MV-86	TR32505 / DR Horton	Per the City of Moreno Valley's 2007 ND, the project would subdivide 18.66 acres into 72 single-family residential lots. There is no impact on the GHG in the area.
MV-88	TR33771 / Creative Design Associates	No environmental documentation was available for review. However, there is a planning commission resolution for a 12-unit condominium complex on approximately 0.9 acres. The resolution states that there is no impact on the environment in the area. It does not specifically mention an impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-89	TR35663 / Kha	No environmental documentation was available for review. However, there is a notice of exemption for a mixed use development on approximately 2.2 acres, which states that there is no evidence of potential for significant environmental impacts. It does not specifically mention an impact on the GHG in the area.
MV-91	TR31305 / Richmond American	Per the City of Moreno Valley's 2004 ND, the project would subdivide 22.9 net acres in the R5 zone into 87 single-family residential lots. A portion of the subject site was previously subdivided as part of Tract Map No. 27251. There is no impact on the GHG in the area.
MV-92	TR 33256	Per the City of Moreno Valley's 2005 ND, the project would subdivide 28.6 net acres in the R5 zone into 99 single-family residential lots. The site backs to SR 60. The Tract's northern boundary will change because of the expansion of Caltrans ROW to complete improvements to the eastbound off ramp. A portion of the site includes approved Tentative Tract Map No. 28504. There is no impact on the GHG in the area.
MV-93	PA14-0042 Edgemont Apartments	Per the County of Riverside's 2001 Final SP/EIR would result in the development of the Oak Valley & SCPGA Gold Course Area. There is a less than significant impact on the GHG in the area.
MV-94	PA15-0002 Box Springs Apartments	Per the City of Moreno Valley's 2015 Addendum to MND SCH No. 2007101131, the project site will consist of the same approx. 12 acres for the proposed 266-unit multi-family residential development which is an increase of 26 units and a modification to the building designs and locations. Mitigation Measures and Conditions Approval from the original project will be included in the modified project. There is a less than significant impact on the GHG in the area.
MV-95	Moreno Beach Marketplace / Lowes	Per the City of Moreno Valley's IS/Checklist, the project proposes to develop 14.2 acres with approximately 11.58 acres remaining vacant. Project includes a total of four applications, GP Amendment, Zone Change, and 2 Master Plot Plans. There is no impact on the GHG in the area.
MV-96	31394 Pigeon Pass, Ltd.	Per the City of Moreno Valley's 2006 ND, the project would subdivide a 46 gross acre site into 78 single-family residential lots within area adjacent to city limits. Applicant is proposing Pre-zoning and a GP Amendment to establish an R3 land use district and request the expansion of the Moreno Valley SOI and annex the project into the City. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-97	32005 Red Hill Village, LLC	Per the City of Moreno Valley's 2005 ND, project includes a tentative tract map to develop a Planned Unit Development consisting of approximately 214 clustered and single-family residential gated community. There is no impact on the GHG in the area.
MV-98	33388 SCH Development, LLC	Per the City of Moreno Valley's 2007 ND, project proposes to subdivide a 19.5 gross acre parcel into a 16 lot single-family residential subdivision. There is no impact on the GHG in the area.
MV-100	32215 Winchester Associates "Scottish Village"	Per City of Moreno Valley's 2006 IS/Environmental Checklist Form, project proposes a planned residential development of 194 residential units on a 26.12-acre site. There is no impact on the GHG in the area.
MV-103	Gateway Business Park	Per the City of Moreno Valley's 2008 IS and environmental checklist, the project would develop a business park consisting of 16 buildings with office, industrial, and warehouse space and associated parking areas on 25.3 acres. There is no impact on the GHG in the area.
MV-106	35304 Jimmy Lee	Per the City of Moreno Valley's 2007 Resolution, the project would develop 12 condominiums with 15 dwelling units on 0.9 acres. The resolution states that the project would be exempt from CEQA guidelines. It does not mention specifically anything about an impact on the GHG in the area.
MV-110	TM 33417	Per the City of Moreno Valley's Environmental Checklist, the project would propose a 60-unit condominium complex on 7.40 acres. There is no impact on the GHG in the area.
MV-111	35769 Michael Chen	Per City of Moreno Valley Planning Commission Resolution 2009-21, this tentative tract map is for a 16-unit condominium complex on 1.21 acres. The resolution states that there is no impact on the environment in the area. It does not specifically mention an impact on the GHG in the area.
MV-112	PA09-0006 Jim Nydam	Per City of Moreno Valley Planning Commission Resolution 2009-25, this project would result in the development of a 15-unit affordable housing project on 1.57 acres. The resolution states that the project is exempt from CEQA guidelines. It does not specifically mention an impact on the GHG in the area.
MV-113	Ironwood Residential	Per the City of Moreno Valley's November 2016 MND, this project would develop 104 single-family home subdivision on approximately 75 acres, including open space, a park, trails, streets, utility improvements, and related infrastructure. There is a less than significant impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
MV-114	Stoneridge Town Centre – Vacant Restaurant	Per the City of Moreno Valley's March 2006 Negative Declaration, this project would subdivide a 55.45-acre parcel into 25 individual parcels to be developed as 563,328 square feet of commercial uses. There is no impact on the GHG in the area.
MV-116	31621 Peter Sanchez	Per the City of Moreno Valley's Checklist form, this project would subdivide 3.1 acres to be developed as 12 single family homes. There is no impact on the GHG in the area.
MV-117	Riverside County Office Building	Per the City of Moreno Valley's September 2014 Negative Declaration, this project would develop a 52,250 square foot office building and 342 parking spaces on 5.8 acres. There is no impact on the GHG in the area.
MV-118	28860 Professor's Fun IV, LLC/Winchester Associates, Inc.	Per the City of Moreno Valley's December 2003 checklist form, this project would subdivide 46.16 acres for nine single family homes. There is no impact on the GHG in the area.
MV-119	32126 Salvador Torres	Per the City of Moreno Valley's November 2007 Negative Declaration, this project would subdivide 9 acres for 35 single family homes. There is no impact on the GHG in the area.
P-2	TR34716	Per the City of Perris' 2013 FEIR, the project involves the construction and operation of up to 600,000 gross square feet (gsf) of light industrial/warehouse uses. The project would have a less than significant impact on GHG emissions.
P-4	Bookend	Per the City of Perris' 2015 MND, the project proposed to subdivide an existing vacant parcel into five new industrial parcels with a total building area of 165,000 sf. The project would have less than significant impacts on GHG emissions.
P-5	Markham East	Per the City of Perris's June 2007 Notice of Determination, the project would develop 462,692 square feet of light industrial warehouse/distribution uses in a single building with associated roadway and utility infrastructure and landscape improvements on 22.25 acres. The project would have less than significant impacts on GHG emissions.
P-7	Duke Warehouse	Per the City of Perris's Facts, Findings and Statement of Overriding Considerations, the project would redesign a large portion of the northern part of the City with broad categories of compatible commercial and industrial uses on 34.57 acres. Uses would include a 668,681 square foot industrial/warehouse building that includes 19,200 square feet of office space. The project would have less than significant impacts on GHG emissions with mitigation.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
P-8	First Perry Logistics Project	Per the City of Perris's November 2017 Notice of Determination, the project would develop a 236,961 square foot industrial building on 11.06 acres. The project would have less than significant impacts on GHG emissions.
P-10	IDS	Per City of Perris 2005 Final EIR would result in the Perris Warehouse/Distribution Facility Project. The project would have a potentially significant impact on air quality.
P-11	Ridge II	Per the City of Perris 2007 NOC and Environmental Doc Transmittal, project proposes a new industrial warehouse use, incorporating approximately 2 million square feet of building area in two structures. The project would have a significant impact on GHG emissions.
P-12	Starcrest, P011-0005; 08-11-0006	Per the City of Perris Final EIR, the proposed project is the expansion of an existing internet/mailorder fulfillment facility to an adjacent property. The existing Starcrest building is approximately 232,215 square feet in size. The expansion would include a 454,008-sf building north of and adjacent to Starcrest's existing facility. The project would have a less than significant impact on GHG emissions.
P-14	Rados Distribution Center	Per the City of Perris 2010 Final EIR, proposed project is an approximately 1,191,080 sq ft distribution center on approximately 61.63 gross acres. The project would have cumulatively significant impacts to GHG emissions.
P-15	Duke Perris Logistics Center I	Per the City of Perris 2017 Final EIR, the project would result in the Duke Warehouse at Indian Avenue and Markham Street. The project would have a significant impact on GHG emissions.
P-16	Perris Ridge Commerce Center I	Per the City of Perris' 2007 excerpt of an EIR, the project proposes the establishment of a new industrial warehouse use, incorporating approximately 2 million square feet of building area in two structures on 91 acres. The project would have a potentially significant impact on GHG emissions.
P-18	P07-07-0029	Per the City of Perris' 2009 EIR, the project proposed to construct a 1,608,322-sf industrial complex comprised of five buildings on 92.3 acres. The project would have a significant impact on GHG emissions.
P-19	P05-0192	Per the City of Perris' 2006 EIR, the project proposed development of an approximately 700,000 square foot industrial building on a 40-acre. The project would have a significant impact on GHG emissions.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
P-20	P05-0113	Per the City of Perris' 2009 EIR, the project proposed subdividing the site into five legal parcels, four of which would be developed with industrial/warehouse buildings for a total of 1,750,000 sf. The project would have a less than significant impact on GHG emissions with mitigation.
P-21	P07-09-0018	Per the City of Perris' 2008 IS, the project proposed the development of a 173,000 sf industrial building on 8.7 acres. The project would have a less than significant impact on GHG emissions.
P-22	NICOL	Per the City of Perris' 2016 IS/MND, the project proposed a 380,000 sf warehouse building on 21.63 acres. The project would have a less than significant impact on GHG emissions. The project would have a less than significant impact on GHG emissions.
P-23	Westcoast Textiles	Per the City of Perris' 2016 IS, the project proposed construction of a 187,850 sf industrial/manufacturing building on 9 acres. The project would have a less than significant impact on GHG emissions.
P-24	Optimus Logistics Center 1	Per the City of Perris' 2016 EIR, the project proposed to construct a high-cube warehouse consisting of two buildings totaling 1,455,781 sf on 68.99 acres. The project would have a significant impact on GHG emissions.
P-25	Optimus Logistics Center 2	Per the City of Perris' 2015 EIR, the project proposed construction of warehouse development site encompassing 1,037,811 square feet in two buildings on 48.4 acres. The project would have a less than significant impact on GHG emissions.
P-26	Duke Warehouse	Per the City of Perris' 2017 IS, the project proposed construction and operation of approximately 811,620 square feet (sf) of industrial high-cube, non-refrigerated warehouse/distribution uses on the approximate 37.3-acre site. The project would have a potentially significant impact on GHG emissions.
P-27	Perris DC (Industrial Property Trust)/Integra	Per the City of Perris' 2014 EIR, the project proposed construction and operation of up to 864,000 square feet (sf) of industrial warehouse/distribution uses on the approximate 43.2-acre site. The project would have a significant impact on GHG emissions.
P-28	Duke Warehouse	Per the City of Perris' 2017 IS, the project proposed construction and operation of approximately 1,189,860 square feet (sf) of high-cube warehouse/distribution uses on the approximate 55-acre Project site. The project would have a significant impact on GHG emissions.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
P-30	Avelina	Per the City of Perris' 2003 IS, the project proposed to increase residential density on a 158.2 acre property to 475 dwelling units. There is a less than significant impact on the GHG in the area.
P-31	Perris Family Apartments	Per the City of Perris' 2013 IS, the project proposed to construct a 75-unit multi-family apartment complex on 7 vacant acres. There is a less than significant impact on the GHG in the area with mitigation measures.
P-32	Lewis Retail Center	Per the City of Perris' 2009 IS, the project proposed to construct 643,000 sf of commercial shopping center on 68 acres. There is a potentially significant impact on the GHG in the area.
P-35	Verano Apartments	Per the City of Perris' 2013 IS, the project proposed increasing the number of residential units from 19 to 40 and reducing the commercial component from 17,000 sq. ft. to 1,000 sq. ft. for retail and to allow a 2,000 sq. ft. day care facility. There is a less than significant impact on the GHG in the area.
P-37	Cabrillo	Per the City of Perris' Initial Study, the project proposed to amend the General Plan (GP) and Zoning designation of approximately 36.21 acres of land from R-6,000 to MFR-14 Residential, along with a Text Amendment to narrow the lot frontage from 50 feet to 45 feet for lots greater than 4,500 square feet to facilitate the entitlement of Tentative Tract Map (TTM) 36343, a 184 lot residential subdivision. There is a less than significant impact on the GHG in the area.
P-58	Jordan Distribution	Per the City of Perris's June 2008 Notice of Determination, the project would develop a 378,521 square foot tilt-up industrial building for warehouse distribution uses on 17.4 acres. The project would have a less than significant impact on GHG emissions.
R-1	Sycamore Canyon Business Park – Bldgs 1&2	Per the City of Riverside's January 2017 Final EIR, the project would develop approximately 1.43 million square feet of business park uses on approximately 920 acres. There is a less than significant impact on the GHG in the area with mitigation measures.
R-2	Alessandro Business Center (Western Realco)	Per the City of Riverside's February 2015 Addendum to the Final EIR, the project would develop 662,018 square feet of industrial warehouse uses on 36.7 acres. There is no impact on the GHG in the area.
R-3	P07 1028, 0102; and P09 0416, 0418, 0419	Per the City of Riverside's December 2009 Final EIR, the project would develop a 36.91 acre business park development for light industrial, warehouse distribution, and office uses on 80.07 acres. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
R-4	Quail Run	Per the City of Riverside's January 2016 Initial Study, the project would develop a 13-building apartment complex on approximately 16 acres of a 30.9 acre site that also would include parking structures and spaces, and open space. There is a less than significant impact on the GHG in the area.
R-5	Canyon Springs Healthcare Campus Specific Plan	Per the City of Riverside's July 2017 Draft EIR, the project would develop a healthcare campus on 50.85 acres, including an approximately 234-unit senior housing facility; approximately 310,200 square foot (267-unit, 290-bed) independent living/memory care, assisted living, and skilled nursing facility; an approximately 324,000 square foot (180-bed) hospital; approximately 22,000 square foot central energy plant; approximately 70,000-square foot medical office building; an additional 300,000 square foot of medical office building uses with retail; multiple multi-level parking structures; and an approximately 180,000 square foot (100-bed) hospital addition. A helipad/helistop also is proposed. There is a less than significant impact on the GHG in the area with mitigation measures.
R-16	Sycamore Canyon Specific Plan	Per the City of Riverside's 1993 amended Specific Plan/EIR, the Sycamore Canyon Business Park Specific Plan describes a planned industrial park consisting of approximately 920 acres of industrial and commercial uses within a 1,400 acre project area. Approximately 480 acres of the total 1,500-acre Sycamore Canyon Wilderness Park is located within the Plan area. There is a major impact on the Air emissions/quality. It does not specifically mention an impact on the GHG in the area.
RC-5	Villages of Lakeview Residential/Commercial Development	Per Riverside County's August 2016 Draft EIR, the Villages of Lakeview project proposes a master-planned community comprised of approximately 2,800 acres in the Lakeview/Nuevo area of Riverside County. Proposed land uses within the Specific Plan include a wide range of residential products, mixed uses, retail, schools with joint use parks, public and private amenities, an array of parks, trails, open space, roads, and other infrastructure. Existing infrastructure such as water, sewer, storm drain, and roadways will also be expanded as part of the Villages of Lakeview project. There is a significant and unavoidable impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
RC-9	Oleander Business Park, PP20600	Per what appear to be public meeting slides presenting information about Riverside County's May 2008 Final EIR for this project, the project would subdivide approximately 68.8 acres to develop approximately 1,206,710 square feet of industrial buildings. The slides do not specifically mention an impact from the GHG in the area. However, it is important to note that GHG is excluded from the slide titled: "Significant Impacts not mitigated".
RC-10	Majestic Freeway Business Center, SP 341 / PP21552	Per Riverside County's December 2006 Initial Study, the project would develop 947,000 square feet of light industrial warehouse and distribution uses and a 1.62-acre detention basin on 47.25 acres. There is no impact on the GHG in the area.
RC-11	Alessandro Commerce Center	Per Riverside County's April 2009 screencheck draft EIR, the project would develop 409,000 square feet of warehouse, 42,000 square feet of light industrial, 10,000 square feet of retail/restaurant, and 258,000 square feet of office uses, associated parking, and three detention basins on 54.4 acres. There is no impact on the GHG in the area.
RC-12	Cores Industrial Partners	Per Riverside County's October 2010 ND, the project proposes to bring the Zoning Code into compliance with SB 1627 and to strengthen the development standards for wireless telecommunications facilities in order to ensure high-quality design and compatibility with surrounding uses. There is no impact on the GHG in the area.
RC-13	Sunny Cal Specific Plan (#40)	Per the City of Beaumont's June 2007 Response to Late Comments on the EIR, the project would develop a 907-unit housing project on up to 323.3 acres. There is no impact on the GHG in the area.
RC-34	Emerald Acres SP (SP00381)	Per Riverside County's January 2016 Initial Study, the project would develop the approximately 332.6-acre site as a residential community consisting of a maximum of 355 single family dwelling units on 76.3 acres; 179 multi-family dwelling units on 16.7 acres; 4.88 acres of commercial uses; a community park on 6.8 acres; 209.7 acres of open space; a 0.9-acre sewer lift station; and roadway improvements. There is a potentially significant impact on the GHG in the area.
RC-35	TR34677, TR31100, TR32391, TR33448, TR31101, TR31009, TR32282	Per Riverside County's February 2004 environmental assessment form/initial study, the project would subdivide 6.7 acres of a 71-acre parcel into 8 single family residential lots, a detention basin, and 2.2 acres of open space. There is no impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
RC-37	TR36504	Per Riverside County's IS, the project proposes a Schedule 'A' subdivision of 162.05-acre gross area into 527 single-family residential lots. In addition to 527 residential lots, the subdivision also includes an 8.54-acre lot for a park, a 4.7-acre lot for a detention/debris basin, and an approximately 18-acre open space lot. There is a less than significant impact on the GHG in the area with mitigation measures.
RC-38	San Geronio Crossings	Per Riverside County's May 2017 Recirculated Draft EIR, the project would develop two house high-cube warehouse buildings on an approximately 229-acre site, of which approximately 16 acres are located within the City of Calimesa. Approximately 140.23 acres of the site would be included within the developed portion of the project; 84.8 acres would remain natural open space. There is a less than significant impact on the GHG in the area with mitigation measures.
RD-1	Tract 18988	Per the City of Redlands' June 2015 MND, the project would widen Pioneer Avenue to preserve existing deodar cedar trees along an approximately 1,100 linear foot segment between Texas Street and Furlow Drive. The project also would develop 82 single-family residential lots on 30.51 acres. There is no impact on the GHG in the area.
RD-3	Newland Homes Tract	Per the City of Redlands' March 2018 ISMND, the Project would result in the construction of 105 single-family detached dwelling units and a neighborhood park on 39.84 acres. There is a less than significant impact on the GHG in the area.
RD-4	Redlands Pennsylvania Tract	Per the City of Redlands' March 2018 ISMND, the Project would result in the subdivision of a 24.87-acre project site into 67 residential lots and 10 lots as open space. Additionally, the Project seeks approval to remove 5 acres from an Agricultural Preserve. There is a less than significant on the GHG in the area.
RD-6	Woodsprings Hotel	Per the City of Redlands' March 2018 IS, the Project would result in the construction of a 124-room hotel on a 2.68-acre property. There is a less than significant impact on the GHG in the area.
RD-10	Park Ave Industrial Center	Per the City of Redlands' March 2014 MND, the project would develop approximately 170,000 square feet of light industrial uses, including 289 parking spaces and 12,500 square feet of office space. There is a less than significant impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
RD-11	Marriott Springhill Suites	Per the August 2016 technical memorandum regarding the Trip Generation, Distribution, and Assignment Analysis for the project, the project would develop a four-story 88-room hotel with rooms, suites, and 97 parking spaces. There is a significant cumulative impact on the GHG in the area.
RD-12	I-10 Redlands LC – B	Per the August 2014 letter responding to comments on the proposed MND, the project would develop approximately 1.1 million square feet for warehousing/ fulfillment/distribution center uses on 50.67 acres. There is a less than significant impact on the GHG in the area.
RD-14	Redlands DC 772,000 SF (2015)	Per the City of Redlands' September 2013 MND, the project would develop 771,839 square feet of warehouse distribution center on 35.59 acres and related parking. There is a less than significant impact on GHG in the area.
RD-16	APL Logistics	Per the May 2012 City of Redlands Commission Review and Approval No. 873, the project would develop 809,338 square feet of warehouse uses on 37.4 acres. There is a less than significant impact on the GHG in the area.
SB-1	Redlands Gateway Logistics – B	Per the County of San Bernardino's 2009 IS, the project would result in the construction of 5 two-story structures and 7 single-story structures with a maximum floor area of 216,500 square feet, and a three-story hotel with 180 rooms and a floor area of 80,000 square feet. There is a less than significant impact on the GHG in the area.
SB-2	Redlands Gateway Logistics – A	Per the County of San Bernardino's 2014 IS, the project proposes to subdivide 42.66 acres into 2 lots. Parcel 1 is 14.81 acres and Parcel 2 is 27.85. There is a less than significant impact on the GHG in the area.
SB-3	Prologis #12	Per the County of San Bernardino's 2013 IS, the project would result in a conditional use permit to establish a 593,916 square-foot industrial building to be used as a "high cube" warehouse distribution facility, a tentative parcel map for a one-lot subdivision, and a general plan amendment to change the official land use district from East Valley/General commercial to East Valley/regional industrial on 27.42 acres. There is a less than significant impact on the GHG in the area.
SB-4	Prologis #17	Per the County of San Bernardino's April 2014 MND, the Project would result in the construction of a 777,620 square-foot industrial building and the relocation of an existing telecommunication tower on a 35.98-acre site. There is a less than significant impact on the GHG in the area.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Environmental Document Summary</b>
SB-6	Prologis #8	Per the County of San Bernardino's 2007 IS, the project would result in the construction four industrial buildings to be used a "High Cube" and general warehouse distribution facilities. There is a less than significant impact on the GHG in the area.
SB-7	Sam Redlands Tract	Per the City of Redlands' March 2017 ISMND, the Project would result in the subdivision of an 11.97 acre site into 34 single family residential lots, 4 lettered lots, and the demolition of existing structures. There is a less than significant impact on the GHG in the area.
SB-8	Jacinto Tract	Per the City of Redlands' July 2016 ISMND, the Project would result in the subdivision of an 18.54 acre site into 40 residential lots. There is a less than significant impact on the GHG in the area.
SJWA-1	San Jacinto Wildlife Land Management Plan	Per the California Department of Fish and Wildlife's 2017 Draft PEIR, the project involves the proposed Land Management Plan (LMP) for the approximately 20,126 acre San Jacinto Wildlife Area. Public uses that would continue to be permitted under the draft LMP include waterfowl and upland small game hunting, bird watching, hiking, hunting dog training, fishing, horseback riding, nature study, photography, and mountain biking. There is a less than significant impact on the GHG in the area.

**Table 6.7-1: Greenhouse Gas Emissions, Climate Change and Sustainability Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
B-1	Fairway Canyon SCPGA Tract Nos. 31462, 36558, and 36783 (#29)	SF	3,300 DU
B-10	Tract No. 32850 (#39)	SF	95 DU
B-11	San Gorgonio Village, Phase 2 (#45)	RC	225 KSF
B-12	Beaumont Commercial Center	ME	279 DU
B-13	Four Seasons (#23) Tract Nos. 32260 and 33096	SF	1,890 DU
B-14	Potrero Creek Estates (#26)	SF	700 DU
B-2	Tournament Hills 3, TM 36307	ME	571 DU
B-3	Heartland	SF	922 DU
B-4	Hidden Canyon	LI	1,734 KSF
B-5	ProLogis/Rolling Hills Ranch	HI	2,565.68 KSF
B-6	Mountain Bridge Regional Commercial Planned Commu*	BP	1,853.25 KSF
B-7	Kirkwood Ranch (#14)	SF	403 DU
B-8	Noble Creek Vistas (#10)	SF	648 DU
B-9	Sundance (#17)	SF	4,450 DU
C-1	TTM 33931 Fiesta Oak Valley/Mesa Verde Estates	RC	200 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

C-2	Summerwind Ranch	BP	1,579 KSF
C-2	Summerwind Ranch	BP	1,000 KSF
C-3	JP Ranch	RC	72.7 KSF
H-1	TTM 36841	SF	588 DU
H-10	Downtown Hemet Specific Plan	**	**
H-2	Rancho Diamante	SF	440 DU
H-3	Tres Cerritos Specific Plan	SF	931 DU
H-4	Sanderson Square	LI	734.98 KSF
H-4	Sanderson Square	LI	995.15 KSF
H-5	Mc Sweeny Farms SP	RC	20.90 KSF
H-6	Ramona Creek	RC	680.788 KSF
H-7	Peppertree Specific Plan	SR	358 KSF
H-8	Florida Promenade Residential SP	SF	145 DU
H-9	TTM 31807 / 31808	SR	599 KSF
M-1	Amstar/Kaliber Development PP22925	HI	409.312 KSF
M-10	Airport Master Plan	WH	559 KSF
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	RC	67 KSF
M-2	Meridian Business Park	LI	487.8 KSF
M-3	Meridian Business Park - Phase 3	WH	2,900 KSF
M-4	March Business Center - South Campus	RC	108.9 KSF
M-5	Meridian LNR	OG	232.76 KSF
M-6	Ben Clark Training Facility	BP	219.35 KSF
M-7	Meridian Business Park - Phase K4	WH	675.5 KSF
M-8	March LifeCare Campus Specific Plan	MO	2,930 KSF
M-9	TM 34748	SF	135 DU
MV-1	Auto Mall SP	RC	304.5 KSF
MV-10	TR30998 / Pacific Communities	SF	47 DU
MV-100	Scottish Village	ME	194 DU
MV-101	Restaurant	RC	9 KSF
MV-102	Moreno Valley Professional Center	OG	84 KSF
MV-103	Gateway Business Park	LI	184 KSF
MV-104	373K Industrial Facility	WH	373.03 KSF
MV-105	35369 Tason Myers Property	ME	12 DU
MV-106	35304 Jimmy Lee	ME	12 DU
MV-107	32711 Isaac Genah	SF	9 DU
MV-108	O'Reilly Automotive	RC	2.97 KSF
MV-109	Quail Ranch	SF	1,105 DU
MV-11	TR30411 / Pacific Communities	SF	24 DU
MV-110	TM 33417	ME	60 DU
MV-111	35769 Michael Chen	ME	16 DU
MV-112	PA09-0006 Jim Nydam	ME	15 DU
MV-113	Ironwood Residential	SF	144 DU
MV-114	Stoneridge Town Centre - Vacant Restaurant	RC	5.7 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-115	Olivewood Plaza - Office Building	OG	0.02 KSF
MV-116	31621 Peter Sanchez	SF	25 DU
MV-117	MV-101	OG	52 KSF
MV-118	28860 Professor's Fun IV	SF	9 DU
MV-119	32126 Salvador Torres	SF	35 DU
MV-12	Moreno Medical Campus	MO	80 KSF
MV-120	Moreno Valley Shopping Center	RC	189.52 KSF
MV-121	Yum Donut Shop	RC	4.35 KSF
MV-122	Centerpointe Business Park	**	**
MV-123	Rancho Belago Plaza - Retail	RC	14 KSF
MV-124	Alessandro & Lasselle	RC	140 KSF
MV-125	32756 Jimmy Lee	MF	24 DU
MV-126	TTM 33222	SF	235 DU
MV-13	Cresta Bella	OG	30 KSF
MV-14	TR32548 / Gabel, Cook & Assoc	SF	107 DU
MV-15	TR32218 / Whitney	SF	63 DU
MV-16	TR32284 / 26th Corporation & Granite Capitol	SF	32 DU
MV-17	TR31590 / Winchester Associates	SF	96 DU
MV-18	Convenience Store / Fueling Station	RC	5.5 KSF
MV-19	Senior Assisted Living	SR	139 KSF
MV-2	TR35823 / Stowe Passco Devel.	SF	262 DU
MV-20	Moreno Marketplace	RC	93.79 KSF
MV-21	PEN16-0053 Medical Center	MO	80 KSF
MV-22	TR36882 (PA15-0010) SFR	SF	40 DU
MV-23	PEN16-0129/0130 MV Ranch Apartments	MF	417 DU
MV-24	TM 36436 (PA12-0005)	SF	159 DU
MV-25	TR32142	SF	81 DU
MV-26	TR 30268 (PA01-0072) Pacific Communities	SF	100 DU
MV-27	TR32917 / Empire land	MF	54 DU
MV-28	TR34329 / Granite Capitol	MF	90 DU
MV-29	TR36340	SF	275 DU
MV-3	ProLogis	WH	1,901 KSF
MV-30	PA03-0168 TR 31517	SF	83 DU
MV-31	PA15-0034 TR 36983	SF	53 DU
MV-32	TTM 31592 (P13-078) SFR	SF	115 DU
MV-33	TR32645 / Winchester Assoc	SF	54 DU
MV-34	TR34397/Winchester Assoc	SF	52 DU
MV-35	TR31771 / Sanchez	SF	25 DU
MV-36	TM 31618 (PA03-0106)	MF	56 DU
MV-37	Vogel /PA09-004	HI	1,616.13 KSF
MV-38	Vogel Properties	LI	434 KSF
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	LI	1,600 KSF
MV-4	Westridge Commerce Center	LI	937.26 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-40	PEN17-0036 Warehouse	WH	98.40 KSF
MV-41	First Nandina Logistics Center	WH	1,450 KSF
MV-42	Indian Street Commerce Center	WH	446.35 KSF
MV-43	Ivan Devries / PA06-0017	HI	555.67 KSF
MV-44	Modular Logistics Center (Kearny RE Co)	WH	1,109.38 KSF
MV-45	Iris Plaza	RC	87.12 KSF
MV-46	Harley Knox/Redlands Development	WH	382.28 KSF
MV-47	PA07-0129 TR 35606 SFR	SF	16 DU
MV-48	PA11-001 thru 007 March Business Center	BP	1484.50 KSF
MV-49	Indian Business Park	BP	1,560.05 KSF
MV-5	P06-158 / Gascon	RC	116.36 KSF
MV-50	San Michele Industrial Center	LI	354.81 KSF
MV-51	PA07-0165 thru 01667 First Industrial I & II	LI	769.32 KSF
MV-52	First Industrial III & IV	LI	878.96 KSF
MV-53	I-215 Logistics Center	WH	1,250 KSF
MV-54	Moreno Valley Logistics Center (Prologis)	WH	1,738 KSF
MV-55	MV Commerce Park II (Alere) - Built before 2012	**	**
MV-56	Tract Map 33810	SF	16 DU
MV-57	Tract Map 34151	SF	37 DU
MV-58	Tract Map 33024	SF	8 DU
MV-59	Tract Map 31442	SF	63 DU
MV-6	Highland Fairview Corporate Park	WH	750 KSF
MV-60	Tract Map 36401	SF	92 DU
MV-61	Walmart & Gas Station	RC	180 KSF
MV-62	Tract Map 22180	SF	543 DU
MV-63	PA14-0053 (TTM 36760) Legacy Park	SF	221 DU
MV-64	TR22180 / Young Homes	SF	87 DU
MV-65	TR33607 / TL Group	ME	52 DU
MV-66	TR34988 / Stratus Properties	ME	251 DU
MV-67	TR32515	SF	161 DU
MV-68	PA07-0035	HI	207.09 KSF
MV-69	PA07-0039 (Industrial Area SP)	HI	409.60 KSF
MV-7	TR33962 / Pacific Scene Homes	SF	31 DU
MV-70	TR32756 / CTK, Inc.	ME	241 DU
MV-71	TR34681 / Perris Pacific Co.	ME	49 DU
MV-72	35861 Frederick Homes	ME	24 DU
MV-73	TR36038 / Alessandro Village Plaza LLC	ME	96 DU
MV-74	TR34216 / Creative Design Assoc	SR	189 KSF
MV-75	Aqua Bella Specific Plan	SR	1,461 KSF
MV-76	Commercial Medical Plaza PA09-0033 thru 0039, and*	RC	311.63 KSF
MV-77	Minka Lighting	LI	533 KSF
MV-78	Overton Moore Properties PA08-0072	LI	520 KSF
MV-79	Shaw Development	WH	367 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

MV-8	<u>TR32460 / Sussex Capital</u>	SF	58 DU
MV-80	<u>PA15-0032 MV Cactus Center</u>	RC	44.3 KSF
MV-81	<u>Ridge Property Trust PA07-0147 &amp; PA 07-0157</u>	WH	700 KSF
MV-82	<u>Centerpointe Bus. Ctr</u>	WH	500 KSF
MV-83	<u>Centerpointe Business Park</u>	LI	356 KSF
MV-84	<u>PA16-0075 Brodiaea Business Center</u>	LI	99.98 KSF
MV-85	<u>Retail Center / Winco Foods</u>	RC	140 KSF
MV-86	<u>TR32505 / DR Horton</u>	SF	71 DU
MV-87	<u>TR31814 / Moreno Valley Investors</u>	MF	60 DU
MV-88	<u>TR33771 / Creative Design Assoc</u>	MF	12 DU
MV-89	<u>TR35663 / Kha</u>	MF	12 DU
MV-9	<u>TR32459 / Sussex Capital</u>	SF	11 DU
MV-90	<u>PEN16-0110 Commercial Pad H</u>	RC	7.31 KSF
MV-91	<u>TR31305 / Richmond American</u>	SF	87 DU
MV-92	<u>TR 33256</u>	SF	99 DU
MV-93	<u>PA14-0042 Edgemont Apartments</u>	MF	112 DU
MV-94	<u>PA15-0002 Box Springs Apartments</u>	MF	266 DU
MV-95	<u>Moreno Beach Market PLace/Lowes</u>	RC	175 KSF
MV-96	<u>31394 Pigeon Pass, Ltd.</u>	SF	78 DU
MV-97	<u>32005 Red Hill Village, LLC</u>	SF	214 DU
MV-98	<u>33388 SCH Development, LLC</u>	SF	16 DU
MV-99	<u>36038 Alessandro Village Plaza, LLC</u>	MF	96 DU
P-1	<u>TR32707</u>	SF	137 DU
P-10	<u>IDS</u>	WH	1,700 KSF
P-11	<u>Ridge II</u>	HI	1,224.99 KSF
P-12	<u>Starcrest P011-0005; 08-11-0006</u>	LI	454.09 KSF
P-13	<u>Ridge</u>	**	**
P-14	<u>Rados Distribution Center</u>	WH	1,200 KSF
P-15	<u>Duke Perris Logistics Center</u>	WH	780.82 KSF
P-16	<u>Perris Ridge Commerce Center I</u>	WH	1,310 KSF
P-17	<u>SRG Perris LC</u>	WH	580 KSF
P-18	<u>P07-07-0029</u>	WH	1,547 KSF
P-19	<u>P05-0192</u>	WH	697.6 KSF
P-2	<u>TR34716</u>	WH	600 KSF
P-20	<u>P05-0113</u>	WH	871.5 KSF
P-21	<u>P07-09-0018</u>	WH	170 KSF
P-22	<u>NICOL</u>	WH	380 KSF
P-23	<u>Westcoast Textiles</u>	WH	180 KSF
P-24	<u>Optimus Logistics Center 1</u>	WH	1,464 KSF
P-25	<u>Optimus Logistics Center 2</u>	WH	1,038 KSF
P-26	<u>Duke Warehouse</u>	LI	811.62 KSF
P-27	<u>Perris DC (Industrial Property Trust)</u>	WH	864 KSF
P-28	<u>Duke Warehouse</u>	LI	670 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

P-29	P06-0411	**	**
P-3	P05-0477	WH	462.3 KSF
P-30	Avelina	SF	492 DU
P-31	Perris Family Apartments	ME	75 DU
P-32	Lewis Retail Center	RC	643 KSF
P-33	Harvest Landing Specific Plan	SF	1,860 DU
P-34	South Perris Industrial Phase 3	WH	3,166.86 KSF
P-35	Verano Apartments	ME	40 DU
P-36	South Perris Industrial Phase 2	WH	3,448.73 KSF
P-37	Cabrillo	SF	183 DU
P-38	Sequoia	SF	223 DU
P-39	South Perris Industrial Phase 1	WH	783.7 KSF
P-4	Bookend	LI	172 KSF
P-40	TR 32041	SF	122 DU
P-41	P 06-0228	LI	149.74 KSF
P-42	TR 31650	SF	61 DU
P-43	TR 31225	SF	57 DU
P-44	TR 33193	ME	94 DU
P-45	P 12-05-0013	ME	75 DU
P-46	P 06-0378	SR	429 KSF
P-47	Park West Specific Plan	SF	521 DU
P-48	TR 33338	SF	75 DU
P-49	TR 31240	SF	114 DU
P-5	Markham East	WH	460 KSF
P-50	P 11-09-0011	RC	80 KSF
P-51	TR 30973	SF	35 DU
P-52	TR 31226	SF	82 DU
P-53	TR 31659	SF	161 DU
P-54	TTM 32708	SF	238 DU
P-55	Perris Marketplace	RC	450 KSF
P-56	PM 34199 / TPM 34697	LI	9.85 KSF
P-57	P 04-0343	WH	41.65 KSF
P-58	Jordan Distribution	HI	378 KSF
P-59	TR 31407	SF	243 DU
P-6	Perris Circle Industrial Park	LI	600 KSF
P-60	Retail on Redlands	RC	4.5 KSF
P-61	TR32707	WH	350 KSF
P-7	Duke Warehouse	LI	1,189.9 KSF
P-8	First Perry Logistics Project	LI	241 KSF
P-9	Aiere	HI	642 KSF
R-1	Sycamore Canyon Business Park - Bldgs 1&2	BP	1,375.17 KSF
R-10	SR-91/ Van Buren Commercial	RC	23.57 KSF
R-11	Citrus Business Park Specific Plan	BP	340.66 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

R-12	Sycamore Canyon Business Park Specific Plan	RC	61.38 KSF
R-13	14601 Dauchy Av. - TM 36370	SF	3 DU
R-14	360 Alessandro Boulevard	RC	3.86 KSF
R-15	Mission Grove Specific Plan	SF	171.70 DU
R-16	Sycamore Canyon Specific Plan	SF	1.53 DU
R-17	5940-5980 Sycamore Canyon Boulevard	MF	275 DU
R-18	Hunter Business Park	LI	9,037.83 KSF
R-19	807 Blaine Street	MF	55 DU
R-2	Alessandro Business Center (Western Realco)	WH	582.77 KSF
R-20	474 Palmyrita Avenue	WH	1,461.45 KSF
R-21	1006 & 1008 Clark Street	SF	15 DU
R-22	3719 Strong Street	SF	9 DU
R-23	1710 Main Street (P12-0717)	RC	8.04KSF
R-24	Downtown Specific Plan	SF	5,000 DU
R-25	P14-0045 thru -0048	MF	208 DU
R-26	Marketplace Specific Plan	LI	943.51 KSF
R-27	2586 University Avenue	RC	3.62 KSF
R-28	2340 Fourteenth Street	SR	134 KSF
R-29	6570 Magnolia Avenue; 3739 & 3747 Central Avenue	RC	3.80 KSF
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	LI	652.02 KSF
R-30	3545 Central Avenue	RC	208.57 KSF
R-31	P08- 0396 / P08-0397 Thru -0399 / TM 35620	MF	36 DU
R-32	Walmart Expansion	RC	22.27 KSF
R-33	5731, 5741, 5761 & 5797 Pickler Street	MF	30 DU
R-34	4247 Van Buren Boulevard	OG	12.17 KSF
R-35	3990 Reynolds Road	MF	102 DU
R-36	Magnolia Garden Condominiums	MF	62 DU
R-37	3705 Tyler Street	RC	6 KSF
R-38	Park Sierra Avenue	RC	3.5 KSF
R-39	Riverwalk Vista Specific Plan	SF	402 DU
R-4	Quail Run	MF	216 DU
R-40	P12- 0019 / P12-0156 / P12-0158	RC	2.4 KSF
R-41	4824 Jones Avenue	OG	23.12 KSF
R-42	Rancho La Sierra Specific Plan	SF	598 DU
R-43	P05-1528 \ P09-0087 \ TM 34509	SF	50 DU
R-44	6465 Sycamore Canyon Boulevard	RC	4 KSF
R-45	P06-0591	OG	37.94 KSF
R-46	Sycamore-Highlands Specific Plan	SF	35.84 DU
R-47	P06-0160 / P06-1281	WH	107.73 KSF
R-48	P06-1408	RC	75.3 KSF
R-49	Canyon Springs Specific Plan	SR	310 KSF
R-5	Canyon Springs Healthcare Campus	MO	500 KSF
R-50	Orangecrest Specific Plan	SF	3.83 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

R-51	P10-0808 / P10-0708	RC	2.36 KSF
R-52	19811 Lurin Avenue	SF	32 DU
R-53	P06-1404 / Lurin Avenue / TM 33482	SF	29 DU
R-54	P06-1396 / Mariposa Avenue / TM 33481	SF	25 DU
R-55	P06-0900 / P08- 0269 / P08-0270 / TTM 32301	SF	20 DU
R-56	Office, Magnon & Panattoni	OG	131 KSF
R-57	SEC Sycamore Canyon Boulevard & Box Springs Road	LI	171.62 KSF
R-58	Canyon / Valley Springs Parkway	RC	2.75 KSF
R-59	Alessandro and Gorgonio	RC	4.05 KSF
R-6	2450 Market Street	ME	77 DU
R-60	Alessandro Bl.	BP	101.58 KSF
R-61	Gless Ranch	RC	425.45 KSF
R-62	6091 Victoria Avenue (P13-0432)	RC	1.83 KSF
R-63	8616 California Avenue (P08-0084; PM 35852)	ME	21 DU
R-64	P13-0389 / TM 36579	SF	5 DU
R-65	P13- 0723; P13-0724; P13-0725; TM 36654	SF	62 DU
R-66	Azar Plaza	RC	6.15 KSF
R-7	2861 Mary Street	RC	56.10 KSF
R-8	5938-5944 Grand Avenue	SR	37 KSF
R-9	Magnolia Avenue Specific Plan	RC	8,777.62 KSF
RC-1	TR35530 / Quail Ranch Specific Plan	SF	1,251 DU
RC-10	Majestic Freeway Business Center	LI	6,200 KSF
RC-11	Alessandro Commerce Center	WH	814 KSF
RC-12	Cores Industrial Partners	LI	423.67 KSF
RC-13	Sunny-Cal Specific Plan (#40)	SF	497 DU
RC-14	University Highlands	ME	320 DU
RC-15	TTM 33410 Box Springs	SF	142 DU
RC-16	Sycamore Canyon Specific Plan	**	**
RC-17	PP 24608	RC	9.28 KSF
RC-18	TR 32406	SF	15 DU
RC-19	CUP 03599	RC	52.80 KSF
RC-2	Jack Rabbit Trail	SF	2,000 DU
RC-20	PP 25699	RC	2.8 KSF
RC-21	CUP 03527	WH	8 KSF
RC-22	TR 30592	SF	131 DU
RC-23	PP 25768	LI	52.45 KSF
RC-24	PP 21144	LI	190.80 KSF
RC-25	PP 16976	LI	85 KSF
RC-26	PM 32699	SF	2 DU
RC-27	Yocum Baldwin	LI	188.70 KSF
RC-28	CUP 03315	RC	5.6 KSF
RC-29	18580 Van Buren Boulevard	RC	8.14 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

RC-3	<u>The Preserve / Legacy Highlands SP - Commercial and Residential</u>	SF	3,412 DU
RC-30	<u>Knox Logistics</u>	WH	1,259.05 KSF
RC-31	<u>PP 23342</u>	LI	180.6 KSF
RC-32	<u>TTM 31537</u>	SF	726 DU
RC-33	<u>TTM 34130</u>	SF	384 DU
RC-34	<u>Emerald Acres SP #381</u>	SF	432 DU
RC-35	<u>TR 34677,31100,32391,33448,31101,31009,32282</u>	OG	80 KSF
RC-36	<u>TR36478, TR36480, PP25219</u>	SF	468 DU
RC-37	<u>TR 36504</u>	SF	562 DU
RC-38	<u>San Gorgonio Crossings</u>	WH	1,823.76 KSF
RC-39	<u>Tract 33869</u>	SF	39 DU
RC-4	<u>Badlands Sanitary Landfill</u>	**	**
RC-5	<u>Villages of Lakeview - Commercial Development and Residential Development</u>	SF	750 DU
RC-6	<u>Rider Business Center (Core 5 Industrial Partners)</u>	BP	600 KSF
RC-7	<u>Nuevo Distribution Center</u>	WH	1,586.65 KSF
RC-8	<u>Trucking DC (Central Freight, LLC)</u>	**	**
RC-9	<u>Oleander Business Park PP20699</u>	OG	34 KSF
RD-1	<u>Tract 18988</u>	SF	82 DU
RD-10	<u>Park Ave Industrial Center</u>	LI	145.26 KSF
RD-11	<u>Marriott Springhill Suites</u>	RC	55.47 KSF
RD-12	<u>I-10 Redlands LC - B</u>	WH	601.29 KSF
RD-13	<u>Ashley Furniture</u>	WH	1,013 KSF
RD-14	<u>Redlands DC 772,000 SF</u>	WH	772 KSF
RD-15	<u>2220 Almond Ave</u>	WH	423 KSF
RD-16	<u>APL Logistics</u>	WH	714.73 KSF
RD-2	<u>Redlands Pioneer Tract</u>	SF	55 DU
RD-3	<u>Newland Homes Tract</u>	SF	103 DU
RD-4	<u>Redlands Pennsylvania Tract</u>	SF	67 DU
RD-5	<u>I-10 Redlands LC - A</u>	WH	500.60 KSF
RD-6	<u>Woodsprings Hotel</u>	RC	48.22 KSF
RD-7	<u>RV Storage Facility</u>	RC	127.75 KSF
RD-8	<u>Liberty Lane Apartments</u>	ME	80 DU
RD-9	<u>Hilton Home2 Suites</u>	RC	43.80 KSF
SB-1	<u>Redlands Gateway Logistics - B</u>	WH	614.33 KSF
SB-2	<u>Redlands Gateway Logistics - A</u>	WH	313.47 KSF
SB-3	<u>Prologis 12</u>	WH	593.56 KSF
SB-4	<u>Prologis 17</u>	WH	777.62 KSF
SB-5	<u>Prologis #13</u>	WH	282 KSF
SB-6	<u>Prologis #8</u>	WH	542.98 KSF
SB-7	<u>Sam Redlands Tract</u>	SF	34 DU
SB-8	<u>Jacinto Tract</u>	SF	40 DU
SJ-1	<u>Gateway Area Specific Plan</u>	RC	1,678.24 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

SJ-2	TR 31886	SF	321 DU
SJ-3	TR 30598	SF	580 DU
SJ-4	TR 32955	SF	613 DU
SJWA-1	San Jacinto Wildlife Land Management Plan	**	**
<u>1</u> BP Business Park <u>   </u> HI Heavy Industrial <u>   </u> LI Light Industrial <u>   </u> MF Multifamily Residential <u>   </u> MO Medical Office <u>   </u> OG General Office <u>   </u> RC Retail/Unspecified Commercial <u>   </u> SF Single Family Residential <u>   </u> SR Senior Residential <u>   </u> WH Warehouse-Logistics  <u>2</u> DU Dwelling Units <u>   </u> KSF Thousand Square Feet  ** Project information not available or planning level document with no direct development proposed.			

**6.7.3 Cumulative Evaluation**

Bearing in mind that CEQA does not require “perfection” but instead “adequacy, completeness, and a good faith effort at full disclosure,” the analysis of project GHG emissions and climate change is based on methodologies and information available at the time this EIR Draft Recirculated RSFEIR was prepared. While information is presented below to assist the public and the City’s decision-makers in understanding the project’s potential contribution to global climate change impacts, the information available to the City is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

**6.7.3.1 Greenhouse Gas Emissions**

*Impact: The project’s contribution to the generation of cumulative greenhouse gas emissions would not be cumulatively considerable.*

Threshold:	Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
------------	--

**Cumulative Impact Analysis**

During construction, the project would emit GHGs mainly from direct sources such as combustion of fuels from worker, vendor, haul vehicles and construction equipment. Section 4.7.6.1 Greenhouse Gas Emissions, found that construction of the project would contribute approximately from ~~41,738~~ 18,783 metric tons of CO<sub>2</sub>e in its first year of construction and up to approximately ~~20,659~~ 23,521 mt CO<sub>2</sub>e per year of construction during the ~~1615~~-year construction period. Over the ~~1615~~-year construction period the project would emit a total of 221,381 mt CO<sub>2</sub>e. The SCAQMD recommends that construction emissions be averaged over a 30-year period. Average over a 30-year period results in approximately ~~7,3797,395~~ mt CO<sub>2</sub>e.

In addition, out of the 359 cumulative projects that were evaluated during preparation of the Revised Sections of the FEIR in 2018, 68 were found to be completed with construction or currently undergoing construction as of November 2019. Therefore, 291 potentially cumulative projects are located within the Basin that could undergo construction activities during the project’s 15-year construction period.

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

The SCAQMD recommends that construction-related GHG emissions be amortized over a project's 30-year lifetime in order to include these emissions as part of a project's annualized lifetime total emissions, so that GHG reduction measures will address construction GHG emissions as part of a project's overall GHG reduction strategies. In accordance with this methodology, the estimated construction GHG emissions have been amortized over a 30-year period and are included in the annualized operational GHG emissions.

Operational or long-term emissions occur over the life of the project. ~~Mobile emissions were calculated using emission factors for the actual year assessed. The motor vehicle and truck emissions for Phase 1 (2018 to 2025) use emission factors for the year 2025, whereas motor vehicle and truck emissions for Phase 2 (2026 to buildout, 2040) use emission factors for the year 2040.~~ CARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32 and SB 32. The program began on January 1, 2012, placing GHG emissions limits on capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 MT CO<sub>2</sub>e per year), and enforcing compliance obligations beginning with 2013 emissions. Vehicle fuels were placed under the cap in 2015, and with the passage of AB 398, the program was extended through 2030. The Cap-and-Trade Program allocates emissions permits across covered entities in each sector. As shown in Section 4.7.6.1 Greenhouse Gas Emissions, the project's unmitigated uncapped emissions at full buildout in 2035 are of approximately 22,854,22,974 mt CO<sub>2</sub>e per year which are over the SCAQMD's significance threshold of 10,000 mt CO<sub>2</sub>e per year.

~~Out of the 24 environmental documents that evaluated GHG emissions, eight (8) documents provided quantitative The quantitative analysis of operation and construction emissions and utilized the SCAQMD's Interim CEQA GHG Significance Thresholds to determine the respective project's level of significance. Significance thresholds for each project were determined based on land use. All eight (8) of the projects that were identified were either residential or commercial projects; therefore, Tier 3 The projects that were identified as either residential or commercial projects are considered part of the SCAQMD's draft threshold for residential/commercial projects, 3,000 mt CO<sub>2</sub>e per year, was used in each of the greenhouse assessments. All eight (8) projects that provided quantitative emissions were found to be less than significant and no cumulative impacts would be generated. Furthermore, the additional 16 projects that provided a qualitative GHG analysis were found to be less than significant and not contribute to a cumulative impact. However, although these 24 projects had less than significant impacts, the geographic cumulative area includes 360 projects, all of which could contribute to a significant cumulative impact. The projects that were identified as industrial/warehouses were compared against a threshold of 10,000 mt CO<sub>2</sub>e for industrial projects. Of the 359 projects analyzed, 94 projects exceeded their given threshold and 261 projects were below threshold. Given that the unmitigated project and 94 of the cumulative projects are over threshold, impacts would be potentially significant and cumulatively considerable. would have a potentially significant impact to GHG emissions prior to the application of mitigation, this project's contribution to cumulative impact ~~is~~ considered to be considerable prior to mitigation.~~

**Significance Level Before Mitigation:** Cumulatively considerable significant impact.

**Mitigation Measures:** As identified in Section 4.7.6.1, **Mitigation Measures 4.7.6.1A, 4.7.6.1B, 4.7.6.1C, 4.7.6.1D, and 4.7.6.1E.1 or 4.7.6.1E.2** are ~~is~~ required to reduce solid waste and greenhouse gas emissions from construction and operation of project development, and the purchase of credits to offset emissions and reach net-zero GHG emissions.

**Significance Level After Mitigation:** ~~Less than significant impact.~~ The ~~p~~Project's mitigated uncapped emissions of total 8,0138,563 mt MTCO<sub>2</sub>e per year at buildout in 2035, would not exceed the SCAQMD's significance threshold of 10,000 mt CO<sub>2</sub>e per year, and would be less than significant. As shown in Table 6.7-2, it is estimated that 94 projects would exceed the applicable numeric threshold, contributing to a potentially significant cumulative impact. When considered with the other projects' ~~less than significant impacts,~~ the ~~p~~Project would not contribute to a significant cumulative impact given that the project would generate uncapped emissions that are less than the 10,000 MTCO<sub>2</sub>e significance threshold.

**Table 6.7-2: Cumulative Annual GHG Emissions**

<b>Project ID</b>	<b>Land Use</b>	<b>Emissions (MTCO<sub>2</sub>e)</b>				<b>Threshold</b>	<b>Impact ?</b>
		<b>Total Construction Emissions</b>	<b>Amortized Construction Emissions</b>	<b>Total Operational Emissions</b>	<b>Total Amortized Construction and Operational Emissions</b>		
<u>B-001</u>	<u>SF Res</u>	<u>183,838</u>	<u>6,128</u>	<u>38,700</u>	<u>44,828</u>	<u>3,000</u>	<u>Yes</u>
<u>B-002</u>	<u>MF Res</u>	<u>0</u>	<u>0</u>	<u>4,793</u>	<u>4,793</u>	<u>3,000</u>	<u>Yes</u>
<u>B-003</u>	<u>SF Res</u>	<u>24,210</u>	<u>807</u>	<u>10,813</u>	<u>11,620</u>	<u>3,000</u>	<u>Yes</u>
<u>B-004</u>	<u>Light Industrial</u>	<u>5,622</u>	<u>187</u>	<u>15,860</u>	<u>16,047</u>	<u>10,000</u>	<u>Yes</u>
<u>B-005</u>	<u>Heavy Industrial</u>	<u>0</u>	<u>0</u>	<u>20,269</u>	<u>20,269</u>	<u>10,000</u>	<u>Yes</u>
<u>B-006</u>	<u>Business Park</u>	<u>6,618</u>	<u>221</u>	<u>24,215</u>	<u>24,436</u>	<u>3,000</u>	<u>Yes</u>
<u>B-007</u>	<u>SF Res</u>	<u>8,185</u>	<u>273</u>	<u>4,726</u>	<u>4,999</u>	<u>3,000</u>	<u>Yes</u>
<u>B-008</u>	<u>SF Res</u>	<u>19,952</u>	<u>665</u>	<u>7,599</u>	<u>8,264</u>	<u>3,000</u>	<u>Yes</u>
<u>B-009</u>	<u>SF Res</u>	<u>317,101</u>	<u>10,570</u>	<u>52,187</u>	<u>62,757</u>	<u>3,000</u>	<u>Yes</u>
<u>B-010</u>	<u>SF Res</u>	<u>1,014</u>	<u>34</u>	<u>1,114</u>	<u>1,148</u>	<u>3,000</u>	<u>No</u>
<u>B-011</u>	<u>Retail-Commercial</u>	<u>552</u>	<u>18</u>	<u>7,249</u>	<u>7,268</u>	<u>3,000</u>	<u>Yes</u>
<u>B-012</u>	<u>MF Res</u>	<u>0</u>	<u>0</u>	<u>2,342</u>	<u>2,342</u>	<u>3,000</u>	<u>No</u>
<u>B-013</u>	<u>SF Res</u>	<u>78,595</u>	<u>2,620</u>	<u>22,165</u>	<u>24,785</u>	<u>3,000</u>	<u>Yes</u>
<u>B-014</u>	<u>SF Res</u>	<u>20,714</u>	<u>690</u>	<u>8,209</u>	<u>8,900</u>	<u>3,000</u>	<u>Yes</u>
<u>C-001</u>	<u>Retail-Commercial</u>	<u>511</u>	<u>17</u>	<u>6,444</u>	<u>6,461</u>	<u>3,000</u>	<u>Yes</u>
<u>C-002</u>	<u>Business Park</u>	<u>11,613</u>	<u>387</u>	<u>52,851</u>	<u>53,238</u>	<u>3,000</u>	<u>Yes</u>
<u>C-003</u>	<u>Retail-Commercial</u>	<u>334</u>	<u>11</u>	<u>2,342</u>	<u>2,353</u>	<u>3,000</u>	<u>No</u>
<u>H-001</u>	<u>SF Res</u>	<u>9,602</u>	<u>320</u>	<u>6,896</u>	<u>7,216</u>	<u>3,000</u>	<u>Yes</u>
<u>H-002</u>	<u>SF Res</u>	<u>8,472</u>	<u>282</u>	<u>5,160</u>	<u>5,442</u>	<u>3,000</u>	<u>Yes</u>
<u>H-003</u>	<u>SF Res</u>	<u>24,373</u>	<u>812</u>	<u>10,918</u>	<u>11,731</u>	<u>3,000</u>	<u>Yes</u>
<u>H-004</u>	<u>Business Park</u>	<u>6,321</u>	<u>211</u>	<u>19,725</u>	<u>19,936</u>	<u>3,000</u>	<u>Yes</u>
<u>H-005</u>	<u>Retail-Commercial</u>	<u>67</u>	<u>2</u>	<u>674</u>	<u>676</u>	<u>3,000</u>	<u>No</u>
<u>H-006</u>	<u>Retail-Commercial</u>	<u>1,361</u>	<u>45</u>	<u>21,934</u>	<u>21,980</u>	<u>3,000</u>	<u>Yes</u>
<u>H-007</u>	<u>Senior Res</u>	<u>3,522</u>	<u>117</u>	<u>1,839</u>	<u>1,956</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
H-008	SF Res	<u>11,597</u>	<u>387</u>	<u>3,961</u>	<u>4,347</u>	<u>3,000</u>	<u>Yes</u>
H-009	Senior Res	<u>0</u>	<u>0</u>	<u>3,077</u>	<u>3,077</u>	<u>3,000</u>	<u>Yes</u>
M-001	Heavy Industrial	<u>1,598</u>	<u>53</u>	<u>6,548</u>	<u>6,602</u>	<u>10,000</u>	<u>No</u>
M-002	Light Industrial	<u>0</u>	<u>0</u>	<u>44,681</u>	<u>44,681</u>	<u>10,000</u>	<u>Yes</u>
M-003	Warehouse	<u>12,706</u>	<u>424</u>	<u>22,741</u>	<u>23,164</u>	<u>10,000</u>	<u>Yes</u>
M-004	Retail-Commercial	<u>361</u>	<u>12</u>	<u>3,509</u>	<u>3,521</u>	<u>3,000</u>	<u>Yes</u>
M-005	Light Industrial	<u>50,188</u>	<u>1,673</u>	<u>36,068</u>	<u>37,741</u>	<u>10,000</u>	<u>Yes</u>
M-006	Business Park	<u>572</u>	<u>19</u>	<u>2,866</u>	<u>2,885</u>	<u>3,000</u>	<u>No</u>
M-007	Warehouse	<u>1,228</u>	<u>41</u>	<u>5,297</u>	<u>5,338</u>	<u>10,000</u>	<u>No</u>
M-008	Medical Office	<u>21,328</u>	<u>711</u>	<u>97,194</u>	<u>97,905</u>	<u>3,000</u>	<u>Yes</u>
M-009	SF Res	<u>1,456</u>	<u>49</u>	<u>1,583</u>	<u>1,632</u>	<u>3,000</u>	<u>No</u>
M-010	Warehouse	<u>1,069</u>	<u>36</u>	<u>4,383</u>	<u>4,419</u>	<u>10,000</u>	<u>No</u>
M-011	Retail-Commercial	<u>305</u>	<u>10</u>	<u>2,159</u>	<u>2,169</u>	<u>3,000</u>	<u>No</u>
MV-001	Retail-Commercial	<u>647</u>	<u>22</u>	<u>9,811</u>	<u>9,832</u>	<u>3,000</u>	<u>Yes</u>
MV-002	MF Res	<u>5,432</u>	<u>181</u>	<u>4,886</u>	<u>5,067</u>	<u>3,000</u>	<u>Yes</u>
MV-003	Light Industrial	<u>10,213</u>	<u>340</u>	<u>18,264</u>	<u>18,604</u>	<u>10,000</u>	<u>Yes</u>
MV-004	Light Industrial	<u>0</u>	<u>0</u>	<u>8,572</u>	<u>8,572</u>	<u>10,000</u>	<u>No</u>
MV-005	Retail-Commercial	<u>370</u>	<u>12</u>	<u>3,749</u>	<u>3,761</u>	<u>3,000</u>	<u>Yes</u>
MV-006	Warehouse	<u>1,302</u>	<u>43</u>	<u>5,881</u>	<u>5,925</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-007</u>	<u>SF Res</u>	<u>387</u>	<u>13</u>	<u>364</u>	<u>376</u>	<u>3,000</u>	<u>No</u>
<u>MV-008</u>	<u>SF Res</u>	<u>554</u>	<u>18</u>	<u>680</u>	<u>699</u>	<u>3,000</u>	<u>No</u>
<u>MV-009</u>	<u>SF Res</u>	<u>317</u>	<u>11</u>	<u>129</u>	<u>140</u>	<u>3,000</u>	<u>No</u>
<u>MV-010</u>	<u>SF Res</u>	<u>546</u>	<u>18</u>	<u>551</u>	<u>569</u>	<u>3,000</u>	<u>No</u>
<u>MV-011</u>	<u>SF Res</u>	<u>380</u>	<u>13</u>	<u>281</u>	<u>294</u>	<u>3,000</u>	<u>No</u>
<u>MV-012</u>	<u>Medical Office</u>	<u>0</u>	<u>0</u>	<u>2,104</u>	<u>2,104</u>	<u>3,000</u>	<u>No</u>
<u>MV-013</u>	<u>Office</u>	<u>71</u>	<u>2</u>	<u>303</u>	<u>305</u>	<u>3,000</u>	<u>No</u>
<u>MV-014</u>	<u>SF Res</u>	<u>1,555</u>	<u>52</u>	<u>1,255</u>	<u>1,307</u>	<u>3,000</u>	<u>No</u>
<u>MV-015</u>	<u>SF Res</u>	<u>698</u>	<u>23</u>	<u>739</u>	<u>762</u>	<u>3,000</u>	<u>No</u>
<u>MV-016</u>	<u>SF Res</u>	<u>534</u>	<u>18</u>	<u>375</u>	<u>393</u>	<u>3,000</u>	<u>No</u>
<u>MV-017</u>	<u>SF Res</u>	<u>1,014</u>	<u>34</u>	<u>1,126</u>	<u>1,160</u>	<u>3,000</u>	<u>No</u>
<u>MV-018</u>	<u>Retail-Commercial</u>	<u>0</u>	<u>0</u>	<u>177</u>	<u>177</u>	<u>3,000</u>	<u>No</u>
<u>MV-019</u>	<u>Senior Res</u>	<u>0</u>	<u>0</u>	<u>714</u>	<u>714</u>	<u>3,000</u>	<u>No</u>
<u>MV-020</u>	<u>Retail-Commercial</u>	<u>0</u>	<u>0</u>	<u>3,022</u>	<u>3,022</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-021</u>	<u>Medical Office</u>	<u>349</u>	<u>12</u>	<u>2,104</u>	<u>2,116</u>	<u>3,000</u>	<u>No</u>
<u>MV-022</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>469</u>	<u>469</u>	<u>3,000</u>	<u>No</u>
<u>MV-023</u>	<u>MF Res</u>	<u>1,552</u>	<u>52</u>	<u>3,501</u>	<u>3,552</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-024</u>	<u>SF Res</u>	<u>2,224</u>	<u>74</u>	<u>1,865</u>	<u>1,939</u>	<u>3,000</u>	<u>No</u>
<u>MV-025</u>	<u>SF Res</u>	<u>912</u>	<u>30</u>	<u>950</u>	<u>980</u>	<u>3,000</u>	<u>No</u>
<u>MV-026</u>	<u>SF Res</u>	<u>1,016</u>	<u>34</u>	<u>1,173</u>	<u>1,207</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-027</u>	<u>MF Res</u>	<u>367</u>	<u>12</u>	<u>453</u>	<u>466</u>	<u>3,000</u>	<u>No</u>
<u>MV-028</u>	<u>MF Res</u>	<u>462</u>	<u>15</u>	<u>756</u>	<u>771</u>	<u>3,000</u>	<u>No</u>
<u>MV-029</u>	<u>SF Res</u>	<u>3,582</u>	<u>119</u>	<u>3,225</u>	<u>3,344</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-030</u>	<u>SF Res</u>	<u>912</u>	<u>30</u>	<u>973</u>	<u>1,004</u>	<u>3,000</u>	<u>No</u>
<u>MV-031</u>	<u>SF Res</u>	<u>549</u>	<u>18</u>	<u>622</u>	<u>640</u>	<u>3,000</u>	<u>No</u>
<u>MV-032</u>	<u>SF Res</u>	<u>1,571</u>	<u>52</u>	<u>1,349</u>	<u>1,401</u>	<u>3,000</u>	<u>No</u>
<u>MV-033</u>	<u>SF Res</u>	<u>549</u>	<u>18</u>	<u>633</u>	<u>652</u>	<u>3,000</u>	<u>No</u>
<u>MV-034</u>	<u>SF Res</u>	<u>548</u>	<u>18</u>	<u>610</u>	<u>628</u>	<u>3,000</u>	<u>No</u>
<u>MV-035</u>	<u>SF Res</u>	<u>380</u>	<u>13</u>	<u>293</u>	<u>306</u>	<u>3,000</u>	<u>No</u>
<u>MV-036</u>	<u>MF Res</u>	<u>0</u>	<u>0</u>	<u>470</u>	<u>470</u>	<u>3,000</u>	<u>No</u>
<u>MV-037</u>	<u>Heavy Industrial</u>	<u>0</u>	<u>0</u>	<u>12,768</u>	<u>12,768</u>	<u>10,000</u>	<u>Yes</u>
<u>MV-038</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>3,970</u>	<u>3,970</u>	<u>10,000</u>	<u>No</u>
<u>MV-039</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>14,634</u>	<u>14,634</u>	<u>10,000</u>	<u>Yes</u>
<u>MV-040</u>	<u>Warehouse</u>	<u>342</u>	<u>11</u>	<u>772</u>	<u>783</u>	<u>10,000</u>	<u>No</u>
<u>MV-041</u>	<u>Warehouse</u>	<u>3,320</u>	<u>111</u>	<u>11,370</u>	<u>11,481</u>	<u>10,000</u>	<u>Yes</u>
<u>MV-042</u>	<u>Warehouse</u>	<u>958</u>	<u>32</u>	<u>3,500</u>	<u>3,532</u>	<u>10,000</u>	<u>No</u>
<u>MV-043</u>	<u>Heavy Industrial</u>	<u>0</u>	<u>0</u>	<u>4,390</u>	<u>4,390</u>	<u>10,000</u>	<u>No</u>
<u>MV-044</u>	<u>Warehouse</u>	<u>2,554</u>	<u>85</u>	<u>8,699</u>	<u>8,785</u>	<u>10,000</u>	<u>No</u>
<u>MV-045</u>	<u>Retail-Commercial</u>	<u>346</u>	<u>12</u>	<u>2,807</u>	<u>2,818</u>	<u>3,000</u>	<u>No</u>
<u>MV-046</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>2,998</u>	<u>2,998</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-047</u>	<u>SF Res</u>	<u>374</u>	<u>12</u>	<u>188</u>	<u>200</u>	<u>3,000</u>	<u>No</u>
<u>MV-048</u>	<u>Business Park</u>	<u>0</u>	<u>0</u>	<u>19,397</u>	<u>19,397</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-049</u>	<u>Business Park</u>	<u>0</u>	<u>0</u>	<u>20,384</u>	<u>20,384</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-050</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>3,245</u>	<u>3,245</u>	<u>10,000</u>	<u>No</u>
<u>MV-051</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>7,036</u>	<u>7,036</u>	<u>10,000</u>	<u>No</u>
<u>MV-052</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>8,039</u>	<u>8,039</u>	<u>10,000</u>	<u>No</u>
<u>MV-053</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>9,802</u>	<u>9,802</u>	<u>10,000</u>	<u>No</u>
<u>MV-054</u>	<u>Warehouse</u>	<u>5,625</u>	<u>187</u>	<u>13,629</u>	<u>13,816</u>	<u>10,000</u>	<u>Yes</u>
<u>MV-056</u>	<u>SF Res</u>	<u>374</u>	<u>12</u>	<u>188</u>	<u>200</u>	<u>3,000</u>	<u>No</u>
<u>MV-057</u>	<u>SF Res</u>	<u>536</u>	<u>18</u>	<u>434</u>	<u>452</u>	<u>3,000</u>	<u>No</u>
<u>MV-058</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>94</u>	<u>94</u>	<u>3,000</u>	<u>No</u>
<u>MV-059</u>	<u>SF Res</u>	<u>698</u>	<u>23</u>	<u>739</u>	<u>762</u>	<u>3,000</u>	<u>No</u>
<u>MV-060</u>	<u>SF Res</u>	<u>923</u>	<u>31</u>	<u>1,079</u>	<u>1,110</u>	<u>3,000</u>	<u>No</u>
<u>MV-061</u>	<u>Retail-Commercial</u>	<u>496</u>	<u>17</u>	<u>5,799</u>	<u>5,816</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-062</u>	<u>SF Res</u>	<u>9,278</u>	<u>309</u>	<u>6,368</u>	<u>6,677</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-063</u>	<u>SF Res</u>	<u>2,401</u>	<u>80</u>	<u>2,592</u>	<u>2,672</u>	<u>3,000</u>	<u>No</u>
<u>MV-064</u>	<u>SF Res</u>	<u>920</u>	<u>31</u>	<u>1,020</u>	<u>1,051</u>	<u>3,000</u>	<u>No</u>
<u>MV-065</u>	<u>MF Res</u>	<u>366</u>	<u>12</u>	<u>437</u>	<u>449</u>	<u>3,000</u>	<u>No</u>
<u>MV-066</u>	<u>MF Res</u>	<u>807</u>	<u>27</u>	<u>2,107</u>	<u>2,134</u>	<u>3,000</u>	<u>No</u>
<u>MV-067</u>	<u>SF Res</u>	<u>2,236</u>	<u>75</u>	<u>1,888</u>	<u>1,963</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-068</u>	<u>Heavy Industrial</u>	<u>533</u>	<u>18</u>	<u>1,636</u>	<u>1,654</u>	<u>10,000</u>	<u>No</u>
<u>MV-069</u>	<u>Heavy Industrial</u>	<u>0</u>	<u>0</u>	<u>3,236</u>	<u>3,236</u>	<u>10,000</u>	<u>No</u>
<u>MV-070</u>	<u>MF Res</u>	<u>795</u>	<u>27</u>	<u>2,023</u>	<u>2,050</u>	<u>3,000</u>	<u>No</u>
<u>MV-071</u>	<u>MF Res</u>	<u>363</u>	<u>12</u>	<u>411</u>	<u>423</u>	<u>3,000</u>	<u>No</u>
<u>MV-072</u>	<u>MF Res</u>	<u>275</u>	<u>9</u>	<u>201</u>	<u>211</u>	<u>3,000</u>	<u>No</u>
<u>MV-073</u>	<u>MF Res</u>	<u>470</u>	<u>16</u>	<u>806</u>	<u>822</u>	<u>3,000</u>	<u>No</u>
<u>MV-074</u>	<u>Senior Res</u>	<u>1,763</u>	<u>59</u>	<u>971</u>	<u>1,030</u>	<u>3,000</u>	<u>No</u>
<u>MV-075</u>	<u>Senior Res</u>	<u>45,745</u>	<u>1,525</u>	<u>7,505</u>	<u>9,030</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-076</u>	<u>Retail-Commercial</u>	<u>655</u>	<u>22</u>	<u>10,041</u>	<u>10,062</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-077</u>	<u>Light Industrial</u>	<u>1,086</u>	<u>36</u>	<u>4,875</u>	<u>4,911</u>	<u>10,000</u>	<u>No</u>
<u>MV-078</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>4,756</u>	<u>4,756</u>	<u>10,000</u>	<u>No</u>
<u>MV-079</u>	<u>Warehouse</u>	<u>711</u>	<u>24</u>	<u>2,878</u>	<u>2,902</u>	<u>10,000</u>	<u>No</u>
<u>MV-080</u>	<u>Retail-Commercial</u>	<u>290</u>	<u>10</u>	<u>1,427</u>	<u>1,437</u>	<u>3,000</u>	<u>No</u>
<u>MV-081</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>5,489</u>	<u>5,489</u>	<u>10,000</u>	<u>No</u>
<u>MV-082</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>3,921</u>	<u>3,921</u>	<u>10,000</u>	<u>No</u>
<u>MV-083</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>3,256</u>	<u>3,256</u>	<u>10,000</u>	<u>No</u>
<u>MV-084</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>914</u>	<u>914</u>	<u>10,000</u>	<u>No</u>
<u>MV-085</u>	<u>Retail-Commercial</u>	<u>462</u>	<u>15</u>	<u>4,511</u>	<u>4,526</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-086</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>833</u>	<u>833</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-087</u>	<u>MF Res</u>	<u>375</u>	<u>12</u>	<u>504</u>	<u>516</u>	<u>3,000</u>	<u>No</u>
<u>MV-088</u>	<u>MF Res</u>	<u>62</u>	<u>2</u>	<u>101</u>	<u>103</u>	<u>3,000</u>	<u>No</u>
<u>MV-089</u>	<u>MF Res</u>	<u>62</u>	<u>2</u>	<u>101</u>	<u>103</u>	<u>3,000</u>	<u>No</u>
<u>MV-090</u>	<u>Retail-Commercial</u>	<u>59</u>	<u>2</u>	<u>236</u>	<u>237</u>	<u>3,000</u>	<u>No</u>
<u>MV-091</u>	<u>SF Res</u>	<u>920</u>	<u>31</u>	<u>1,020</u>	<u>1,051</u>	<u>3,000</u>	<u>No</u>
<u>MV-092</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>1,161</u>	<u>1,161</u>	<u>3,000</u>	<u>No</u>
<u>MV-093</u>	<u>MF Res</u>	<u>0</u>	<u>0</u>	<u>940</u>	<u>940</u>	<u>3,000</u>	<u>No</u>
<u>MV-094</u>	<u>MF Res</u>	<u>868</u>	<u>29</u>	<u>2,233</u>	<u>2,262</u>	<u>3,000</u>	<u>No</u>
<u>MV-095</u>	<u>Retail-Commercial</u>	<u>491</u>	<u>16</u>	<u>5,638</u>	<u>5,655</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-096</u>	<u>SF Res</u>	<u>714</u>	<u>24</u>	<u>915</u>	<u>939</u>	<u>3,000</u>	<u>No</u>
<u>MV-097</u>	<u>SF Res</u>	<u>2,381</u>	<u>79</u>	<u>2,510</u>	<u>2,589</u>	<u>3,000</u>	<u>No</u>
<u>MV-098</u>	<u>SF Res</u>	<u>374</u>	<u>12</u>	<u>188</u>	<u>200</u>	<u>3,000</u>	<u>No</u>
<u>MV-099</u>	<u>MF Res</u>	<u>470</u>	<u>16</u>	<u>806</u>	<u>822</u>	<u>3,000</u>	<u>No</u>
<u>MV-100</u>	<u>MF Res</u>	<u>739</u>	<u>25</u>	<u>1,629</u>	<u>1,653</u>	<u>3,000</u>	<u>No</u>
<u>MV-101</u>	<u>Retail-Commercial</u>	<u>59</u>	<u>2</u>	<u>290</u>	<u>292</u>	<u>3,000</u>	<u>No</u>
<u>MV-102</u>	<u>Office</u>	<u>352</u>	<u>12</u>	<u>848</u>	<u>860</u>	<u>3,000</u>	<u>No</u>
<u>MV-103</u>	<u>Light Industrial</u>	<u>515</u>	<u>17</u>	<u>1,683</u>	<u>1,700</u>	<u>10,000</u>	<u>No</u>
<u>MV-104</u>	<u>Warehouse</u>	<u>716</u>	<u>24</u>	<u>2,925</u>	<u>2,949</u>	<u>10,000</u>	<u>No</u>
<u>MV-105</u>	<u>MF Res</u>	<u>62</u>	<u>2</u>	<u>101</u>	<u>103</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-106</u>	<u>MF Res</u>	<u>62</u>	<u>2</u>	<u>101</u>	<u>103</u>	<u>3,000</u>	<u>No</u>
<u>MV-107</u>	<u>SF Res</u>	<u>255</u>	<u>9</u>	<u>106</u>	<u>114</u>	<u>3,000</u>	<u>No</u>
<u>MV-108</u>	<u>Retail-Commercial</u>	<u>57</u>	<u>2</u>	<u>96</u>	<u>98</u>	<u>3,000</u>	<u>No</u>
<u>MV-109</u>	<u>SF Res</u>	<u>27,106</u>	<u>904</u>	<u>12,959</u>	<u>13,862</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-110</u>	<u>MF Res</u>	<u>375</u>	<u>12</u>	<u>504</u>	<u>516</u>	<u>3,000</u>	<u>No</u>
<u>MV-111</u>	<u>MF Res</u>	<u>266</u>	<u>9</u>	<u>134</u>	<u>143</u>	<u>3,000</u>	<u>No</u>
<u>MV-112</u>	<u>MF Res</u>	<u>66</u>	<u>2</u>	<u>126</u>	<u>128</u>	<u>3,000</u>	<u>No</u>
<u>MV-113</u>	<u>SF Res</u>	<u>1,473</u>	<u>49</u>	<u>1,689</u>	<u>1,738</u>	<u>3,000</u>	<u>No</u>
<u>MV-114</u>	<u>Retail-Commercial</u>	<u>58</u>	<u>2</u>	<u>184</u>	<u>186</u>	<u>3,000</u>	<u>No</u>
<u>MV-115</u>	<u>Office</u>	<u>57</u>	<u>2</u>	<u>0</u>	<u>2</u>	<u>3,000</u>	<u>No</u>
<u>MV-116</u>	<u>SF Res</u>	<u>380</u>	<u>13</u>	<u>293</u>	<u>306</u>	<u>3,000</u>	<u>No</u>
<u>MV-117</u>	<u>Office</u>	<u>300</u>	<u>10</u>	<u>525</u>	<u>535</u>	<u>3,000</u>	<u>No</u>
<u>MV-118</u>	<u>SF Res</u>	<u>255</u>	<u>9</u>	<u>106</u>	<u>114</u>	<u>3,000</u>	<u>No</u>
<u>MV-119</u>	<u>SF Res</u>	<u>535</u>	<u>18</u>	<u>410</u>	<u>428</u>	<u>3,000</u>	<u>No</u>
<u>MV-120</u>	<u>Retail-Commercial</u>	<u>505</u>	<u>17</u>	<u>6,106</u>	<u>6,123</u>	<u>3,000</u>	<u>Yes</u>
<u>MV-121</u>	<u>Retail-Commercial</u>	<u>58</u>	<u>2</u>	<u>140</u>	<u>142</u>	<u>3,000</u>	<u>No</u>
<u>MV-123</u>	<u>Retail-Commercial</u>	<u>64</u>	<u>2</u>	<u>451</u>	<u>453</u>	<u>3,000</u>	<u>No</u>
<u>MV-124</u>	<u>Retail-Commercial</u>	<u>462</u>	<u>15</u>	<u>4,511</u>	<u>4,526</u>	<u>3,000</u>	<u>Yes</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>MV-125</u>	<u>MF Res</u>	<u>275</u>	<u>9</u>	<u>201</u>	<u>211</u>	<u>3,000</u>	<u>No</u>
<u>MV-126</u>	<u>SF Res</u>	<u>3,432</u>	<u>114</u>	<u>2,756</u>	<u>2,870</u>	<u>3,000</u>	<u>No</u>
<u>MV-127</u>	<u>Warehouse</u>	<u>684</u>	<u>23</u>	<u>2,666</u>	<u>2,689</u>	<u>10,000</u>	<u>No</u>
<u>MV-129</u>	<u>Light Industrial</u>	<u>5,234</u>	<u>174</u>	<u>14,451</u>	<u>14,626</u>	<u>10,000</u>	<u>Yes</u>
<u>MV-130</u>	<u>Warehouse</u>	<u>570</u>	<u>19</u>	<u>1,740</u>	<u>1,759</u>	<u>10,000</u>	<u>No</u>
<u>MV-131</u>	<u>Warehouse</u>	<u>4,916</u>	<u>164</u>	<u>11,762</u>	<u>11,926</u>	<u>10,000</u>	<u>Yes</u>
<u>MV-132</u>	<u>Warehouse</u>	<u>2,443</u>	<u>81</u>	<u>8,626</u>	<u>8,707</u>	<u>10,000</u>	<u>No</u>
<u>P-001</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>1,607</u>	<u>1,607</u>	<u>3,000</u>	<u>No</u>
<u>P-002</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,705</u>	<u>4,705</u>	<u>10,000</u>	<u>No</u>
<u>P-003</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>3,625</u>	<u>3,625</u>	<u>10,000</u>	<u>No</u>
<u>P-004</u>	<u>Light Industrial</u>	<u>503</u>	<u>17</u>	<u>1,573</u>	<u>1,590</u>	<u>10,000</u>	<u>No</u>
<u>P-005</u>	<u>Warehouse</u>	<u>971</u>	<u>32</u>	<u>3,607</u>	<u>3,640</u>	<u>10,000</u>	<u>No</u>
<u>P-006</u>	<u>Light Industrial</u>	<u>1,201</u>	<u>40</u>	<u>5,488</u>	<u>5,528</u>	<u>10,000</u>	<u>No</u>
<u>P-007</u>	<u>Light Industrial</u>	<u>2,702</u>	<u>90</u>	<u>10,883</u>	<u>10,973</u>	<u>10,000</u>	<u>Yes</u>
<u>P-008</u>	<u>Light Industrial</u>	<u>594</u>	<u>20</u>	<u>2,204</u>	<u>2,224</u>	<u>10,000</u>	<u>No</u>
<u>P-009</u>	<u>Heavy Industrial</u>	<u>1,244</u>	<u>41</u>	<u>5,072</u>	<u>5,113</u>	<u>10,000</u>	<u>No</u>
<u>P-010</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>13,331</u>	<u>13,331</u>	<u>10,000</u>	<u>Yes</u>
<u>P-011</u>	<u>Heavy Industrial</u>	<u>0</u>	<u>0</u>	<u>9,678</u>	<u>9,678</u>	<u>10,000</u>	<u>No</u>
<u>P-012</u>	<u>Light Industrial</u>	<u>965</u>	<u>32</u>	<u>4,153</u>	<u>4,185</u>	<u>10,000</u>	<u>No</u>
<u>P-014</u>	<u>Warehouse</u>	<u>2,688</u>	<u>90</u>	<u>9,410</u>	<u>9,500</u>	<u>10,000</u>	<u>No</u>
<u>P-015</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>6,123</u>	<u>6,123</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>P-016</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>10,273</u>	<u>10,273</u>	<u>10,000</u>	<u>Yes</u>
<u>P-017</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,548</u>	<u>4,548</u>	<u>10,000</u>	<u>No</u>
<u>P-018</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>12,131</u>	<u>12,131</u>	<u>10,000</u>	<u>Yes</u>
<u>P-019</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>5,470</u>	<u>5,470</u>	<u>10,000</u>	<u>No</u>
<u>P-020</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>6,834</u>	<u>6,834</u>	<u>10,000</u>	<u>No</u>
<u>P-021</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>1,333</u>	<u>1,333</u>	<u>10,000</u>	<u>No</u>
<u>P-022</u>	<u>Warehouse</u>	<u>722</u>	<u>24</u>	<u>2,980</u>	<u>3,004</u>	<u>10,000</u>	<u>No</u>
<u>P-023</u>	<u>Warehouse</u>	<u>510</u>	<u>17</u>	<u>1,411</u>	<u>1,428</u>	<u>10,000</u>	<u>No</u>
<u>P-024</u>	<u>Warehouse</u>	<u>3,343</u>	<u>111</u>	<u>11,480</u>	<u>11,592</u>	<u>10,000</u>	<u>Yes</u>
<u>P-025</u>	<u>Warehouse</u>	<u>1,969</u>	<u>66</u>	<u>8,140</u>	<u>8,205</u>	<u>10,000</u>	<u>No</u>
<u>P-026</u>	<u>Light Industrial</u>	<u>1,514</u>	<u>50</u>	<u>7,423</u>	<u>7,474</u>	<u>10,000</u>	<u>No</u>
<u>P-027</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>6,775</u>	<u>6,775</u>	<u>10,000</u>	<u>No</u>
<u>P-028</u>	<u>Light Industrial</u>	<u>1,271</u>	<u>42</u>	<u>6,128</u>	<u>6,170</u>	<u>10,000</u>	<u>No</u>
<u>P-030</u>	<u>SF Res</u>	<u>8,865</u>	<u>296</u>	<u>5,770</u>	<u>6,065</u>	<u>3,000</u>	<u>Yes</u>
<u>P-031</u>	<u>MF Res</u>	<u>426</u>	<u>14</u>	<u>630</u>	<u>644</u>	<u>3,000</u>	<u>No</u>
<u>P-032</u>	<u>Retail-Commercial</u>	<u>1,209</u>	<u>40</u>	<u>20,717</u>	<u>20,757</u>	<u>3,000</u>	<u>Yes</u>
<u>P-033</u>	<u>SF Res</u>	<u>58,216</u>	<u>1,941</u>	<u>21,813</u>	<u>23,754</u>	<u>3,000</u>	<u>Yes</u>
<u>P-034</u>	<u>Warehouse</u>	<u>13,703</u>	<u>457</u>	<u>24,833</u>	<u>25,290</u>	<u>10,000</u>	<u>Yes</u>
<u>P-035</u>	<u>MF Res</u>	<u>296</u>	<u>10</u>	<u>336</u>	<u>346</u>	<u>3,000</u>	<u>No</u>
<u>P-036</u>	<u>Retail-Commercial</u>	<u>21,179</u>	<u>706</u>	<u>28,655</u>	<u>29,361</u>	<u>3,000</u>	<u>Yes</u>
<u>P-037</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>2,146</u>	<u>2,146</u>	<u>3,000</u>	<u>No</u>
<u>P-038</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>2,615</u>	<u>2,615</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>P-039</u>	<u>Warehouse</u>	<u>1,338</u>	<u>45</u>	<u>6,146</u>	<u>6,190</u>	<u>10,000</u>	<u>No</u>
<u>P-040</u>	<u>SF Res</u>	<u>1,585</u>	<u>53</u>	<u>1,431</u>	<u>1,484</u>	<u>3,000</u>	<u>No</u>
<u>P-041</u>	<u>Light Industrial</u>	<u>481</u>	<u>16</u>	<u>1,370</u>	<u>1,386</u>	<u>10,000</u>	<u>No</u>
<u>P-042</u>	<u>SF Res</u>	<u>555</u>	<u>18</u>	<u>715</u>	<u>734</u>	<u>3,000</u>	<u>No</u>
<u>P-043</u>	<u>SF Res</u>	<u>554</u>	<u>18</u>	<u>668</u>	<u>687</u>	<u>3,000</u>	<u>No</u>
<u>P-044</u>	<u>MF Res</u>	<u>468</u>	<u>16</u>	<u>789</u>	<u>805</u>	<u>3,000</u>	<u>No</u>
<u>P-045</u>	<u>MF Res</u>	<u>426</u>	<u>14</u>	<u>630</u>	<u>644</u>	<u>3,000</u>	<u>No</u>
<u>P-046</u>	<u>Senior Res</u>	<u>5,138</u>	<u>171</u>	<u>2,204</u>	<u>2,375</u>	<u>3,000</u>	<u>No</u>
<u>P-047</u>	<u>SF Res</u>	<u>9,084</u>	<u>303</u>	<u>6,110</u>	<u>6,413</u>	<u>3,000</u>	<u>Yes</u>
<u>P-048</u>	<u>SF Res</u>	<u>711</u>	<u>24</u>	<u>880</u>	<u>903</u>	<u>3,000</u>	<u>No</u>
<u>P-049</u>	<u>SF Res</u>	<u>1,571</u>	<u>52</u>	<u>1,337</u>	<u>1,389</u>	<u>3,000</u>	<u>No</u>
<u>P-050</u>	<u>Retail-Commercial</u>	<u>341</u>	<u>11</u>	<u>2,578</u>	<u>2,589</u>	<u>3,000</u>	<u>No</u>
<u>P-051</u>	<u>SF Res</u>	<u>535</u>	<u>18</u>	<u>410</u>	<u>428</u>	<u>3,000</u>	<u>No</u>
<u>P-052</u>	<u>SF Res</u>	<u>912</u>	<u>30</u>	<u>962</u>	<u>992</u>	<u>3,000</u>	<u>No</u>
<u>P-053</u>	<u>SF Res</u>	<u>2,236</u>	<u>75</u>	<u>1,888</u>	<u>1,963</u>	<u>3,000</u>	<u>No</u>
<u>P-054</u>	<u>SF Res</u>	<u>3,438</u>	<u>115</u>	<u>2,791</u>	<u>2,906</u>	<u>3,000</u>	<u>No</u>
<u>P-055</u>	<u>Retail-Commercial</u>	<u>995</u>	<u>33</u>	<u>14,499</u>	<u>14,532</u>	<u>3,000</u>	<u>Yes</u>
<u>P-056</u>	<u>Light Industrial</u>	<u>60</u>	<u>2</u>	<u>90</u>	<u>92</u>	<u>10,000</u>	<u>No</u>
<u>P-057</u>	<u>Warehouse</u>	<u>76</u>	<u>3</u>	<u>327</u>	<u>329</u>	<u>10,000</u>	<u>No</u>
<u>P-058</u>	<u>Heavy Industrial</u>	<u>718</u>	<u>24</u>	<u>2,986</u>	<u>3,010</u>	<u>10,000</u>	<u>No</u>
<u>P-059</u>	<u>SF Res</u>	<u>3,450</u>	<u>115</u>	<u>2,850</u>	<u>2,965</u>	<u>3,000</u>	<u>No</u>
<u>P-060</u>	<u>Retail-Commercial</u>	<u>58</u>	<u>2</u>	<u>145</u>	<u>147</u>	<u>3,000</u>	<u>No</u>
<u>P-061</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>2,745</u>	<u>2,745</u>	<u>10,000</u>	<u>No</u>
<u>R-001</u>	<u>Business Park</u>	<u>0</u>	<u>0</u>	<u>17,968</u>	<u>17,968</u>	<u>3,000</u>	<u>Yes</u>
<u>R-002</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,570</u>	<u>4,570</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>R-003</u>	<u>Light Industrial</u>	<u>0</u>	<u>0</u>	<u>5,964</u>	<u>5,964</u>	<u>10,000</u>	<u>No</u>
<u>R-004</u>	<u>MF Res</u>	<u>768</u>	<u>26</u>	<u>1,813</u>	<u>1,839</u>	<u>3,000</u>	<u>No</u>
<u>R-005</u>	<u>Medical Office</u>	<u>1,198</u>	<u>40</u>	<u>13,150</u>	<u>13,190</u>	<u>3,000</u>	<u>Yes</u>
<u>R-006</u>	<u>MF Res</u>	<u>429</u>	<u>14</u>	<u>646</u>	<u>661</u>	<u>3,000</u>	<u>No</u>
<u>R-007</u>	<u>Retail-Commercial</u>	<u>298</u>	<u>10</u>	<u>1,808</u>	<u>1,817</u>	<u>3,000</u>	<u>No</u>
<u>R-008</u>	<u>Senior Res</u>	<u>403</u>	<u>13</u>	<u>190</u>	<u>204</u>	<u>3,000</u>	<u>No</u>
<u>R-009</u>	<u>Retail-Commercial</u>	<u>170,897</u>	<u>5,697</u>	<u>282,806</u>	<u>288,503</u>	<u>3,000</u>	<u>Yes</u>
<u>R-010</u>	<u>Retail-Commercial</u>	<u>67</u>	<u>2</u>	<u>759</u>	<u>761</u>	<u>3,000</u>	<u>No</u>
<u>R-011</u>	<u>Business Park</u>	<u>715</u>	<u>24</u>	<u>4,451</u>	<u>4,475</u>	<u>3,000</u>	<u>Yes</u>
<u>R-012</u>	<u>Retail-Commercial</u>	<u>303</u>	<u>10</u>	<u>1,978</u>	<u>1,988</u>	<u>3,000</u>	<u>No</u>
<u>R-013</u>	<u>SF Res</u>	<u>58</u>	<u>2</u>	<u>35</u>	<u>37</u>	<u>3,000</u>	<u>No</u>
<u>R-014</u>	<u>Retail-Commercial</u>	<u>58</u>	<u>2</u>	<u>124</u>	<u>126</u>	<u>3,000</u>	<u>No</u>
<u>R-015</u>	<u>SF Res</u>	<u>2,265</u>	<u>75</u>	<u>2,014</u>	<u>2,089</u>	<u>3,000</u>	<u>No</u>
<u>R-016</u>	<u>SF Res</u>	<u>57</u>	<u>2</u>	<u>18</u>	<u>20</u>	<u>3,000</u>	<u>No</u>
<u>R-017</u>	<u>MF Res</u>	<u>879</u>	<u>29</u>	<u>2,309</u>	<u>2,338</u>	<u>3,000</u>	<u>No</u>
<u>R-018</u>	<u>Light Industrial</u>	<u>197,176</u>	<u>6,573</u>	<u>82,663</u>	<u>89,235</u>	<u>10,000</u>	<u>Yes</u>
<u>R-019</u>	<u>MF Res</u>	<u>368</u>	<u>12</u>	<u>462</u>	<u>474</u>	<u>3,000</u>	<u>No</u>
<u>R-020</u>	<u>Warehouse</u>	<u>3,341</u>	<u>111</u>	<u>11,460</u>	<u>11,572</u>	<u>10,000</u>	<u>Yes</u>
<u>R-021</u>	<u>SF Res</u>	<u>319</u>	<u>11</u>	<u>176</u>	<u>187</u>	<u>3,000</u>	<u>No</u>
<u>R-022</u>	<u>SF Res</u>	<u>255</u>	<u>9</u>	<u>106</u>	<u>114</u>	<u>3,000</u>	<u>No</u>
<u>R-023</u>	<u>Retail-Commercial</u>	<u>59</u>	<u>2</u>	<u>259</u>	<u>261</u>	<u>3,000</u>	<u>No</u>
<u>R-024</u>	<u>SF Res</u>	<u>351,603</u>	<u>11,720</u>	<u>58,637</u>	<u>70,357</u>	<u>3,000</u>	<u>Yes</u>
<u>R-025</u>	<u>MF Res</u>	<u>757</u>	<u>25</u>	<u>1,746</u>	<u>1,771</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
R-026	Business Park	<u>5,336</u>	<u>178</u>	<u>22,771</u>	<u>22,949</u>	<u>3,000</u>	<u>Yes</u>
R-027	Retail-Commercial	<u>58</u>	<u>2</u>	<u>117</u>	<u>118</u>	<u>3,000</u>	<u>No</u>
R-028	Senior Res	<u>1,057</u>	<u>35</u>	<u>688</u>	<u>724</u>	<u>3,000</u>	<u>No</u>
R-029	Retail-Commercial	<u>58</u>	<u>2</u>	<u>122</u>	<u>124</u>	<u>3,000</u>	<u>No</u>
R-030	Retail-Commercial	<u>520</u>	<u>17</u>	<u>6,720</u>	<u>6,737</u>	<u>3,000</u>	<u>Yes</u>
R-031	MF Res	<u>287</u>	<u>10</u>	<u>302</u>	<u>312</u>	<u>3,000</u>	<u>No</u>
R-032	Retail-Commercial	<u>67</u>	<u>2</u>	<u>718</u>	<u>720</u>	<u>3,000</u>	<u>No</u>
R-033	MF Res	<u>282</u>	<u>9</u>	<u>252</u>	<u>261</u>	<u>3,000</u>	<u>No</u>
R-034	Office	<u>61</u>	<u>2</u>	<u>123</u>	<u>125</u>	<u>3,000</u>	<u>No</u>
R-035	MF Res	<u>475</u>	<u>16</u>	<u>856</u>	<u>872</u>	<u>3,000</u>	<u>No</u>
R-036	MF Res	<u>376</u>	<u>13</u>	<u>520</u>	<u>533</u>	<u>3,000</u>	<u>No</u>
R-037	Retail-Commercial	<u>58</u>	<u>2</u>	<u>193</u>	<u>195</u>	<u>3,000</u>	<u>No</u>
R-038	Retail-Commercial	<u>58</u>	<u>2</u>	<u>113</u>	<u>115</u>	<u>3,000</u>	<u>No</u>
R-039	SF Res	<u>8,141</u>	<u>271</u>	<u>4,714</u>	<u>4,986</u>	<u>3,000</u>	<u>Yes</u>
R-040	Retail-Commercial	<u>57</u>	<u>2</u>	<u>77</u>	<u>79</u>	<u>3,000</u>	<u>No</u>
R-041	Office	<u>68</u>	<u>2</u>	<u>234</u>	<u>236</u>	<u>3,000</u>	<u>No</u>
R-042	SF Res	<u>9,683</u>	<u>323</u>	<u>7,013</u>	<u>7,336</u>	<u>3,000</u>	<u>Yes</u>
R-043	SF Res	<u>547</u>	<u>18</u>	<u>586</u>	<u>605</u>	<u>3,000</u>	<u>No</u>
R-044	Retail-Commercial	<u>58</u>	<u>2</u>	<u>129</u>	<u>131</u>	<u>3,000</u>	<u>No</u>
R-045	Office	<u>75</u>	<u>2</u>	<u>383</u>	<u>386</u>	<u>3,000</u>	<u>No</u>
R-046	SF Res	<u>535</u>	<u>18</u>	<u>420</u>	<u>438</u>	<u>3,000</u>	<u>No</u>
R-047	Warehouse	<u>349</u>	<u>12</u>	<u>845</u>	<u>856</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>R-048</u>	<u>Retail-Commercial</u>	<u>337</u>	<u>11</u>	<u>2,426</u>	<u>2,437</u>	<u>3,000</u>	<u>No</u>
<u>R-049</u>	<u>Senior Res</u>	<u>3,154</u>	<u>105</u>	<u>1,592</u>	<u>1,698</u>	<u>3,000</u>	<u>No</u>
<u>R-050</u>	<u>SF Res</u>	<u>253</u>	<u>8</u>	<u>45</u>	<u>53</u>	<u>3,000</u>	<u>No</u>
<u>R-051</u>	<u>Retail-Commercial</u>	<u>57</u>	<u>2</u>	<u>76</u>	<u>78</u>	<u>3,000</u>	<u>No</u>
<u>R-052</u>	<u>SF Res</u>	<u>534</u>	<u>18</u>	<u>375</u>	<u>393</u>	<u>3,000</u>	<u>No</u>
<u>R-053</u>	<u>SF Res</u>	<u>386</u>	<u>13</u>	<u>340</u>	<u>353</u>	<u>3,000</u>	<u>No</u>
<u>R-054</u>	<u>SF Res</u>	<u>380</u>	<u>13</u>	<u>293</u>	<u>306</u>	<u>3,000</u>	<u>No</u>
<u>R-055</u>	<u>SF Res</u>	<u>379</u>	<u>13</u>	<u>235</u>	<u>247</u>	<u>3,000</u>	<u>No</u>
<u>R-056</u>	<u>Office</u>	<u>465</u>	<u>16</u>	<u>1,323</u>	<u>1,338</u>	<u>3,000</u>	<u>No</u>
<u>R-057</u>	<u>Light Industrial</u>	<u>503</u>	<u>17</u>	<u>1,570</u>	<u>1,586</u>	<u>10,000</u>	<u>No</u>
<u>R-058</u>	<u>Retail-Commercial</u>	<u>57</u>	<u>2</u>	<u>88</u>	<u>90</u>	<u>3,000</u>	<u>No</u>
<u>R-059</u>	<u>Retail-Commercial</u>	<u>58</u>	<u>2</u>	<u>130</u>	<u>132</u>	<u>3,000</u>	<u>No</u>
<u>R-060</u>	<u>Business Park</u>	<u>367</u>	<u>12</u>	<u>1,327</u>	<u>1,340</u>	<u>3,000</u>	<u>No</u>
<u>R-061</u>	<u>Retail-Commercial</u>	<u>775</u>	<u>26</u>	<u>13,707</u>	<u>13,733</u>	<u>3,000</u>	<u>Yes</u>
<u>R-062</u>	<u>Retail-Commercial</u>	<u>57</u>	<u>2</u>	<u>59</u>	<u>61</u>	<u>3,000</u>	<u>No</u>
<u>R-063</u>	<u>MF Res</u>	<u>273</u>	<u>9</u>	<u>176</u>	<u>185</u>	<u>3,000</u>	<u>No</u>
<u>R-064</u>	<u>SF Res</u>	<u>253</u>	<u>8</u>	<u>59</u>	<u>67</u>	<u>3,000</u>	<u>No</u>
<u>R-065</u>	<u>SF Res</u>	<u>556</u>	<u>19</u>	<u>727</u>	<u>746</u>	<u>3,000</u>	<u>No</u>
<u>R-066</u>	<u>Retail-Commercial</u>	<u>59</u>	<u>2</u>	<u>198</u>	<u>200</u>	<u>3,000</u>	<u>No</u>
<u>RC-001</u>	<u>SF Res</u>	<u>43,931</u>	<u>1,464</u>	<u>14,671</u>	<u>16,135</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-002</u>	<u>SF Res</u>	<u>81,912</u>	<u>2,730</u>	<u>23,455</u>	<u>26,185</u>	<u>3,000</u>	<u>Yes</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>RC-003</u>	<u>SF Res</u>	<u>189,155</u>	<u>6,305</u>	<u>40,014</u>	<u>46,319</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-005</u>	<u>SF Res</u>	<u>21,537</u>	<u>718</u>	<u>8,796</u>	<u>9,513</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-006</u>	<u>Business Park</u>	<u>1,243</u>	<u>41</u>	<u>7,840</u>	<u>7,881</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-007</u>	<u>Warehouse</u>	<u>5,138</u>	<u>171</u>	<u>12,442</u>	<u>12,613</u>	<u>10,000</u>	<u>Yes</u>
<u>RC-009</u>	<u>Heavy Industrial</u>	<u>2,729</u>	<u>91</u>	<u>9,608</u>	<u>9,699</u>	<u>10,000</u>	<u>No</u>
<u>RC-010</u>	<u>Light Industrial</u>	<u>69,526</u>	<u>2,318</u>	<u>56,707</u>	<u>59,025</u>	<u>10,000</u>	<u>Yes</u>
<u>RC-011</u>	<u>Warehouse</u>	<u>1,368</u>	<u>46</u>	<u>6,383</u>	<u>6,429</u>	<u>10,000</u>	<u>No</u>
<u>RC-012</u>	<u>Light Industrial</u>	<u>762</u>	<u>25</u>	<u>3,875</u>	<u>3,900</u>	<u>10,000</u>	<u>No</u>
<u>RC-013</u>	<u>SF Res</u>	<u>8,909</u>	<u>297</u>	<u>5,829</u>	<u>6,125</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-014</u>	<u>MF Res</u>	<u>1,109</u>	<u>37</u>	<u>2,686</u>	<u>2,723</u>	<u>3,000</u>	<u>No</u>
<u>RC-015</u>	<u>SF Res</u>	<u>1,473</u>	<u>49</u>	<u>1,665</u>	<u>1,714</u>	<u>3,000</u>	<u>No</u>
<u>RC-017</u>	<u>Retail-Commercial</u>	<u>59</u>	<u>2</u>	<u>299</u>	<u>301</u>	<u>3,000</u>	<u>No</u>
<u>RC-018</u>	<u>SF Res</u>	<u>319</u>	<u>11</u>	<u>176</u>	<u>187</u>	<u>3,000</u>	<u>No</u>
<u>RC-019</u>	<u>Retail-Commercial</u>	<u>294</u>	<u>10</u>	<u>1,701</u>	<u>1,711</u>	<u>3,000</u>	<u>No</u>
<u>RC-020</u>	<u>Retail-Commercial</u>	<u>57</u>	<u>2</u>	<u>90</u>	<u>92</u>	<u>3,000</u>	<u>No</u>
<u>RC-021</u>	<u>Warehouse</u>	<u>60</u>	<u>2</u>	<u>63</u>	<u>65</u>	<u>10,000</u>	<u>No</u>
<u>RC-022</u>	<u>SF Res</u>	<u>1,453</u>	<u>48</u>	<u>1,536</u>	<u>1,585</u>	<u>3,000</u>	<u>No</u>
<u>RC-023</u>	<u>Light Industrial</u>	<u>297</u>	<u>10</u>	<u>480</u>	<u>490</u>	<u>10,000</u>	<u>No</u>
<u>RC-024</u>	<u>Light Industrial</u>	<u>521</u>	<u>17</u>	<u>1,745</u>	<u>1,762</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>RC-025</u>	<u>Light Industrial</u>	<u>328</u>	<u>11</u>	<u>777</u>	<u>788</u>	<u>10,000</u>	<u>No</u>
<u>RC-026</u>	<u>SF Res</u>	<u>57</u>	<u>2</u>	<u>23</u>	<u>25</u>	<u>3,000</u>	<u>No</u>
<u>RC-027</u>	<u>Light Industrial</u>	<u>517</u>	<u>17</u>	<u>1,726</u>	<u>1,743</u>	<u>10,000</u>	<u>No</u>
<u>RC-028</u>	<u>Retail-Commercial</u>	<u>58</u>	<u>2</u>	<u>180</u>	<u>182</u>	<u>3,000</u>	<u>No</u>
<u>RC-029</u>	<u>Retail-Commercial</u>	<u>59</u>	<u>2</u>	<u>262</u>	<u>264</u>	<u>3,000</u>	<u>No</u>
<u>RC-030</u>	<u>Warehouse</u>	<u>2,777</u>	<u>93</u>	<u>9,873</u>	<u>9,966</u>	<u>10,000</u>	<u>No</u>
<u>RC-031</u>	<u>Light Industrial</u>	<u>510</u>	<u>17</u>	<u>1,652</u>	<u>1,669</u>	<u>10,000</u>	<u>No</u>
<u>RC-032</u>	<u>SF Res</u>	<u>21,151</u>	<u>705</u>	<u>8,514</u>	<u>9,219</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-033</u>	<u>SF Res</u>	<u>8,035</u>	<u>268</u>	<u>4,503</u>	<u>4,771</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-034</u>	<u>SF Res</u>	<u>8,404</u>	<u>280</u>	<u>5,066</u>	<u>5,346</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-035</u>	<u>MF Res</u>	<u>143,338</u>	<u>4,778</u>	<u>34,208</u>	<u>38,986</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-036</u>	<u>SF Res</u>	<u>8,690</u>	<u>290</u>	<u>5,488</u>	<u>5,778</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-037</u>	<u>SF Res</u>	<u>9,427</u>	<u>314</u>	<u>6,591</u>	<u>6,905</u>	<u>3,000</u>	<u>Yes</u>
<u>RC-038</u>	<u>Warehouse</u>	<u>5,837</u>	<u>195</u>	<u>14,301</u>	<u>14,496</u>	<u>10,000</u>	<u>Yes</u>
<u>RC-039</u>	<u>SF Res</u>	<u>540</u>	<u>18</u>	<u>457</u>	<u>475</u>	<u>3,000</u>	<u>No</u>
<u>RD-001</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>962</u>	<u>962</u>	<u>3,000</u>	<u>No</u>
<u>RD-002</u>	<u>SF Res</u>	<u>0</u>	<u>0</u>	<u>645</u>	<u>645</u>	<u>3,000</u>	<u>No</u>
<u>RD-003</u>	<u>SF Res</u>	<u>1,025</u>	<u>34</u>	<u>1,208</u>	<u>1,242</u>	<u>3,000</u>	<u>No</u>
<u>RD-004</u>	<u>SF Res</u>	<u>704</u>	<u>23</u>	<u>786</u>	<u>809</u>	<u>3,000</u>	<u>No</u>
<u>RD-005</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>3,926</u>	<u>3,926</u>	<u>10,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>RD-006</u>	<u>Retail-Commercial</u>	<u>291</u>	<u>10</u>	<u>1,554</u>	<u>1,563</u>	<u>3,000</u>	<u>No</u>
<u>RD-007</u>	<u>Retail-Commercial</u>	<u>376</u>	<u>13</u>	<u>4,116</u>	<u>4,128</u>	<u>3,000</u>	<u>Yes</u>
<u>RD-008</u>	<u>MF Res</u>	<u>452</u>	<u>15</u>	<u>672</u>	<u>687</u>	<u>3,000</u>	<u>No</u>
<u>RD-009</u>	<u>Retail-Commercial</u>	<u>290</u>	<u>10</u>	<u>1,411</u>	<u>1,421</u>	<u>3,000</u>	<u>No</u>
<u>RD-010</u>	<u>Light Industrial</u>	<u>477</u>	<u>16</u>	<u>1,329</u>	<u>1,344</u>	<u>10,000</u>	<u>No</u>
<u>RD-011</u>	<u>Retail-Commercial</u>	<u>298</u>	<u>10</u>	<u>1,787</u>	<u>1,797</u>	<u>3,000</u>	<u>No</u>
<u>RD-012</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,715</u>	<u>4,715</u>	<u>10,000</u>	<u>No</u>
<u>RD-013</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>7,944</u>	<u>7,944</u>	<u>10,000</u>	<u>No</u>
<u>RD-014</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>6,054</u>	<u>6,054</u>	<u>10,000</u>	<u>No</u>
<u>RD-015</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>3,317</u>	<u>3,317</u>	<u>10,000</u>	<u>No</u>
<u>RD-016</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>5,605</u>	<u>5,605</u>	<u>10,000</u>	<u>No</u>
<u>SB-001</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,817</u>	<u>4,817</u>	<u>10,000</u>	<u>No</u>
<u>SB-002</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>2,458</u>	<u>2,458</u>	<u>10,000</u>	<u>No</u>
<u>SB-003</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,655</u>	<u>4,655</u>	<u>10,000</u>	<u>No</u>
<u>SB-004</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>6,098</u>	<u>6,098</u>	<u>10,000</u>	<u>No</u>
<u>SB-005</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>2,211</u>	<u>2,211</u>	<u>10,000</u>	<u>No</u>
<u>SB-006</u>	<u>Warehouse</u>	<u>0</u>	<u>0</u>	<u>4,258</u>	<u>4,258</u>	<u>10,000</u>	<u>No</u>
<u>SB-007</u>	<u>SF Res</u>	<u>535</u>	<u>18</u>	<u>399</u>	<u>417</u>	<u>3,000</u>	<u>No</u>
<u>SB-008</u>	<u>SF Res</u>	<u>540</u>	<u>18</u>	<u>469</u>	<u>487</u>	<u>3,000</u>	<u>No</u>

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<u>Project ID</u>	<u>Land Use</u>	<u>Emissions (MTCO<sub>2</sub>e)</u>				<u>Threshold</u>	<u>Impact ?</u>
		<u>Total Construction Emissions</u>	<u>Amortized Construction Emissions</u>	<u>Total Operational Emissions</u>	<u>Total Amortized Construction and Operational Emissions</u>		
<u>SJ-001</u>	<u>Retail-Commercial</u>	<u>5,692</u>	<u>190</u>	<u>54,071</u>	<u>54,261</u>	<u>3,000</u>	<u>Yes</u>
<u>SJ-002</u>	<u>SF Res</u>	<u>7,530</u>	<u>251</u>	<u>3,764</u>	<u>4,015</u>	<u>3,000</u>	<u>Yes</u>
<u>SJ-003</u>	<u>SF Res</u>	<u>9,564</u>	<u>319</u>	<u>6,802</u>	<u>7,121</u>	<u>3,000</u>	<u>Yes</u>
<u>SJ-004</u>	<u>SF Res</u>	<u>9,808</u>	<u>327</u>	<u>7,189</u>	<u>7,516</u>	<u>3,000</u>	<u>Yes</u>
<b><u>Total</u></b>	<b><u>=</u></b>	<b><u>2,626,148</u></b>	<b><u>87,538</u></b>	<b><u>2,324,161</u></b>	<b><u>2,411,700</u></b>	<b><u>=</u></b>	<b><u>=</u></b>

6.7.3.2 Greenhouse Gas Plan, Policy, Regulation Consistency

*Impact:* The project, together with cumulative projects, would not cumulatively contribute to conflicts with applicable plans, policies and regulations to reduce greenhouse gas emissions. The project would not be cumulatively considerable.

**Threshold:** Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

**Cumulative Impact Analysis**

Section 4.7.6.2 Greenhouse Gas Plan, Policy, Regulation Consistency, assesses the project’s consistency with applicable federal, state, regional, and local GHG reduction strategies. The project would comply with all mandatory reduction strategies such as water conservation, energy efficiency, solid waste reduction, and efficiency measures related to transportation and motor vehicles. In addition, the project would go beyond energy conservation measures and exceed minimal compliance with ~~2016~~ 2019 Title 24 requirements by ~~approximately 16 percent at full buildout~~.

Although all cumulative projects are required to comply with mandatory federal, state, regional, and applicable local GHG reduction measures, it would be speculative to assume that all cumulative projects would be consistent with all applicable plans, policies, and regulations related to the reduction of GHG emissions. However, as discussed in Section 4.7.6.2, the project would comply with and would not conflict with applicable GHG reduction measures. Additionally, the project would contribute to further reductions by exceeding minimum compliance with Title 24 requirements, ~~by approximately 16 percent at full buildout~~, incorporating an alternative fuel service station, and supporting infrastructure to accommodate future electric vehicle populations. Therefore, the project’s contribution to cumulative impacts would not be cumulatively considerable.

**Significance Level Before Mitigation:** Cumulatively considerable significant impact.

**Mitigation Measures:** Implementation of previously referenced **Mitigation Measures 4.3.6.2A, 4.3.6.3B, 4.3.6.4A, 4.3.6.3C, 4.3.6.3D, 4.7.6.1A, 4.7.6.1B, 4.7.6.1C, 4.7.6.1D, 4.16.1.6.1A, 4.16.1.6.1B, and 4.16.1.6.1C** will help reduce project-related GHG emissions and therefore make it more consistent with GHG reduction plans, policies, and/or regulations.

**Significance Level After Mitigation:** ~~Less than significant impact. The 24 environmental documents that evaluated GHG emissions found that their respective projects would not conflict with any As mentioned above, it would be speculative to assume that all 359 listed cumulative projects would be consistent with all applicable plans, policy policies, and or regulations related to the reduction of GHG emissions. of an agency adopted for the purpose of reducing the emissions of greenhouse gases and were found to be less than significant. Therefore, it is possible that any of the cumulative projects are inconsistent with any plans, policies, and regulations and would result in a potentially significant impact. Therefore, the cumulative impact would be potentially significant. However, Bbecause the project's impact would be less than significant with mitigation, and the other projects' impacts were found to be less than significant, the project is not consideredcontributing to be cumulatively considerable impacts.~~

**NOTE TO READERS:** Section 6.17, below, of this Draft Recirculated Revised Sections of the FEIR replaces Section 6.17 of the Revised Sections of the FEIR, circulated in July 2018 (“RSFEIR”). Section 6.17 replaces the cumulative analysis provided in Section 4.16.4.7 of the FEIR prepared in 2015.

## **6.17 Energy**

Cumulative effects to energy are described in this section. A summary of the project’s incremental contribution to potential cumulative impacts to energy issues is provided in Section 46.17.1. The geographic and temporal scopes of the cumulative analysis are described in Section 46.17.2. The potential cumulative impacts and the project’s contribution to cumulative impacts to each of the energy issues are discussed in Section 6.17.3. In addition, a brief summary of the impact significance of the project’s contribution to cumulative impacts for each issue is also provided in Section 46.17.3 as well as applicable mitigation measures and significance determination after mitigation. Cumulative emissions calculations are included as Appendix E.6 of this Draft Recirculated RSFEIR.

~~The land use assumptions for the identified cumulative projects were taken from either the project-specific information contained in the associated cumulative project CEQA documents, the City of Moreno Valley General Plan, and/or the SCAG Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) 2040 regional population and employment forecasts for all areas outside of the City of Moreno Valley. Where project-specific information was available for the cumulative projects, it was incorporated into the cumulative impact analysis. Where project-specific information was not available, the underlying General Plan or SCAG RTP/SCS land use designations were used. Where project-specific and planned cumulative project land uses were inconsistent, the more intense land use was utilized. Within Moreno Valley, the cumulative analysis assumed build-out of the City’s General Plan except for locations where other past, present, and reasonably foreseeable projects were identified, in which case those were used instead. Because it is unlikely that the City will fully build out by 2040, the cumulative impact analysis assumes a more intense level of cumulative development than is likely to occur and is therefore conservative in the sense that it would over-state cumulative impacts.~~

The cumulative projects identified in Table 6.17-1 and their respective CEQA documents (if available) have been reviewed and evaluated in conjunction with the project to determine if they could contribute to a cumulatively considerable impact to energy. These potentially cumulative impacts are documented in the following section.

### **6.17.1 Project Impact Findings**

~~Appendix G of the State CEQA Guidelines does not provide specific thresholds for the evaluation of impacts related to energy resources. Appendix F of the CEQA Guidelines was prepared in response to the requirement in Public Resources Code Section 21100(b)(3), which states that an EIR shall include a detailed statement setting forth “[m]itigation measures proposed to minimize significant effects of the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy.”~~

- ~~• A project would result in significant impacts with regard to energy use and consumption if it would cause wasteful, inefficient, and unnecessary consumption of energy. In accordance with Appendix F, the following criteria will be considered in determining whether this threshold of significance is met:
  - 1) ~~The project’s energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed (Appendix F Section II G-4).~~~~

- ~~2) The effects of the project on local and regional energy supplies and on requirements for additional capacity (Appendix F Section II C-2).~~
  - ~~3) The effects of the project on peak and base period demands for electricity and other forms of energy (Appendix F Section II C-3).~~
  - ~~4) The effects of the project on energy resources (Appendix F Section II C-5).~~
  - ~~5) The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives (Appendix F Section II C-6).~~
- ~~• A project would result in significant impacts with regard to energy use and consumption if it would require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects.~~
  - ~~• A project would result in significant impacts with regard to energy use and consumption if it would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. In accordance with Appendix F, the following criteria will be considered in determining whether this threshold of significance is met:
    - ~~1) The degree to which the project complies with existing energy standards (Appendix F Section II C-4).~~~~

~~The following project-level conclusions are presented in Section 4.17, regarding whether the project would:~~

~~The project's effects to energy are summarized in this section, and the impacts have been evaluated against the following thresholds that were developed based on the CEQA Guidelines Appendix G thresholds, as modified to address potential project impacts. After each threshold, a significance determination for the project impacts is provided as well as a reference to the specific section and impact number if the impact determination is significant.~~

Would the project:

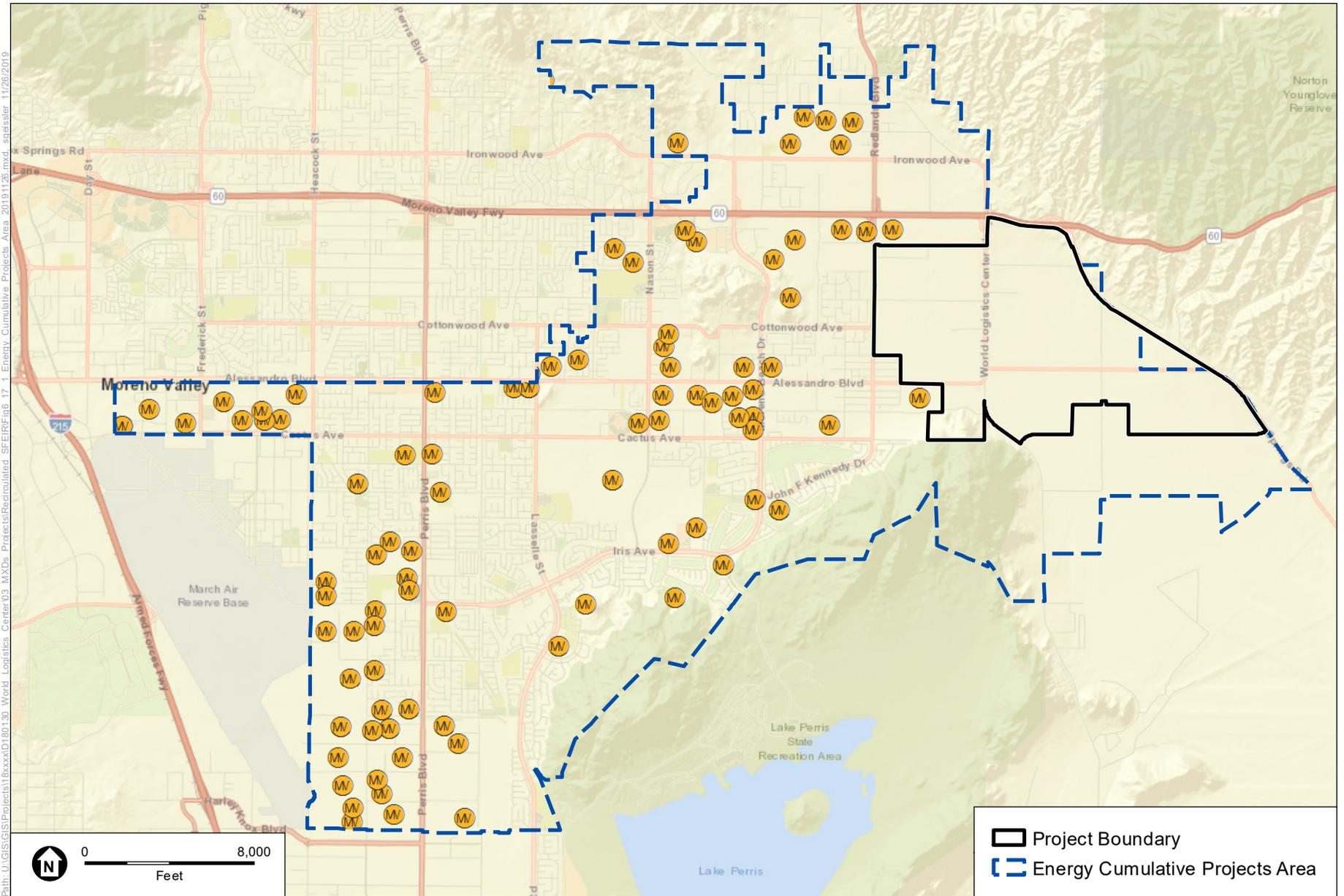
- Result in energy use and consumption that would cause wasteful, inefficient, and unnecessary consumption of energy; **Less than Significant, Section 4.17.7.1.**
- Require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects; **Less than Significant, Section 4.17.7.1.**
- ~~Comply~~Complies with ~~e~~Existing ~~e~~Energy ~~s~~Standards; **Less than Significant, Section 4.17.7.1.**

### **6.17.2 Geographic and Temporal Scope**

The geographic area for evaluating potential cumulative energy impacts is the Moreno Valley Electric Utility (MVU) service area for electricity (shown on Figure 6.17-1), and the Southern California Gas Company service area State for natural gas, and the State for transportation fuel use, ~~shown on Figure 6.17-1 and in the cumulative discussion below.~~ Cumulative impacts to energy could result from the project in conjunction with other past, present and future projects located within the applicable service area for each energy sector. The MVU service area covers over half of the City of Moreno Valley and follows the southern, eastern, and portions of the northern city boundary and ~~is generally south of Alessandro Boulevard and easterly of Nason Street.~~ The MVU service boundary is the appropriate cumulative project area boundary for electricity as the project is located within the MVU service area. Cumulative projects within the identified MVU service area ~~will be~~ has been evaluated with the pProject to determine if any cumulative electricity impact would occur. ~~The projects located within the cumulative electricity impact area are listed in Table 6.17-1. The project would contribute to cumulative impacts to energy starting when the project begins to demand energy resources and would last for the duration of~~

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

~~the project. Very few of the cumulative project CEQA documents identified in Table 6.17-1 quantify the energy use associated with the specific project. As such, Table 6.17-1 only includes the energy use for the projects that were quantified in the respective CEQA document. All other cumulative projects identified in the Traffic Impact Assessment (TIA) have been included in the analysis of cumulative natural gas and transportation fuel impacts. The project would contribute to cumulative impacts to energy starting when the project begins to demand energy resources and would last for the duration of the project.~~



SOURCE: ESRI; ESA; Highland Fairview 3/29/2018

World Logistics Center  
**Figure 6.17-1**  
 Energy Cumulative Projects Area



**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Electrical and natural gas use for the cumulative projects was calculated using the land use size and type along with CalEEMod default energy use and intensity rates for each project. Electricity and Natural gas consumption from building operations was calculated using the default Title 24, non-title 24 and lighting use rates for each project based on the default 2016 Title 24 values. Electricity use from the supply, treatment and distribution of water and wastewater was also calculated based on CalEEMod's water use rates and electricity intensities.

Gallons of transportation fuel (diesel and natural gas) was quantified for each project as a result of construction and operational mobile source activities. Construction consumption was quantified for onsite construction equipment (assumed all diesel), as well as on-road diesel (haul and vendor trips) and gasoline (worker commute trips). Operational consumption was quantified for on-road diesel, gasoline, and natural gas vehicle use. Transportation fuel consumption for the cumulative projects was calculated using the annual metric tons of CO<sub>2</sub>e and the energy per gallon of fuel from the EIA for gasoline and diesel and per thousand cubic feet for natural gas. Diesel and gasoline consumption is reported as gallons of fuel whereas natural gas is reported in million British Thermal Units.

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Document Type</b>	<b>Energy Considered</b>	<b>Quantified</b>	<b>Demand (MWh)</b>
MV-3	ProLogis	EIR	No	No	—
MV-4	Westridge Commerce Center	EIR	No	No	—
MV-7	TR33962 / Pacific Scene Homes	ND	No	No	—
MV-8	TR32460 / Sussex Capital	ND	No	No	—
MV-9	TR32459 / Sussex Capital	ND	No	No	—
MV-10	TR30998 / Pacific Communities	ND	No	No	—
MV-11	TR30411 / Pacific Communities	ND	No	No	—
MV-14	TR32548 / Gabel, Cook & Associates	ND	No	No	—
MV-15	TR32218 / Whitney	ND	No	No	—
MV-16	TR32284 / 26th Corporation & Granite Capitol	ND	No	No	—
MV-17	TR31590 / Winchester Associates	ND	No	No	—
MV-18	Convenience Store / Fueling Station	ND	No	No	—
MV-19	Senior Assisted Living	ND	No	No	—
MV-20	Moreno Marketplace	ND	No	No	—
MV-21	PEN16-0053 Medical Center	MND	No	No	—
MV-22	TR36882 (PA15-0010) SFR	MND	No	No	—
MV-24	TM 36436 (PA12-0005)	MND	No	No	—
MV-25	TR32142	ND	No	No	—
MV-27	TR32917 / Empire Land	ND	No	No	—
MV-28	TR34329 / Granite Capitol	ND	No	No	—
MV-29	TR36340	ND	No	No	—
MV-30	PA03-0168 TR 31517	ND	No	No	—
MV-32	TTM 31592 (P13-078) SFR	ND	No	No	—
MV-33	TR32645 / Winchester Associates	ND	No	No	—
MV-34	TR34397 / Winchester Associates	ND	No	No	—
MV-35	TR31771 / Sanchez	ND	No	No	—
MV-36	TM 31618 (PA03-0106)	EIR	No	No	—

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Document Type</b>	<b>Energy Considered</b>	<b>Quantified</b>	<b>Demand (MWh)</b>
MV-37	Vogel /PA09-004	EIR	No	No	—
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	EIR	No	No	—
MV-41	First Nandina Logistics Center	EIR	Yes	Yes	4,528
MV-42	Indian Street Commerce Center	EIR	Yes	No	—
MV-43	Ivan Devries / PA06-0017	ND	No	No	—
MV-44	Modular Logistics Center (Kearny RE Co)	EIR	Yes	Yes	3,575
MV-45	Iris Plaza	IS	No	No	—
MV-47	PA07-0129 TR 35606 SFR	Exempt	No	No	—
MV-48	PA11-001 thru 007, March Business Center (Industrial Area SP)	EIR	Yes	No	—
MV-49	PA07-0079/0080/0093, & 0121 and PA08-0018, Indian Business Park, (Industrial Area SP)	MND	No	No	—
MV-50	San Michele Industrial Center, (Industrial Area SP)	ND	No	No	—
MV-51	Nandina Distribution Center IDS	MND	No	No	—
MV-52	First Industrial III & IV, (Industrial Area SP)	MND	No	No	—
MV-53	I-215 Logistics Center (Amazon)	MND	No	No	—
MV-54	Moreno Valley Logistics Center (Prologis)	EIR	Yes	Yes	15,536
MV-55	MV Commerce Park II (Alore)– Built before 2012		No	No	—
MV-56	Tract Map 33810	Exempt	No	No	—
MV-57	Tract Map 34151	ND	No	No	—
MV-58	Tract Map 33024	ND	No	No	—
MV-59	Tract Map 31442	ND	No	No	—
MV-60	Tract Map 36401	MND	No	No	—
MV-64	Walmart & Gas Station	EIR	No	No	—
MV-63	PA14-0053 (TTM 36760) Legacy Park	MND	No	No	—
MV-65	TR33607 / TL Group	ND	No	No	—
MV-66	TR34988 / Stratus Properties	ND	No	No	—
MV-67	TR32515	ND	No	No	—
MV-68	PA07-0035	ND	No	No	—
MV-69	PA07-0039, (Industrial Area SP)	ND	No	No	—
MV-74	TR34216 / Creative Design Associates		No	No	—
MV-75	Aqua Bella Specific Plan	EIR	No	No	—
MV-78	Overton Moore Properties PA08-0072	MND	No	No	—
MV-79	Shaw Development	MND	No	No	—
MV-80	PA15-0032 MV Cactus Center	MND	No	No	—
MV-81	Ridge Property Trust, PA07-0147 & PA-07-0157	ND	No	No	—

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

<b>Project ID</b>	<b>Project Name</b>	<b>Document Type</b>	<b>Energy Considered</b>	<b>Quantified</b>	<b>Demand (MWh)</b>
MV-84	PA16-0075 Brodiaea Business Center	ND	No	No	—
MV-85	Retail Center / Winco Foods, PA08-0079/0080/0084	ND	No	No	—
MV-86	TR32505 / DR Horton	ND	No	No	—
MV-88	TR33771 / Creative Design Associates	Exempt	No	No	—
MV-89	TR35663 / Kha	Exempt	No	No	—
MV-91	TR31305 / Richmond American	ND	No	No	—
MV-92	TR 33256	ND	No	No	—
MV-93	PA14-0042 Edgement Apartments	EIR	No	No	—
MV-94	PA15-0002 Box Springs Apartments	MND	No	No	—
MV-95	Moreno Beach Marketplace / Lowes	MND	No	No	—
MV-96	31394 Pigeon Pass, Ltd.	ND	No	No	—
MV-97	32005 Red Hill Village, LLC	ND	No	No	—
MV-98	33388 SCH Development, LLC	ND	No	No	—
MV-100	Scottish Village	ND	No	No	—
MV-103	Gateway Business Park	MND	No	No	—
MV-106	35304 Jimmy Lee	ND	No	No	—
MV-110	TM 33417	ND	No	No	—
MV-111	35769 Michael Chen	Exempt	No	No	—
MV-112	PA09-0006 Jim Nydam	Exempt	No	No	—
MV-113	Ironwood Residential	MND	No	No	—
MV-114	Stoneridge Town Centre—Vacant Restaurant	ND	No	No	—
MV-116	31621 Peter Sanchez	ND	No	No	—
MV-117	Riverside County Office Building	ND	No	No	—
MV-118	28860 Professor's Fun IV, LLC/Winchester Associates, Inc.	ND	No	No	—
MV-119	32126 Salvador Torres	ND	No	No	—
SJWA-1	San Jacinto Wildlife Land Management Plan	EIR	Yes	No	—

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project ID</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
B-1	Fairway Canyon SCPGA Tract Nos. 31462, 36558, and 36783 (#29)	SF	3,300 DU
B-10	Tract No. 32850 (#39)	SF	95 DU
B-11	San Gorgonio Village, Phase 2 (#45)	RC	225 KSF
B-12	Beaumont Commercial Center	MF	279 DU
B-13	Four Seasons (#23) Tract Nos. 32260 and 33096	SF	1,890 DU
B-14	Potrero Creek Estates (#26)	SF	700 DU
B-2	Tournament Hills 3, TM 36307	MF	571 DU
B-3	Heartland	SF	922 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project I D</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
B-4	Hidden Canyon	LI	1,734 KSF
B-5	ProLogis/Rolling Hills Ranch	HI	2,565.68 KSF
B-6	Mountain Bridge Regional Commercial Planned Community*	BP	1,853.25 KSF
B-7	Kirkwood Ranch (#14)	SF	403 DU
B-8	Noble Creek Vistas (#10)	SF	648 DU
B-9	Sundance (#17)	SF	4,450 DU
C-1	TTM 33931 Fiesta Oak Valley/Mesa Verde Estates	RC	200 KSF
C-2	Summerwind Ranch	BP	1,579 KSF
C-2	Summerwind Ranch	BP	1,000 KSF
C-3	JP Ranch	RC	72.7 KSF
H-1	TTM 36841	SF	588 DU
H-10	Downtown Hemet Specific Plan	**	**
H-2	Rancho Diamante	SF	440 DU
H-3	Tres Cerritos Specific Plan	SF	931 DU
H-4	Sanderson Square	LI	734.98 KSF
H-4	Sanderson Square	LI	995.15 KSF
H-5	Mc Sweeny Farms SP	RC	20.90 KSF
H-6	Ramona Creek	RC	680.788 KSF
H-7	Peppertree Specific Plan	SR	358 KSF
H-8	Florida Promenade Residential SP	SF	145 DU
H-9	TTM 31807 / 31808	SR	599 KSF
M-1	Amstar/Kaliber Development PP22925	HI	409.312 KSF
M-10	Airport Master Plan	WH	559 KSF
M-11	PA 06-0014 (Pierce Hardy Limited Partnership)	RC	67 KSF
M-2	Meridian Business Park	LI	487.8 KSF
M-3	Meridian Business Park – Phase 3	WH	2,900 KSF
M-4	March Business Center – South Campus	RC	108.9 KSF
M-5	Meridian LNR	OG	232.76 KSF
M-6	Ben Clark Training Facility	BP	219.35 KSF
M-7	Meridian Business Park – Phase K4	WH	675.5 KSF
M-8	March LifeCare Campus Specific Plan	MO	2,930 KSF
M-9	TM 34748	SF	135 DU
MV-1	Auto Mall SP	RC	304.5 KSF
MV-10	TR30998 / Pacific Communities	SF	47 DU
MV-100	Scottish Village	ME	194 DU
MV-101	Restaurant	RC	9 KSF
MV-102	Moreno Valley Professional Center	OG	84 KSF
MV-103	Gateway Business Park	LI	184 KSF
MV-104	373K Industrial Facility	WH	373.03 KSF
MV-105	35369 Tason Myers Property	ME	12 DU
MV-106	35304 Jimmy Lee	ME	12 DU
MV-107	32711 Isaac Genah	SF	9 DU
MV-108	O'Reilly Automotive	RC	2.97 KSF
MV-109	Quail Ranch	SF	1,105 DU
MV-11	TR30411 / Pacific Communities	SF	24 DU
MV-110	TM 33417	ME	60 DU
MV-111	35769 Michael Chen	ME	16 DU
MV-112	PA09-0006 Jim Nydam	ME	15 DU
MV-113	Ironwood Residential	SF	144 DU
MV-114	Stoneridge Town Centre – Vacant Restaurant	RC	5.7 KSF
MV-115	Olivewood Plaza – Office Building	OG	0.02 KSF
MV-116	31621 Peter Sanchez	SF	25 DU
MV-117	MV-101	OG	52 KSF
MV-118	28860 Professor's Fun IV	SF	9 DU
MV-119	32126 Salvador Torres	SF	35 DU
MV-12	Moreno Medical Campus	MO	80 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project I D</b>	<b>Project Name</b>	<b>Land Use<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-120	Moreno Valley Shopping Center	RC	189.52 KSF
MV-121	Yum Donut Shop	RC	4.35 KSF
MV-122	Centerpointe Business Park	**	**
MV-123	Rancho Belago Plaza – Retail	RC	14 KSF
MV-124	Alessandro & Lasselle	RC	140 KSF
MV-125	32756 Jimmy Lee	MF	24 DU
MV-126	TTM 33222	SF	235 DU
MV-13	Cresta Bella	OG	30 KSF
MV-14	TR32548 / Gabel, Cook & Assoc.	SF	107 DU
MV-15	TR32218 / Whitney	SF	63 DU
MV-16	TR32284 / 26th Corporation & Granite Capitol	SF	32 DU
MV-17	TR31590 / Winchester Associates	SF	96 DU
MV-18	Convenience Store / Fueling Station	RC	5.5 KSF
MV-19	Senior Assisted Living	SR	139 KSF
MV-2	TR35823 / Stowe Passco Devel.	SF	262 DU
MV-20	Moreno Marketplace	RC	93.79 KSF
MV-21	PEN16-0053 Medical Center	MO	80 KSF
MV-22	TR36882 (PA15-0010) SFR	SF	40 DU
MV-23	PEN16-0129/0130 MV Ranch Apartments	MF	417 DU
MV-24	TM 36436 (PA12-0005)	SF	159 DU
MV-25	TR32142	SF	81 DU
MV-26	TR 30268 (PA01-0072) Pacific Communities	SF	100 DU
MV-27	TR32917 / Empire land	MF	54 DU
MV-28	TR34329 / Granite Capitol	MF	90 DU
MV-29	TR36340	SF	275 DU
MV-3	ProLogis	WH	1,901 KSF
MV-30	PA03-0168 TR 31517	SF	83 DU
MV-31	PA15-0034 TR 36983	SF	53 DU
MV-32	TTM 31592 (P13-078) SFR	SF	115 DU
MV-33	TR32645 / Winchester Assoc.	SF	54 DU
MV-34	TR34397/Winchester Assoc.	SF	52 DU
MV-35	TR31771 / Sanchez	SF	25 DU
MV-36	TM 31618 (PA03-0106)	MF	56 DU
MV-37	Vogel /PA09-004	HI	1,616.13 KSF
MV-38	Vogel Properties	LI	434 KSF
MV-39	VIP Moreno Valley (SaresRegis/Vogel)	LI	1,600 KSF
MV-4	Westridge Commerce Center	LI	937.26 KSF
MV-40	PEN17-0036 Warehouse	WH	98.40 KSF
MV-41	First Nandina Logistics Center	WH	1,450 KSF
MV-42	Indian Street Commerce Center	WH	446.35 KSF
MV-43	Ivan Devries / PA06-0017	HI	555.67 KSF
MV-44	Modular Logistics Center (Kearny RE Co)	WH	1,109.38 KSF
MV-45	Iris Plaza	RC	87.12 KSF
MV-46	Harley Knox/Redlands Development	WH	382.28 KSF
MV-47	PA07-0129 TR 35606 SFR	SF	16 DU
MV-48	PA11-001 thru 007 March Business Center	BP	1484.50 KSF
MV-49	Indian Business Park	BP	1,560.05 KSF
MV-5	P06-158 / Gascon	RC	116.36 KSF
MV-50	San Michele Industrial Center	LI	354.81 KSF
MV-51	PA07-0165 thru 01667 First Industrial I & II	LI	769.32 KSF
MV-52	First Industrial III & IV	LI	878.96 KSF
MV-53	I-215 Logistics Center	WH	1,250 KSF
MV-54	Moreno Valley Logistics Center (Prologis)	WH	1,738 KSF
MV-55	MV Commerce Park II (Alere) – Built before 2012	**	**
MV-56	Tract Map 33810	SF	16 DU
MV-57	Tract Map 34151	SF	37 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project I D</b>	<b>Project Name</b>	<b>Land Us e<sup>1</sup></b>	<b>Size<sup>2</sup></b>
MV-58	Tract Map 33024	SF	8 DU
MV-59	Tract Map 31442	SF	63 DU
MV-6	Highland Fairview Corporate Park	WH	750 KSF
MV-60	Tract Map 36401	SF	92 DU
MV-61	Walmart & Gas Station	RC	180 KSF
MV-62	Tract Map 22180	SF	543 DU
MV-63	PA14-0053 (TTM 36760) Legacy Park	SF	221 DU
MV-64	TR22180 / Young Homes	SF	87 DU
MV-65	TR33607 / TL Group	MF	52 DU
MV-66	TR34988 / Stratus Properties	MF	251 DU
MV-67	TR32515	SF	161 DU
MV-68	PA07-0035	HI	207.09 KSF
MV-69	PA07-0039 (Industrial Area SP)	HI	409.60 KSF
MV-7	TR33962 / Pacific Scene Homes	SF	31 DU
MV-70	TR32756 / CTK, Inc.	MF	241 DU
MV-71	TR34681 / Perris Pacific Co.	MF	49 DU
MV-72	35861 Frederick Homes	MF	24 DU
MV-73	TR36038 / Alessandro Village Plaza LLC	MF	96 DU
MV-74	TR34216 / Creative Design Assoc.	SR	189 KSF
MV-75	Aqua Bella Specific Plan	SR	1,461 KSF
MV-76	Commercial Medical Plaza PA09-0033 thru 0039, and*	RC	311.63 KSF
MV-77	Minka Lighting	LI	533 KSF
MV-78	Overton Moore Properties PA08-0072	LI	520 KSF
MV-79	Shaw Development	WH	367 KSF
MV-8	TR32460 / Sussex Capital	SF	58 DU
MV-80	PA15-0032 MV Cactus Center	RC	44.3 KSF
MV-81	Ridge Property Trust PA07-0147 & PA 07-0157	WH	700 KSF
MV-82	Centerpointe Bus. Ctr.	WH	500 KSF
MV-83	Centerpointe Business Park	LI	356 KSF
MV-84	PA16-0075 Brodiaea Business Center	LI	99.98 KSF
MV-85	Retail Center / Winco Foods	RC	140 KSF
MV-86	TR32505 / DR Horton	SF	71 DU
MV-87	TR31814 / Moreno Valley Investors	MF	60 DU
MV-88	TR33771 / Creative Design Assoc.	MF	12 DU
MV-89	TR35663 / Kha	MF	12 DU
MV-9	TR32459 / Sussex Capital	SF	11 DU
MV-90	PEN16-0110 Commercial Pad H	RC	7.31 KSF
MV-91	TR31305 / Richmond American	SF	87 DU
MV-92	TR 33256	SF	99 DU
MV-93	PA14-0042 Edgemont Apartments	MF	112 DU
MV-94	PA15-0002 Box Springs Apartments	MF	266 DU
MV-95	Moreno Beach Market Place/Lowes	RC	175 KSF
MV-96	31394 Pigeon Pass, Ltd.	SF	78 DU
MV-97	32005 Red Hill Village, LLC	SF	214 DU
MV-98	33388 SCH Development, LLC	SF	16 DU
MV-99	36038 Alessandro Village Plaza, LLC	MF	96 DU
P-1	TR32707	SF	137 DU
P-10	IDS	WH	1,700 KSF
P-11	Ridge II	HI	1,224.99 KSF
P-12	Starcrest P011-0005; 08-11-0006	LI	454.09 KSF
P-13	Ridge	**	**
P-14	Rados Distribution Center	WH	1,200 KSF
P-15	Duke Perris Logistics Center	WH	780.82 KSF
P-16	Perris Ridge Commerce Center I	WH	1,310 KSF
P-17	SRG Perris LC	WH	580 KSF
P-18	P07-07-0029	WH	1,547 KSF

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project I D</b>	<b>Project Name</b>	<b>Land Us e<sup>1</sup></b>	<b>Size<sup>2</sup></b>
P-19	P05-0192	WH	697.6 KSF
P-2	TR34716	WH	600 KSF
P-20	P05-0113	WH	871.5 KSF
P-21	P07-09-0018	WH	170 KSF
P-22	NICOL	WH	380 KSF
P-23	Westcoast Textiles	WH	180 KSF
P-24	Optimus Logistics Center 1	WH	1,464 KSF
P-25	Optimus Logistics Center 2	WH	1,038 KSF
P-26	Duke Warehouse	LI	811.62 KSF
P-27	Perris DC (Industrial Property Trust)	WH	864 KSF
P-28	Duke Warehouse	LI	670 KSF
P-29	P06-0411	**	**
P-3	P05-0477	WH	462.3 KSF
P-30	Avelina	SF	492 DU
P-31	Perris Family Apartments	ME	75 DU
P-32	Lewis Retail Center	RC	643 KSF
P-33	Harvest Landing Specific Plan	SF	1,860 DU
P-34	South Perris Industrial Phase 3	WH	3,166.86 KSF
P-35	Verano Apartments	ME	40 DU
P-36	South Perris Industrial Phase 2	WH	3,448.73 KSF
P-37	Cabrillo	SF	183 DU
P-38	Sequoia	SF	223 DU
P-39	South Perris Industrial Phase 1	WH	783.7 KSF
P-4	Bookend	LI	172 KSF
P-40	TR 32041	SF	122 DU
P-41	P 06-0228	LI	149.74 KSF
P-42	TR 31650	SF	61 DU
P-43	TR 31225	SF	57 DU
P-44	TR 33193	ME	94 DU
P-45	P 12-05-0013	ME	75 DU
P-46	P 06-0378	SR	429 KSF
P-47	Park West Specific Plan	SF	521 DU
P-48	TR 33338	SF	75 DU
P-49	TR 31240	SF	114 DU
P-5	Markham East	WH	460 KSF
P-50	P 11-09-0011	RC	80 KSF
P-51	TR 30973	SF	35 DU
P-52	TR 31226	SF	82 DU
P-53	TR 31659	SF	161 DU
P-54	TTM 32708	SF	238 DU
P-55	Perris Marketplace	RC	450 KSF
P-56	PM 34199 / TPM 34697	LI	9.85 KSF
P-57	P 04-0343	WH	41.65 KSF
P-58	Jordan Distribution	HI	378 KSF
P-59	TR 31407	SF	243 DU
P-6	Perris Circle Industrial Park	LI	600 KSF
P-60	Retail on Redlands	RC	4.5 KSF
P-61	TR32707	WH	350 KSF
P-7	Duke Warehouse	LI	1,189.9 KSF
P-8	First Perry Logistics Project	LI	241 KSF
P-9	Aiere	HI	642 KSF
R-1	Sycamore Canyon Business Park – Bldgs 1&2	BP	1,375.17 KSF
R-10	SR-91/ Van Buren Commercial	RC	23.57 KSF
R-11	Citrus Business Park Specific Plan	BP	340.66 KSF
R-12	Sycamore Canyon Business Park Specific Plan	RC	61.38 KSF
R-13	14601 Dauchy Av. – TM 36370	SF	3 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project I D</b>	<b>Project Name</b>	<b>Land Us e<sup>1</sup></b>	<b>Size<sup>2</sup></b>
R-14	360 Alessandro Boulevard	RC	3.86 KSF
R-15	Mission Grove Specific Plan	SF	171.70 DU
R-16	Sycamore Canyon Specific Plan	SF	1.53 DU
R-17	5940-5980 Sycamore Canyon Boulevard	MF	275 DU
R-18	Hunter Business Park	LI	9,037.83 KSF
R-19	807 Blaine Street	MF	55 DU
R-2	Alessandro Business Center (Western Realco)	WH	582.77 KSF
R-20	474 Palmyrita Avenue	WH	1,461.45 KSF
R-21	1006 & 1008 Clark Street	SF	15 DU
R-22	3719 Strong Street	SF	9 DU
R-23	1710 Main Street (P12-0717)	RC	8.04KSF
R-24	Downtown Specific Plan	SF	5,000 DU
R-25	P14-0045 thru -0048	MF	208 DU
R-26	Marketplace Specific Plan	LI	943.51 KSF
R-27	2586 University Avenue	RC	3.62 KSF
R-28	2340 Fourteenth Street	SR	134 KSF
R-29	6570 Magnolia Avenue; 3739 & 3747 Central Avenue	RC	3.80 KSF
R-3	P07-1028, -0102; and P09-0416, -0418, -0419	LI	652.02 KSF
R-30	3545 Central Avenue	RC	208.57 KSF
R-31	P08- 0396 / P08-0397 Thru -0399 / TM 35620	MF	36 DU
R-32	Walmart Expansion	RC	22.27 KSF
R-33	5731, 5741, 5761, & 5797 Pickler Street	MF	30 DU
R-34	4247 Van Buren Boulevard	OG	12.17 KSF
R-35	3990 Reynolds Road	MF	102 DU
R-36	Magnolia Garden Condominiums	MF	62 DU
R-37	3705 Tyler Street	RC	6 KSF
R-38	Park Sierra Avenue	RC	3.5 KSF
R-39	Riverwalk Vista Specific Plan	SF	402 DU
R-4	Quail Run	MF	216 DU
R-40	P12- 0019 / P12-0156 / P12-0158	RC	2.4 KSF
R-41	4824 Jones Avenue	OG	23.12 KSF
R-42	Rancho La Sierra Specific Plan	SF	598 DU
R-43	P05-1528 / P09-0087 / TM 34509	SF	50 DU
R-44	6465 Sycamore Canyon Boulevard	RC	4 KSF
R-45	P06-0591	OG	37.94 KSF
R-46	Sycamore-Highlands Specific Plan	SF	35.84 DU
R-47	P06-0160 / P06-1281	WH	107.73 KSF
R-48	P06-1408	RC	75.3 KSF
R-49	Canyon Springs Specific Plan	SR	310 KSF
R-5	Canyon Springs Healthcare Campus	MO	500 KSF
R-50	Orangecrest Specific Plan	SF	3.83 DU
R-51	P10-0808 / P10-0708	RC	2.36 KSF
R-52	19811 Lurin Avenue	SF	32 DU
R-53	P06-1404 / Lurin Avenue / TM 33482	SF	29 DU
R-54	P06-1396 / Mariposa Avenue / TM 33481	SF	25 DU
R-55	P06-0900 / P08- 0269 / P08-0270 / TTM 32301	SF	20 DU
R-56	Office, Magnon & Panattoni	OG	131 KSF
R-57	SEC Sycamore Canyon Boulevard & Box Springs Road	LI	171.62 KSF
R-58	Canyon / Valley Springs Parkway	RC	2.75 KSF
R-59	Alessandro and Gorgonio	RC	4.05 KSF
R-6	2450 Market Street	MF	77 DU
R-60	Alessandro Bl.	BP	101.58 KSF
R-61	Gless Ranch	RC	425.45 KSF
R-62	6091 Victoria Avenue (P13-0432)	RC	1.83 KSF
R-63	8616 California Avenue (P08-0084; PM 35852)	MF	21 DU
R-64	P13-0389 / TM 36579	SF	5 DU

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-1: Energy Cumulative Projects Summary**

<b>Project I D</b>	<b>Project Name</b>	<b>Land Us e<sup>1</sup></b>	<b>Size<sup>2</sup></b>
R-65	P13-0723; P13-0724; P13-0725; TM 36654	SF	62 DU
R-66	Azar Plaza	RC	6.15 KSF
R-7	2861 Mary Street	RC	56.10 KSF
R-8	5938-5944 Grand Avenue	SR	37 KSF
R-9	Magnolia Avenue Specific Plan	RC	8,777.62 KSF
RC-1	TR35530 / Quail Ranch Specific Plan	SF	1,251 DU
RC-10	Majestic Freeway Business Center	LI	6,200 KSF
RC-11	Alessandro Commerce Center	WH	814 KSF
RC-12	Cores Industrial Partners	LI	423.67 KSF
RC-13	Sunny-Cal Specific Plan (#40)	SF	497 DU
RC-14	University Highlands	MF	320 DU
RC-15	TTM 33410 Box Springs	SF	142 DU
RC-16	Sycamore Canyon Specific Plan	**	**
RC-17	PP 24608	RC	9.28 KSF
RC-18	TR 32406	SF	15 DU
RC-19	CUP 03599	RC	52.80 KSF
RC-2	Jack Rabbit Trail	SF	2,000 DU
RC-20	PP 25699	RC	2.8 KSF
RC-21	CUP 03527	WH	8 KSF
RC-22	TR 30592	SF	131 DU
RC-23	PP 25768	LI	52.45 KSF
RC-24	PP 21144	LI	190.80 KSF
RC-25	PP 16976	LI	85 KSF
RC-26	PM 32699	SF	2 DU
RC-27	Yocum Baldwin	LI	188.70 KSF
RC-28	CUP 03315	RC	5.6 KSF
RC-29	18580 Van Buren Boulevard	RC	8.14 KSF
RC-3	The Preserve / Legacy Highlands SP – Commercial and Residential	SF	3,412 DU
RC-30	Knox Logistics	WH	1,259.05 KSF
RC-31	PP 23342	LI	180.6 KSF
RC-32	TTM 31537	SF	726 DU
RC-33	TTM 34130	SF	384 DU
RC-34	Emerald Acres SP #381	SF	432 DU
RC-35	TR 34677, 31100, 32391, 33448, 31101, 31009, 32282	OG	80 KSF
RC-36	TR36478, TR36480, PP25219	SF	468 DU
RC-37	TR 36504	SF	562 DU
RC-38	San Gorgonio Crossings	WH	1,823.76 KSF
RC-39	Tract 33869	SF	39 DU
RC-4	Badlands Sanitary Landfill	**	**
RC-5	Villages of Lakeview – Commercial Development and Residential Development	SF	750 DU
RC-6	Rider Business Center (Core 5 Industrial Partners)	BP	600 KSF
RC-7	Nuevo Distribution Center	WH	1,586.65 KSF
RC-8	Trucking DC (Central Freight LLC)	**	**
RC-9	Oleander Business Park PP20699	OG	34 KSF
RD-1	Tract 18988	SF	82 DU
RD-10	Park Ave Industrial Center	LI	145.26 KSF
RD-11	Marriott Springhill Suites	RC	55.47 KSF
RD-12	I-10 Redlands LC – B	WH	601.29 KSF
RD-13	Ashley Furniture	WH	1,013 KSF
RD-14	Redlands DC 772,000 SF	WH	772 KSF
RD-15	2220 Almond Ave	WH	423 KSF
RD-16	APL Logistics	WH	714.73 KSF
RD-2	Redlands Pioneer Tract	SF	55 DU
RD-3	Newland Homes Tract	SF	103 DU
RD-4	Redlands Pennsylvania Tract	SF	67 DU

**Table 6.17-1: Energy Cumulative Projects Summary**

<u>Project I D</u>	<u>Project Name</u>	<u>Land Us e<sup>1</sup></u>	<u>Size<sup>2</sup></u>
RD-5	I-10 Redlands LC – A	WH	500.60 KSF
RD-6	Woodsprings Hotel	RC	48.22 KSF
RD-7	RV Storage Facility	RC	127.75 KSF
RD-8	Liberty Lane Apartments	MF	80 DU
RD-9	Hilton Home2 Suites	RC	43.80 KSF
SB-1	Redlands Gateway Logistics – B	WH	614.33 KSF
SB-2	Redlands Gateway Logistics – A	WH	313.47 KSF
SB-3	Prologis 12	WH	593.56 KSF
SB-4	Prologis 17	WH	777.62 KSF
SB-5	Prologis #13	WH	282 KSF
SB-6	Prologis #8	WH	542.98 KSF
SB-7	Sam Redlands Tract	SF	34 DU
SB-8	Jacinto Tract	SF	40 DU
SJ-1	Gateway Area Specific Plan	RC	1,678.24 KSF
SJ-2	TR 31886	SF	321 DU
SJ-3	TR 30598	SF	580 DU
SJ-4	TR 32955	SF	613 DU
SJWA-1	San Jacinto Wildlife Land Management Plan	**	**

**Notes:**

<sup>1</sup> BP: Business Park	MF: Multifamily Residential	RC: Retail/Unspecified Commercial
HI: Heavy Industrial	MO: Medical Office	SF: Single Family Residential
LI: Light Industrial	OG: General Office	SR: Senior Residential
		WH: Warehouse-Logistics

\*\* Project information not available or planning level document with no direct development proposed.  
 DU = dwelling units; KSF = thousand square feet

**6.17.3 Cumulative Impact Evaluation**

**6.17.3.1 Cumulative Energy Consumption, Supply, Standards and Facilities**

**Impact:** Impact: *The Project would not result in environmental impacts related to energy consumption, supply, energy standards and expansion of facilities.*

<p>Threshold:</p> <p>Would the project result in energy use and consumption that would cause wasteful, inefficient, and unnecessary consumption of energy?</p> <p>Would the project require the construction of new electrical and/or natural gas facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?</p> <p>Would the project comply with Existing Energy Standards?</p>
--

**Cumulative Impact Analysis**

Electricity

The geographic context for the cumulative analysis of electricity is MVU’s service area. Electricity demand for all cumulative projects located in within the MVU’s service area has been estimated. Growth within this geography is anticipated to increase the demand for electricity and the need for infrastructure, such as new or expanded facilities.

The cumulative projects would require electricity for water conveyance during ground-moving activities, would require a relatively large amount of water to cover the affected construction areas. Electrical consumption due to the conveyance of water used for dust control is presented in Table 6.17-2.

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Buildout of the Project, the cumulative projects, and additional growth forecasted to occur in the City would increase electricity consumption during Project construction and operation, and may cumulatively increase the need for electricity supplies. MVU forecasts that its peak demand in 2024, the latest available forecast from the IRP, would be approximately 352,044 MWh/year. The Project's estimated net new electrical consumption would account for between 47 to 73 percent of MVU's projected electricity sales in 2025 depending on the EV scenario. As stated in Section 4.17, *Energy*, since the 2015 IRP only forecasts out to 2024, projecting electricity use and supply for the full buildout 2040 Scenarios would also be highly speculative. The utility has a considerable amount of time to procure energy resources in anticipation of the Project's development, and has committed to taking the WLCSP needs into consideration in future IRP development. The cumulative projects do not take into account electricity use from electric vehicle charging stations as the specifics of EV stations are not known for the cumulative projects. Table 6.17-2 provides a project by project summary of electrical needs in MWh.

Water use related to dust control is regulated under SCAQMD's Rules 402 and 403 and is required to limit fugitive particulate matter generated by construction activities. The project would be in compliance with Rules 402 and 403 and would require a relatively large amount of water to cover the entire acreage of the project site. The expected electricity consumption associated with water use during construction equates to only 0.43 percent of MVU's forecasted sales for 2020 (expected starting year of construction).

MVU forecasts that its peak demand in 2037, the latest available forecast from the Integrated Resource Plan (IRP), would be approximately 231,555 MWh/year. The Project's estimated net new electrical consumption would account for between 74 to 113 percent of MVU's projected electricity sales in 2024 depending on the electric vehicle (EV) penetration scenario. Total energy consumption from all cumulative projects is estimated at 592,748 MWh annually and is 256 percent of MVU's forecasted sales in 2037. The utility has a considerable amount of time to procure energy resources in anticipation of the Project's development, and has committed to taking the Project's needs into consideration in future IRP development.

**Table 6.17-2: Cumulative Electrical Consumption within MVU Service Area**

<b>Project ID</b>	<b>Annual Construction (MWh)</b>	<b>Annual Operation (MWh)</b>	<b>Project ID</b>	<b>Annual Construction (MWh)</b>	<b>Annual Operation (MWh)</b>
MV-001	0.86	4,293	MV-052	=	11,568
MV-002	0.63	3,694	MV-053	=	6,714
MV-003	0.73	15,041	MV-054	0.74	9,335
MV-004	=	12,335	MV-056	0.20	148
MV-005	0.37	1,641	MV-057	0.43	342
MV-006	0.83	4,028	MV-058	=	74
MV-007	0.39	287	MV-059	0.62	583
MV-008	0.68	537	MV-060	0.70	852
MV-009	0.15	102	MV-061	0.52	2,538
MV-010	0.55	435	MV-062	0.60	5,026
MV-011	0.30	222	MV-063	0.69	2,046
MV-012	=	914	MV-064	0.67	805
MV-013	0.21	391	MV-065	0.17	305
MV-014	0.49	990	MV-066	0.70	1,474
MV-015	0.62	583	MV-068	0.36	2,725
MV-016	0.37	296	MV-069	=	5,391
MV-017	0.67	889	MV-070	0.68	1,415
MV-018	=	78	MV-071	0.16	288
MV-019	=	777	MV-074	0.58	1,057
MV-020	=	1,322	MV-075	1.09	8,168
MV-021	0.24	914	MV-076	0.88	4,394
MV-022	=	370	MV-077	0.82	7,015
MV-023	0.77	2,449	MV-078	=	6,844
MV-024	0.50	1,472	MV-079	0.44	1,971

**Table 6.17-2: Cumulative Electrical Consumption within MVU Service Area**

<u>Project ID</u>	<u>Annual Construction (MWh)</u>	<u>Annual Operation (MWh)</u>	<u>Project ID</u>	<u>Annual Construction (MWh)</u>	<u>Annual Operation (MWh)</u>
MV-025	0.62	750	MV-080	0.15	625
MV-026	0.69	926	MV-081	=	3,760
MV-027	0.18	317	MV-082	=	2,686
MV-028	0.27	529	MV-083	=	4,685
MV-029	0.61	2,545	MV-084	=	1,316
MV-033	0.63	500	MV-089	0.10	70
MV-034	0.61	481	MV-090	0.06	103
MV-035	0.32	231	MV-093	=	658
MV-036	=	329	MV-102	0.25	1,096
MV-037	=	21,270	MV-105	0.10	70
MV-038	=	5,712	MV-106	0.10	70
MV-039	=	21,058	MV-108	0.02	42
MV-040	0.14	528	MV-111	0.06	94
MV-041	0.91	7,788	MV-112	0.11	88
MV-042	0.50	2,397	MV-118	0.14	83
MV-043	=	7,313	MV-121	0.03	61
MV-044	0.76	5,959	MV-123	0.10	197
MV-045	0.28	1,228	MV-124	0.40	1,974
MV-046	=	2,053	MV-126	0.52	2,175
MV-048	=	19,944	<b>Cum Project Total</b>	<b>29</b>	<b>290,603</b>
MV-049	=	20,959	<b>Net Project</b>	<b>1,496</b>	<b>302,145</b>
MV-050	=	4,670	<b>Total</b>	<b>1,525</b>	<b>592,748</b>
MV-051	=	10,125	MVU	231,555	231,555
			%MVU	0.66%	256%

Source: ESA, 2019

As the utility provider for the Project and cumulative projects, MVU has determined that the increased electricity demand would be minor compared to existing supply and infrastructure within its service area and would be consistent with growth expectations for its service area. MVU's 2015 ~~2018~~ IRP predicts an increase in electricity demand over a 10-year period that is planned to be met by increasing solar, wind, and geothermal power, and supplementing with natural gas as needed. MVU's IRP specifically mentions World Logistics Center and states that, "a portion of the anticipated demand [of the Project] is incorporated in MVU's load forecast. MVU will monitor development progress at the World Logistics Center and other local projects to determine potential impacts to customer energy requirements".<sup>1</sup> MVU forecasts projected growth in the region and with its 2015 ~~2018~~ IRP already has plans in place that account for future development including the Project and cumulative projects. ~~Many of the identified cumulative project CEQA documents, including MV 2 and MV 3, evaluated the cumulative energy impacts, and that analysis has been incorporated into this assessment.~~

Furthermore, like the Project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and State energy standards under Title 24, and incorporate mitigation measures, as necessary. Although the phrase "rolling blackouts" is a household phrase and heat waves in 2017 registered record-setting elevated temperatures, the electrical grid largely holds strong. As discussed above and based on evidence from MVU, the Project would not have a cumulatively considerable impact on existing energy resources either individually or incrementally when considering the anticipated growth in the service area. Accordingly, the impacts related to electricity consumption would not be cumulatively considerable, and thus would be less than significant.

<sup>1</sup> Moreno Valley Utility, Integrated Resource Plan (2015).

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

Natural Gas

The geographic context for the cumulative analysis of natural gas is the State Southern California Gas's (So Cal Gas) service area. All of the cumulative projects identified by the TIA and listed below are in So Cal Gas' service area. Growth within this geography is not anticipated to increase the demand for natural gas and the need for infrastructure, such as new or expanded facilities.

Buildout of the Project, the cumulative projects, and additional growth forecasted to occur in the City could increase natural gas consumption during Project construction and operation, and may cumulatively increase the need for natural gas supplies. Table 6.17-3 provides a project by project summary of natural gas needs in MMBTU.

**Table 6.17-3: Cumulative Natural Gas Consumption**

<u>Project ID</u>	<u>Annual MMBtu</u>	<u>Project ID</u>	<u>Annual MMBtu</u>	<u>Project ID</u>	<u>Annual MMBtu</u>
B-001	100,967	MV-078	16,640	R-015	5,253
B-002	8,447	MV-079	734	R-016	47
B-003	28,210	MV-080	89	R-017	4,068
B-004	55,488	MV-081	1,400	R-018	289,211
B-005	82,102	MV-082	1,000	R-019	814
B-006	5,560	MV-083	11,392	R-020	2,923
B-007	12,330	MV-084	3,199	R-021	459
B-008	19,826	MV-085	280	R-022	275
B-009	136,152	MV-086	2,172	R-023	16
B-010	2,907	MV-087	888	R-024	152,980
B-011	450	MV-088	178	R-025	3,077
B-012	4,128	MV-089	178	R-026	596
B-013	57,826	MV-090	15	R-026	30,192
B-014	21,417	MV-091	2,662	R-026	1,043
C-001	400	MV-093	1,657	R-027	7
C-002	2,000	MV-094	3,935	R-028	2,087
C-002	4,737	MV-095	350	R-029	8
C-003	145	MV-096	2,386	R-030	417
H-001	17,990	MV-097	6,548	R-031	533
H-002	13,462	MV-098	490	R-032	45
H-003	28,485	MV-099	1,420	R-033	444
H-004	23,519	MV-100	2,870	R-034	36
H-004	2,985	MV-101	18	R-035	1,509
H-005	42	MV-102	252	R-036	917
H-006	1,362	MV-103	5,888	R-037	12
H-007	5,575	MV-104	746	R-038	7
H-008	6,853	MV-105	178	R-039	12,300
H-008	4,436	MV-106	178	R-040	5
H-009	9,329	MV-107	275	R-041	69
M-001	20	MV-108	6	R-042	18,296
M-001	774	MV-109	33,809	R-043	1,530
M-001	1,351	MV-110	888	R-044	8
M-001	13,098	MV-111	237	R-045	114
M-002	9,050	MV-112	222	R-046	1,097
M-002	1,407	MV-113	4,406	R-047	215
M-002	15,610	MV-114	11	R-048	151
M-003	5,800	MV-115	0	R-049	4,828
M-004	218	MV-116	765	R-050	117
M-005	6,124	MV-117	156	R-051	5
M-005	698	MV-118	275	R-052	979
M-005	33,966	MV-119	1,071	R-053	887
M-006	658	MV-120	379	R-054	765
M-007	1,351	MV-121	9	R-055	612

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-3: Cumulative Natural Gas Consumption**

<b>Project ID</b>	<b>Annual MMBtu</b>	<b>Project ID</b>	<b>Annual MMBtu</b>	<b>Project ID</b>	<b>Annual MMBtu</b>
M-008	1,250	MV-123	28	R-056	393
M-008	8,790	MV-124	280	R-057	5,492
M-009	4,130	MV-125	355	R-058	5
M-010	1,118	MV-126	7,190	R-059	8
M-011	134	MV-127	680	R-060	305
MV-001	609	MV-129	50,560	R-061	851
MV-002	8,016	MV-130	444	R-062	4
MV-002	3,196	MV-131	3,000	R-063	311
MV-003	3,802	MV-132	2,200	R-064	153
MV-003	11,744	P-001	4,192	R-065	1,897
MV-004	29,992	P-002	1,200	R-066	12
MV-005	233	P-003	925	RC-001	38,276
MV-006	1,500	P-004	5,504	RC-002	61,192
MV-007	948	P-005	920	RC-003	104,394
MV-008	1,775	P-006	19,200	RC-005	22,947
MV-009	337	P-007	38,076	RC-006	1,800
MV-010	1,438	P-008	7,712	RC-007	3,173
MV-011	734	P-009	20,544	RC-009	102
MV-012	240	P-010	3,400	RC-009	37,527
MV-013	90	P-011	39,200	RC-010	198,400
MV-014	3,274	P-012	14,531	RC-011	1,628
MV-015	1,928	P-014	2,400	RC-012	13,557
MV-016	979	P-015	1,562	RC-013	15,206
MV-017	2,937	P-016	2,620	RC-014	4,734
MV-018	11	P-017	1,160	RC-015	4,345
MV-019	2,165	P-018	3,094	RC-017	19
MV-020	188	P-019	1,395	RC-018	459
MV-021	240	P-020	1,743	RC-019	106
MV-022	1,224	P-021	340	RC-020	6
MV-023	6,169	P-022	760	RC-021	16
MV-024	4,865	P-023	360	RC-022	4,008
MV-025	2,478	P-024	2,928	RC-023	1,678
MV-026	3,060	P-025	2,076	RC-024	6,106
MV-027	799	P-026	25,972	RC-025	2,720
MV-028	1,331	P-027	1,728	RC-026	61
MV-029	8,414	P-028	21,440	RC-027	6,038
MV-030	2,539	P-030	15,053	RC-028	11
MV-031	1,622	P-031	1,110	RC-029	16
MV-032	3,519	P-032	1,286	RC-030	2,518
MV-033	1,652	P-033	56,909	RC-031	5,779
MV-034	1,591	P-034	6,334	RC-032	22,213
MV-035	765	P-035	592	RC-033	11,749
MV-036	828	P-036	6,897	RC-034	13,217
MV-037	51,716	P-036	100	RC-035	84,904
MV-038	13,888	P-037	5,599	RC-035	240
MV-039	51,200	P-038	6,823	RC-035	1,509
MV-040	197	P-039	1,567	RC-036	14,319
MV-041	2,900	P-040	3,733	RC-037	17,195
MV-042	893	P-041	4,792	RC-038	3,648
MV-043	17,781	P-042	1,866	RC-039	1,193
MV-044	2,219	P-043	1,744	RD-001	2,509
MV-045	174	P-044	1,391	RD-002	1,683
MV-046	765	P-045	1,110	RD-003	3,151
MV-047	490	P-046	6,681	RD-004	2,050
MV-048	4,453	P-047	15,941	RD-005	1,001
MV-049	4,680	P-048	2,295	RD-006	96

**Table 6.17-3: Cumulative Natural Gas Consumption**

<b>Project ID</b>	<b>Annual MMBtu</b>	<b>Project ID</b>	<b>Annual MMBtu</b>	<b>Project ID</b>	<b>Annual MMBtu</b>
MV-050	11,354	P-049	3,488	RD-007	255
MV-051	24,618	P-050	160	RD-008	1,184
MV-052	28,127	P-051	1,071	RD-009	88
MV-053	2,500	P-052	2,509	RD-010	4,648
MV-054	3,476	P-053	4,926	RD-011	111
MV-056	490	P-054	7,282	RD-012	1,203
MV-057	1,132	P-055	900	RD-013	2,026
MV-058	245	P-056	315	RD-014	1,544
MV-059	1,928	P-057	83	RD-015	846
MV-060	2,815	P-058	12,096	RD-016	1,429
MV-061	360	P-059	7,435	SB-001	1,229
MV-062	16,614	P-060	9	SB-002	627
MV-063	6,762	P-061	700	SB-003	1,187
MV-064	2,662	R-001	4,126	SB-004	1,555
MV-065	769	R-002	1,166	SB-005	564
MV-066	3,713	R-003	20,865	SB-006	1,086
MV-067	4,926	R-004	3,196	SB-007	1,040
MV-068	6,627	R-005	1,500	SB-008	1,224
MV-069	13,107	R-006	1,139	SJ-001	3
MV-070	3,565	R-007	112	SJ-002	9,821
MV-071	725	R-008	576	SJ-003	17,746
MV-072	355	R-009	17,555	SJ-004	18,755
MV-073	1,420	R-010	47		
MV-074	2,943	R-011	1,022		
MV-075	22,754	R-012	123		
				<b>Total Cum.</b>	<b>3,181,269</b>
				<b>Net Project (Building Energy)</b>	<b>0</b>
				<b>Total</b>	<b>3,181,269</b>
MV-076	623	R-013	92	SoCalGas	873,793,575
MV-077	17,056	R-014	8	%SoCalGas	0.36%

Source: ESA, 2019

Though electricity usage is predicted to rise, natural gas demand is expected to decline overall from 2016-2035 accounting for population and economic growth as well as efficiency improvements and the State’s transition away from fossil fuel-generated electricity to increased renewable energy. SoCalGas predicts a decline in every sector (residential, industrial, commercial, electricity generation, and vehicular), with the exception of wholesale and international gas sales to Mexico. The 2016 California Gas Report states, “SoCalGas projects total gas demand to decline at an annual rate of 0.6% from 2016 to 2035. The decline in throughput demand is due to modest economic growth, CPUC-mandated energy efficiency (EE) standards and programs, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure (AMI).”<sup>2</sup> Buildout of the Project and cumulative projects in the Statewide service area is not expected to increase natural gas consumption and the need for natural gas supplies from building energy.

Natural gas consumption from the Project was compared to Statewide natural gas fuel consumption since natural gas as a fuel can be procured from anywhere and is not limited to the service provider’s resources. The Project would not generate any natural gas use for building operations, as shown in Table 6.17-3, above. Natural gas consumption would primarily be from operation of on-site equipment and the planned CNG/LNG fueling station which will be publicly accessible and are included as transportation fuels in Table 6.17-4, below. The combined annual natural gas use would represent 0.003 percent of the State’s total natural gas use. From a cumulative standpoint, natural gas

<sup>2</sup> California Gas and Electric Utilities, *2016 California Gas Report*. <https://www.socalgas.com/regulatory/documents/cgr/2016-cgr.pdf>. Accessed May 2018.

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

consumption from all cumulative projects (including the proposed Project) would be 3,181,269 MMBtu or 0.36 percent of the SoCalGas's total natural gas use.

Although future development projects would result in use of nonrenewable natural gas resources which could limit future availability, the use of such resources would be on a relatively small scale and would be consistent with regional and local growth expectations for SoCal Gas's service area and would not strain Statewide natural gas resources. Further, like the Project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and State energy standards in Title 24, and incorporate mitigation measures, as necessary. While initially the Project and cumulative projects could result in increased natural gas demand compared to existing uses on each specific project site, the overall demand for natural gas over time is expected to decline due to increases in regional natural gas efficiencies and the transition to renewable energy on a statewide basis displacing fossil fuels including natural gas. Therefore, the Project would not have a cumulatively considerable impact related to natural gas consumption, and impacts would be less than significant.

### **Transportation Energy** Transportation Energy

Buildout of the Project, the cumulative projects, and additional growth forecasted to occur in the City could increase gasoline, diesel, and natural gas consumption during Project construction and operation, and may cumulatively increase the need for supplies. Table 6.17-4 provides a project by project summary of transportation fuel needs.

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
B-001	811,945	886,209	1,993,672	17,519,159	1,625
B-002	=	=	267,495	2,350,577	218
B-003	136,884	83,203	557,020	4,894,747	454
B-004	120,158	90,274	711,650	6,253,541	580
B-005	=	=	834,317	7,331,468	680
B-006	134,044	96,431	1,458,987	12,820,679	1,189
B-007	54,788	18,615	243,470	2,139,461	198
B-008	121,463	58,888	391,485	3,440,126	319
B-009	1,343,552	1,592,304	2,688,436	23,624,320	2,192
B-010	50,691	4,861	57,394	504,339	47
B-011	45,372	9,446	305,089	2,680,936	249
B-012	=	=	130,702	1,148,531	107
B-013	382,424	339,379	1,141,830	10,033,700	931
B-014	124,123	63,361	422,900	3,716,185	345
C-001	43,602	8,938	271,190	2,383,054	221
C-002	163,552	123,557	2,599,032	22,838,694	2,119
C-003	33,981	3,590	98,578	866,240	80
H-001	59,841	26,798	355,236	3,121,596	290
H-002	55,851	20,221	265,823	2,335,888	217
H-003	137,416	84,199	562,457	4,942,526	459
H-004	129,039	90,032	1,085,086	9,535,072	885
H-005	15,668	1,173	28,351	249,134	23
H-006	83,134	27,853	923,116	8,111,773	753
H-007	55,570	32,744	84,772	744,924	69
H-008	60,183	46,385	191,790	1,685,330	156
H-009	=	=	141,839	1,246,395	116
M-001	101,761	38,543	315,755	2,774,658	257
M-002	=	=	2,647,578	23,265,282	2,158
M-003	172,547	152,814	1,391,747	12,229,816	1,135
M-004	35,832	5,164	147,663	1,297,573	120

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
M-005	232,896	227,504	2,041,886	17,942,835	1,665
M-006	45,116	12,072	172,683	1,517,435	141
M-007	78,878	36,132	324,181	2,848,704	264
M-008	205,511	178,369	5,816,670	51,113,311	4,742
M-009	46,928	6,545	81,559	716,693	66
M-010	70,532	29,978	268,271	2,357,402	219
M-011	32,882	3,305	90,849	798,323	74
MV-001	51,273	12,703	412,887	3,628,200	337
MV-002	61,451	31,634	259,474	2,280,100	212
MV-003	143,133	119,796	1,062,934	9,340,413	867
MV-004	=	=	384,660	3,380,158	314
MV-005	36,448	5,596	157,779	1,386,461	129
MV-006	82,104	40,030	359,935	3,162,883	293
MV-007	36,444	1,929	18,728	164,574	15
MV-008	47,680	3,129	35,040	307,912	29
MV-009	32,920	868	6,646	58,397	5
MV-010	47,410	2,625	28,395	249,515	23
MV-011	36,176	1,549	14,499	127,412	12
MV-012	=	=	135,678	1,192,253	111
MV-013	15,979	2,032	17,640	155,011	14
MV-014	51,404	5,319	64,643	568,045	53
MV-015	50,266	3,424	38,061	334,457	31
MV-016	46,873	1,998	19,333	169,883	16
MV-017	50,691	4,861	57,998	509,648	47
MV-018	=	=	7,458	65,534	6
MV-019	=	=	32,914	289,230	27
MV-020	=	=	127,172	1,117,509	104
MV-021	34,602	5,021	135,678	1,192,253	111
MV-022	=	=	24,166	212,353	20
MV-023	60,143	37,050	195,351	1,716,621	159
MV-024	47,781	7,746	96,059	844,105	78
MV-025	50,727	4,177	48,936	430,016	40
MV-026	50,691	4,994	60,414	530,884	49
MV-027	34,085	5,571	25,297	222,296	21
MV-028	38,070	8,557	42,162	370,494	34
MV-029	51,067	12,781	166,139	1,459,930	135
MV-030	50,727	4,177	50,144	440,633	41
MV-031	47,412	2,996	32,020	281,368	26
MV-032	51,667	5,692	69,476	610,516	57
MV-033	47,412	2,996	32,624	286,677	27
MV-034	47,411	2,872	31,415	276,059	26
MV-035	36,176	1,549	15,104	132,721	12
MV-036	=	=	26,234	230,529	21
MV-037	=	=	525,539	4,618,116	428
MV-038	=	=	178,118	1,565,188	145
MV-039	=	=	656,655	5,770,280	535
MV-040	34,737	6,168	47,221	414,949	38
MV-041	108,981	76,567	695,873	6,114,908	567
MV-042	65,692	24,084	214,209	1,882,337	175
MV-043	=	=	180,695	1,587,833	147
MV-044	98,367	57,085	532,405	4,678,444	434
MV-045	34,906	4,164	118,131	1,038,058	96
MV-046	=	=	183,461	1,612,143	150
MV-047	35,907	1,179	9,666	84,941	8
MV-048	=	=	1,168,682	10,269,659	953

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
MV-049	=	=	1,228,159	10,792,302	1,001
MV-050	=	=	145,617	1,279,596	119
MV-051	=	=	315,736	2,774,495	257
MV-052	=	=	360,733	3,169,903	294
MV-053	=	=	599,891	5,271,472	489
MV-054	120,158	90,395	834,088	7,329,455	680
MV-056	35,907	1,179	9,666	84,941	8
MV-057	46,874	2,245	22,353	196,427	18
MV-058	=	=	4,833	42,471	4
MV-059	50,266	3,424	38,061	334,457	31
MV-060	50,987	4,665	55,581	488,413	45
MV-061	42,739	8,133	244,071	2,144,749	199
MV-062	58,776	24,816	328,050	2,882,698	267
MV-063	49,658	10,493	133,516	1,173,253	109
MV-064	50,986	4,427	52,560	461,869	43
MV-065	34,085	5,439	24,360	214,063	20
MV-066	53,112	23,199	117,585	1,033,266	96
MV-067	48,047	7,746	97,267	854,723	79
MV-068	43,801	12,032	67,341	591,750	55
MV-069	=	=	133,194	1,170,430	109
MV-070	52,840	22,315	112,900	992,100	92
MV-071	34,084	5,174	22,955	201,713	19
MV-072	30,418	2,729	11,243	98,798	9
MV-073	38,339	9,183	44,973	395,193	37
MV-074	48,543	17,378	44,754	393,270	36
MV-075	168,241	261,706	345,955	3,040,040	282
MV-076	51,807	12,950	422,559	3,713,191	345
MV-077	72,693	28,602	218,748	1,922,224	178
MV-078	=	=	213,413	1,875,341	174
MV-079	51,814	19,833	176,128	1,547,704	144
MV-080	31,956	2,299	60,069	527,846	49
MV-081	=	=	335,939	2,952,024	274
MV-082	=	=	239,956	2,108,589	196
MV-083	=	=	146,106	1,283,887	119
MV-084	=	=	41,032	360,563	33
MV-085	40,724	6,380	189,833	1,668,138	155
MV-086	=	=	42,894	376,927	35
MV-087	34,375	6,243	28,108	246,996	23
MV-088	15,044	1,456	5,622	49,399	5
MV-089	15,044	1,456	5,622	49,399	5
MV-090	15,041	597	9,912	87,101	8
MV-091	50,986	4,427	52,560	461,869	43
MV-093	=	=	52,468	461,059	43
MV-094	56,890	24,579	124,612	1,095,015	102
MV-095	42,451	7,868	237,292	2,085,172	193
MV-096	50,823	4,199	47,123	414,089	38
MV-097	49,390	10,247	129,287	1,136,091	105
MV-098	35,907	1,179	9,666	84,941	8
MV-099	38,339	9,183	44,973	395,193	37
MV-100	51,486	18,048	90,883	798,620	74
MV-101	15,041	597	12,204	107,237	10
MV-102	34,603	5,311	49,392	434,031	40
MV-103	42,935	10,820	75,515	663,582	62
MV-104	52,082	20,090	179,022	1,573,134	146
MV-105	15,044	1,456	5,622	49,399	5

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
MV-106	15,044	1,456	5,622	49,399	5
MV-107	29,796	725	5,437	47,780	4
MV-108	14,732	313	4,031	35,424	3
MV-109	147,517	99,569	667,578	5,866,264	544
MV-110	34,375	6,243	28,108	246,996	23
MV-111	30,107	1,872	7,495	65,866	6
MV-112	15,055	1,747	7,027	61,749	6
MV-113	47,191	6,919	86,997	764,472	71
MV-114	14,732	455	7,729	67,917	6
MV-115	14,732	313	14	119	0
MV-116	36,176	1,549	15,104	132,721	12
MV-117	32,267	3,304	30,576	268,686	25
MV-118	29,796	725	5,437	47,780	4
MV-119	46,873	2,121	21,145	185,809	17
MV-120	43,314	8,541	256,980	2,258,182	210
MV-121	14,732	455	5,900	51,843	5
MV-123	15,359	881	18,983	166,814	15
MV-124	40,724	6,380	189,833	1,668,138	155
MV-125	30,418	2,729	11,243	98,798	9
MV-126	50,003	11,043	141,974	1,247,576	116
MV-127	50,475	18,335	163,175	1,433,883	133
MV-129	113,312	82,271	648,447	5,698,151	529
MV-130	45,286	12,195	106,473	935,619	87
MV-131	107,750	78,093	719,869	6,325,767	587
MV-132	95,297	56,598	527,904	4,638,896	430
P-001	=	=	82,768	727,311	67
P-002	=	=	287,948	2,530,307	235
P-003	=	=	221,864	1,949,601	181
P-004	42,359	10,148	70,590	620,305	58
P-005	66,230	24,835	220,760	1,939,902	180
P-006	77,321	32,120	246,246	2,163,855	201
P-007	99,537	61,196	488,330	4,291,141	398
P-008	46,187	13,201	98,909	869,148	81
P-009	79,203	34,373	208,768	1,834,521	170
P-010	=	=	815,852	7,169,202	665
P-011	=	=	398,347	3,500,430	325
P-012	65,961	24,464	186,362	1,637,634	152
P-014	102,254	61,689	575,895	5,060,613	470
P-015	=	=	374,723	3,292,836	306
P-016	=	=	628,686	5,524,503	513
P-017	=	=	278,349	2,445,963	227
P-018	=	=	742,425	6,523,974	605
P-019	=	=	334,787	2,941,903	273
P-020	=	=	418,244	3,675,270	341
P-021	=	=	81,585	716,920	67
P-022	52,350	20,460	182,367	1,602,528	149
P-023	42,648	10,555	86,384	759,092	70
P-024	109,516	77,315	702,592	6,173,948	573
P-025	97,333	56,895	498,149	4,377,431	406
P-026	90,377	43,292	333,096	2,927,047	272
P-027	=	=	414,645	3,643,642	338
P-028	80,280	35,885	274,974	2,416,305	224
P-030	57,182	22,579	297,238	2,611,947	242
P-031	36,614	7,588	35,135	308,745	29
P-032	77,768	26,351	871,877	7,661,519	711

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
P-033	284,116	250,456	1,123,706	9,874,435	916
P-034	184,333	166,949	1,519,815	13,355,199	1,239
P-035	31,042	4,302	18,739	164,664	15
P-036	199,973	182,238	1,722,889	15,139,688	1,405
P-037	=	=	110,558	971,517	90
P-038	=	=	134,724	1,183,870	110
P-039	83,717	41,903	376,108	3,305,002	307
P-040	51,931	5,934	73,705	647,678	60
P-041	41,207	8,803	61,454	540,019	50
P-042	47,680	3,253	36,853	323,839	30
P-043	47,680	3,129	34,436	302,604	28
P-044	38,338	8,937	44,036	386,960	36
P-045	36,614	7,588	35,135	308,745	29
P-046	55,398	38,815	101,584	892,661	83
P-047	57,979	23,819	314,758	2,765,904	257
P-048	50,822	3,944	45,311	398,163	37
P-049	51,667	5,692	68,872	605,207	56
P-050	34,597	3,880	108,476	953,222	88
P-051	46,873	2,121	21,145	185,809	17
P-052	50,727	4,177	49,540	435,325	40
P-053	48,047	7,746	97,267	854,723	79
P-054	50,003	11,175	143,786	1,263,503	117
P-055	70,577	18,567	610,178	5,361,871	497
P-056	15,042	881	4,044	35,538	3
P-057	16,598	2,750	19,988	175,645	16
P-058	52,083	20,336	122,919	1,080,139	100
P-059	50,004	11,419	146,807	1,290,047	120
P-060	14,732	455	6,102	53,619	5
P-061	=	=	167,969	1,476,012	137
R-001	=	=	1,082,613	9,513,334	883
R-002	=	=	279,680	2,457,653	228
R-003	=	=	267,594	2,351,454	218
R-004	52,296	20,063	101,189	889,185	82
R-005	76,397	26,843	847,986	7,451,581	691
R-006	36,615	7,863	36,072	316,978	29
R-007	32,572	2,731	76,070	668,459	62
R-008	36,451	3,806	8,761	76,989	7
R-009	854,784	698,839	11,902,028	104,587,698	9,703
R-010	15,669	1,315	31,953	280,783	26
R-011	52,896	18,460	268,185	2,356,641	219
R-012	32,881	3,015	83,225	731,333	68
R-013	14,732	455	1,812	15,927	1
R-014	14,732	455	5,231	45,969	4
R-015	48,316	8,248	103,729	911,506	85
R-016	14,732	313	922	8,100	1
R-017	57,160	25,330	128,828	1,132,064	105
R-018	871,072	942,530	3,709,210	32,594,251	3,024
R-019	34,086	5,703	25,766	226,413	21
R-020	109,516	77,192	701,368	6,163,190	572
R-021	32,921	1,143	9,062	79,633	7
R-022	29,796	725	5,437	47,780	4
R-023	15,041	597	10,900	95,787	9
R-024	1,469,035	1,788,690	3,020,715	26,544,180	2,463
R-025	52,026	19,302	97,441	856,252	79
R-026	116,224	79,217	1,064,889	9,357,592	868

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
R-027	14,732	455	4,906	43,109	4
R-028	52,307	12,308	31,730	278,826	26
R-029	14,732	455	5,146	45,218	4
R-030	44,177	9,345	282,804	2,485,112	231
R-031	30,730	3,877	16,865	148,198	14
R-032	15,669	1,315	30,200	265,377	25
R-033	30,728	3,303	14,054	123,498	11
R-034	15,042	1,030	7,154	62,862	6
R-035	38,341	9,686	47,784	419,893	39
R-036	34,375	6,375	29,045	255,229	24
R-037	14,732	455	8,136	71,492	7
R-038	14,732	455	4,746	41,703	4
R-039	54,524	18,483	242,865	2,134,152	198
R-040	14,732	313	3,254	28,597	3
R-041	15,670	1,599	13,597	119,482	11
R-042	60,107	27,296	361,277	3,174,684	295
R-043	47,411	2,749	30,207	265,442	25
R-044	14,732	455	5,424	47,661	4
R-045	16,597	2,466	22,308	196,032	18
R-046	46,873	2,121	21,654	190,285	18
R-047	35,047	6,742	51,702	454,325	42
R-048	34,289	3,732	102,103	897,220	83
R-049	52,395	28,492	73,406	645,046	60
R-050	29,794	441	2,315	20,346	2
R-051	14,732	313	3,201	28,132	3
R-052	46,873	1,998	19,333	169,883	16
R-053	36,443	1,806	17,520	153,956	14
R-054	36,176	1,549	15,104	132,721	12
R-055	36,175	1,426	12,083	106,177	10
R-056	40,343	7,866	77,029	676,881	63
R-057	42,359	10,148	70,433	618,920	57
R-058	14,732	313	3,723	32,719	3
R-059	14,732	455	5,492	48,257	4
R-060	35,529	6,310	79,970	702,724	65
R-061	57,297	17,591	576,886	5,069,316	470
R-062	14,732	313	2,483	21,817	2
R-063	30,417	2,446	9,838	86,449	8
R-064	29,794	441	3,021	26,544	2
R-065	47,681	3,376	37,457	329,148	31
R-066	15,040	455	8,339	73,279	7
RC-001	232,273	169,005	755,783	6,641,354	616
RC-002	394,126	358,691	1,208,286	10,617,672	985
RC-003	831,089	916,704	2,061,336	18,113,748	1,681
RC-005	127,311	67,813	453,107	3,981,627	369
RC-006	75,918	32,116	472,355	4,150,763	385
RC-007	111,699	82,645	761,451	6,691,164	621
RC-009	100,314	62,171	401,338	3,526,710	327
RC-010	314,831	323,833	2,544,538	22,359,835	2,074
RC-011	85,061	43,415	390,649	3,432,783	318
RC-012	54,226	22,718	173,876	1,527,916	142
RC-013	57,446	22,701	300,259	2,638,491	245
RC-014	58,125	30,342	149,909	1,317,311	122
RC-015	47,191	6,919	85,788	753,855	70
RC-017	15,041	597	12,583	110,574	10
RC-018	32,921	1,143	9,062	79,633	7

**Draft Recirculated Revised Sections of the Final Environmental Impact Report**

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>
RC-019	32,264	2,589	71,592	629,102	58
RC-020	14,732	313	3,797	33,363	3
RC-021	15,041	739	3,839	33,737	3
RC-022	46,927	6,424	79,143	695,458	65
RC-023	32,265	3,446	21,526	189,157	18
RC-024	43,224	11,228	78,307	688,113	64
RC-025	33,812	5,310	34,885	306,546	28
RC-026	14,732	313	1,208	10,618	1
RC-027	42,936	11,085	77,445	680,539	63
RC-028	14,732	455	7,593	66,726	6
RC-029	15,041	597	11,040	97,014	9
RC-030	104,845	64,722	604,234	5,309,638	493
RC-031	42,648	10,555	74,120	651,320	60
RC-032	125,718	65,841	438,608	3,854,215	358
RC-033	54,256	17,741	231,991	2,038,593	189
RC-034	55,586	19,855	260,990	2,293,417	213
RC-035	635,794	688,311	1,771,321	15,565,275	1,444
RC-036	56,649	21,461	282,739	2,484,535	231
RC-037	59,308	25,680	339,528	2,983,566	277
RC-038	123,845	94,836	875,246	7,691,120	714
RC-039	47,142	2,368	23,562	207,045	19
RD-001	=	=	49,540	435,325	40
RD-002	=	=	33,228	291,986	27
RD-003	50,958	5,240	62,227	546,810	51
RD-004	50,544	3,680	40,478	355,692	33
RD-005	=	=	240,245	2,111,128	196
RD-006	31,956	2,447	65,389	574,602	53
RD-007	36,757	6,028	173,217	1,522,128	141
RD-008	37,800	7,685	37,477	329,328	31
RD-009	31,956	2,299	59,393	521,913	48
RD-010	40,919	8,671	59,614	523,851	49
RD-011	32,572	2,731	75,208	660,880	61
RD-012	=	=	288,565	2,535,734	235
RD-013	=	=	486,152	4,272,001	396
RD-014	=	=	370,493	3,255,661	302
RD-015	=	=	203,003	1,783,866	166
RD-016	=	=	343,009	3,014,156	280
SB-001	=	=	294,824	2,590,730	240
SB-002	=	=	150,438	1,321,959	123
SB-003	=	=	284,858	2,503,161	232
SB-004	=	=	373,190	3,279,362	304
SB-005	=	=	135,335	1,189,244	110
SB-006	=	=	260,582	2,289,831	212
SB-007	46,873	2,121	20,541	180,500	17
SB-008	47,142	2,368	24,166	212,353	20
SJ-001	126,588	66,774	2,275,619	19,996,740	1,855
SJ-002	52,396	14,895	193,930	1,704,136	158
SJ-003	59,839	26,422	350,403	3,079,125	286
SJ-004	60,638	27,916	370,340	3,254,316	302
<b>Total Cum.</b>	<b>23,156,749</b>	<b>14,740,889</b>	<b>118,637,945</b>	<b>1,042,517,233</b>	<b>96,722</b>
<b>Net Project</b>	<b>1,553,812</b>	<b>54,103</b>	<b>45,345</b>	<b>30,327</b>	<b>821,523</b>
<b>Total</b>	<b>24,710,561</b>	<b>14,794,992</b>	<b>118,683,290</b>	<b>1,042,547,560</b>	<b>918,245</b>
County/SoCalGas	275,000,000	1,052,000,000	275,000,000	1,052,000,000	873,793,575
%County/SoCalGas	9%	1%	43%	99%	0.11%

**Table 6.17-4: Cumulative Transportation Fuel Consumption (Annual Average)**

<b>Project ID</b>	<b>Construction</b>		<b>Operational</b>		
	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Diesel Gallons</b>	<b>Gasoline Gallons</b>	<b>Natural Gas (MMBTU)</b>

Source: ESA, 2019

Buildout of the Project and cumulative projects in the region would be expected to increase overall VMT; however, the effect on transportation fuel demand would be minimized by future improvements to vehicle fuel economy pursuant to federal and state regulations. By 2025, vehicles are required to achieve 54.5 mpg (based on USEPA measurements), which is a 54 percent increase from the 2012-2016 standard of 35.5 mpg. As discussed in detail in Section 4.07, *Greenhouse Gas Emissions*, the Project would be consistent with the 2016 RTP/SCS for the region. Cumulative projects would need to demonstrate consistency with the goals in the 2016 RTP/SCS and incorporate project design features or mitigation measures as required under CEQA, which would also ensure cumulative projects contribute to transportation energy efficiency.

Furthermore, according to the USEIA's International Energy Outlook 2016, the global supply of crude oil, other liquid hydrocarbons, and biofuels is expected to be adequate to meet the world's demand for liquid fuels through 2040.<sup>3</sup> CARB's analyses and the State's 2017 Climate Change Scoping Plan show a 45 percent decrease in fossil fuel demand by 2030.<sup>4</sup> The State's Mobile Source Strategy aims to displace fossil fuel reliant vehicles with 1.5 million zero emission vehicles (ZEVs) by 2025 and 4.2 million ZEVs by 2030.<sup>5</sup> Considering the State's goals of displacing transportation fuels, overall fossil fuel use will decrease and the current refining capacity would be sufficient to support the demand of the Project and cumulative projects. The Project's annual gas and diesel consumption from construction would represent approximately 0.57 percent of County diesel sales and 0.005 percent of County gasoline sales in 2018.<sup>6</sup> Cumulative construction consumption for diesel and gasoline would result in 25 million gallons of diesel and 15 million gallons of gasoline representing approximately 9 percent of county diesel and 1 percent of county gasoline respectively. The Project's annual gas and diesel consumption from operational activities would represent approximately 0.02 percent of county diesel sales and 0.003 percent of county gasoline sales in 2018.<sup>7</sup> Cumulative construction operational consumption for diesel and gasoline would result in 119 million gallons of diesel and 1,043 million gallons of gasoline representing approximately 43 percent of county diesel and 99 percent of county gasoline respectively. The Project's transportation fuel consumption from construction and operations consists of 0.14 percent of the total overall cumulative consumption of projects listed in Table 6.17-4 (total consumption of cumulative projects plus the proposed Project). Furthermore, the Project's annual

<sup>3</sup> EIA, International Energy Outlook 2016, [https://www.eia.gov/outlooks/ieo/pdf/0484\(2016\).pdf](https://www.eia.gov/outlooks/ieo/pdf/0484(2016).pdf) , Accessed April 2018.

<sup>4</sup> CARB, *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); Accessed May 2018.

<sup>5</sup> CARB, *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); Accessed May 2018.

<sup>6</sup> California Energy Commission, *California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018*. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

<sup>7</sup> California Energy Commission, *California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018*. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed September 2019. Diesel is adjusted to account for retail (52%) and non-retail (48%) diesel sales.

## Draft Recirculated Revised Sections of the Final Environmental Impact Report

~~gas and diesel consumption from construction and operation would represent approximately 0.04 percent of Statewide diesel sales and 0.0004 percent of Statewide gasoline sales in both 2025 and 2040.<sup>89</sup> Therefore, as the Project would incorporate land use characteristics consistent with state goals for reducing VMT and would represent a small fraction of State transportation sales, the Project would not have a cumulatively considerable impact related to transportation energy, and impacts would be less than significant.~~

### ~~Conclusion~~-Conclusion

The cumulative condition related to the wasteful, inefficient, and unnecessary consumption of energy during construction or operation does not reflect a significant adverse cumulative impact. As detailed above, the pProject's incremental contribution to the cumulative condition would not cause or contribute to a significant impact. Accordingly, the Project would not result in cumulative environmental impacts related to energy consumption, supply, energy standards and expansion of facilities, and the cumulative energy impacts would be less than significant.

**Significance Level Before Mitigation:** Less than significant impact.

**Mitigation Measures:** No mitigation measures required.

**Significant Level After Mitigation:** Less than significant impact.

---

<sup>8</sup> ~~United States Energy Information Administration, Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates, 2015. Available at: [http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep\\_fuel/html/fuel\\_mg.html&sid=CA](http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA). Accessed May 2018.~~

<sup>9</sup> ~~United States Energy Information Administration, Table F7: Distillate Fuel Oil Consumption Estimates, 2015. Available at: [http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep\\_fuel/html/fuel\\_use\\_df.html&sid=CA](http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_use_df.html&sid=CA). Accessed May 2018.~~

# World Logistics Center



Draft Recirculated Revised Sections of the  
Final Environmental Impact Report  
Appendix

Moreno Valley, California

*State Clearinghouse No. 2012021045*



Prepared for:

City of Moreno Valley

December 2019



Appendix A  
**Air Quality, Greenhouse Gas,  
and Health Risk Analyses**





Appendix A.1  
**Air Quality/Greenhouse  
Gas/Health Risk Assessment  
Technical Report**





# WORLD LOGISTICS CENTER

## Air Quality, Greenhouse Gas Emissions, and Health Risk Assessment Report

Prepared for  
City of Moreno Valley  
14177 Frederick Street  
Moreno Valley, California 92552

November 2019





# WORLD LOGISTICS CENTER

## Air Quality, Greenhouse Gas Emissions, and Health Risk Assessment Report

Prepared for  
City of Moreno Valley  
14177 Frederick Street  
Moreno Valley, California 92552

November 2019

80 South Lake Avenue  
Suite 570  
Pasadena, CA 91101  
626.204.6170  
[www.pcrnet.com](http://www.pcrnet.com)



Irvine	Sacramento
Los Angeles	San Diego
Oakland	San Francisco
Orlando	Santa Monica
Pasadena	Seattle
Petaluma	Tampa
Portland	Woodland Hills

**OUR COMMITMENT TO SUSTAINABILITY** | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

# TABLE OF CONTENTS

	<u>Page</u>
<b>Executive Summary</b> .....	<b>1</b>
<b>Section 1</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>1</b>
1.1 Existing Conditions .....	1
1.2 Project Description .....	1
1.3 Project Location .....	2
1.4 Existing Air Quality Conditions .....	4
Existing Setting .....	4
1.5 Existing Greenhouse Gas Environment.....	38
Global Climate Change.....	38
Effects of Global Climate Change.....	40
1.6 Greenhouse Gases .....	44
<b>Section 2</b> .....	<b>49</b>
<b>Regulatory Setting</b> .....	<b>49</b>
2.1 International Regulation of Climate Change .....	49
Intergovernmental Panel on Climate Change.....	49
United Nations Framework Convention on Climate Change.....	49
Kyoto Protocol.....	49
2.2 Federal.....	50
Federal Clean Air Act.....	50
Greenhouse Gas Endangerment.....	51
Clean Vehicles .....	52
Mandatory Reporting of GHG .....	53
New Source Review Prevention of Significant Deterioration (GHG Tailoring Rule) .....	54
Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units .....	54
Cap and Trade .....	55
Energy Policy and Conservation Act .....	55
Energy Policy Act of 1992 .....	55
Energy Policy Act of 2005.....	55
2.3 State of California .....	56
Mulford-Carrell Act .....	56
California Clean Air Act.....	56
CARB Airborne Toxic Control Measure/Asbestos .....	56
California Code of Regulations Title 24, Part 6 .....	57
California Code of Regulations Title 24, Part 11 .....	57
California Code of Regulations Titles 14 and 27 .....	60
Pavley Regulations and Fuel Efficiency Standards.....	60
Low Carbon Fuel Standard, Executive Order S-01-07.....	61
Senate Bill 1383 .....	61
Senate Bill 1368 .....	62
Senate Bill 97 and the CEQA Guidelines Update .....	62
Executive Order S-3-05 .....	63
Assembly Bill 32.....	64
Mobile Source Strategy.....	70
Sustainable Freight Action Plan.....	70
California Transportation Plan 2040 .....	71

Executive Order B-16-2012 (Zero-Emission Vehicles).....	71
Greenhouse Gas Emissions Performance Standard for Power Plants.....	72
Senate Bill 375.....	72
Renewable Electricity Standards.....	72
Senate Bill 350.....	73
Senate Bill 100.....	73
SmartWay Partners.....	73
2.4 Regional.....	74
Lewis Air Quality Management Act.....	74
Carl Moyer Memorial Air Quality Standards Attainment Program.....	75
Regional Air Quality Management Plan.....	75
South Coast Air Quality Management District Proposed Indirect Sources	
Rules for Warehouse.....	79
Greenhouse Gases.....	80
Diesel Regulations.....	80
Toxic Air Contaminants.....	82
Southern California Association of Governments.....	91
2.5 Local.....	94
City of Moreno Valley.....	94
<b>Section 3.....</b>	<b>97</b>
<b>Significance Thresholds.....</b>	<b>97</b>
3.1 State CEQA Guidelines, Appendix G.....	97
Air Quality Thresholds.....	98
Greenhouse Gas Thresholds.....	101
<b>Section 4.....</b>	<b>105</b>
<b>Methodology.....</b>	<b>105</b>
4.1 Construction.....	105
Off-road Equipment.....	106
4.2 Operation.....	111
Motor Vehicle Emissions.....	112
Other Emission Sources.....	121
Black Carbon.....	128
4.3 Localized Significance Threshold Analysis.....	129
Localized Analysis Methodology.....	129
Localized Significance Threshold Analysis.....	133
4.4 Health Risk Assessment.....	137
About Health Risk Assessments.....	137
Health Risk Impacts Assessed.....	137
Risk Assessment Methodology.....	138
<b>Section 5.....</b>	<b>149</b>
<b>Environmental Impacts.....</b>	<b>149</b>
5.1 Compliance with Air Quality Plan.....	149
Conflict with or obstruct the implementation of the applicable air quality	
plan (AIR-1).....	149
5.2 Regional Emissions.....	152
Violate any air quality standard or contribute substantially to an existing	
or projected air quality violation (AIR-2).....	152
5.3 Cumulatively Considerable Air Quality Impacts.....	162
Result in a cumulatively considerable net increase of any criteria pollutant	
for which the project region is nonattainment under an applicable	

	federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) (AIR-3) .....	162
5.4	Substantial Pollutant Concentrations .....	162
	Expose Sensitive Receptors to Substantial Pollutant Concentrations (AIR-4) .....	162
5.5	Odors .....	181
	Create objectionable odors affecting a substantial number of people (AIR-5) .....	181
5.6	Greenhouse Gas Emissions.....	183
	Generate GHG Emissions, either directly or indirectly, that may have a significant impact on the environment (GHG-1).....	183
5.7	Greenhouse Gas Plan, Policy, Regulation Consistency.....	191
	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs (GHG-2) .....	191
<b>Section 6 .....</b>		<b>198</b>
<b>Mitigation Measures .....</b>		<b>198</b>
6.1	Air Quality .....	198
	Compliance with AQMP .....	198
	Regional Emissions.....	198
	Substantial Pollutant Concentrations.....	207
6.2	Greenhouse Gas Emissions.....	216

## List of Figures

Figure 1 Regional Location .....	3
Figure 2: Ozone Concentration Trends in the South Coast Air Basin .....	5
Figure 3: Ozone Precursor Emissions (VOC and NO <sub>x</sub> ) in the South Coast Air Basin .....	6
Figure 4: NO <sub>x</sub> Emissions Forecast in the South Coast Air Basin.....	6
Figure 5: PM <sub>2.5</sub> Emissions Forecast in the South Coast Air Basin.....	7
Figure 6: Particulate Matter Concentration Trends in the South Coast Air Basin.....	8
Figure 7: PM <sub>2.5</sub> Concentration Trends in the Inland Empire .....	8
Figure 8: Changes in U.S. Heavy-Duty Diesel NO <sub>x</sub> and PM Emission Standards Over Time .....	9
Figure 9: NO <sub>x</sub> , VOC, CO, and Ozone Trends in the South Coast Air Basin .....	31
Figure 10: Particulate Matter Trends in the South Coast Air Basin .....	32
Figure 11 Air Quality Monitoring Station .....	36
Figure 12 Existing Sensitive Receptors.....	37
Figure 13: Observed and Projected Temperatures.....	43
Figure 14: Wildfire Risk in Moreno Valley .....	43
Figure 15: Summary of MATES IV Cancer Risks .....	84
Figure 16 MATES IV Cancer Risk in Area .....	89
Figure 17 Change in Air Toxics Simulated Risk from 2005-2012 .....	90
Figure 18 Local Roadway Network Analyzed in the Local Air Quality and Health Risk Assessment.....	116
Figure 19 Surface Street Network Analyzed in the Health Risk Assessment.....	117
Figure 20 Freeway network Analyzed in the Health Risk Assessment.....	118
Figure 21 Localized Analysis Operational Emission Sources.....	135
Figure 22 Air Dispersion Model Receptors for the Localized Analysis.....	136
Figure 23 Incremental Project Cancer Risk – No Mitigation (Construction and Operation) .....	177
Figure 24 Incremental Project Cancer Risk – No Mitigation (30 Years of Full Operation) .....	178
Figure 25 Incremental Project Cancer Risk – With Mitigation (Construction and Operation) .....	214
Figure 26 Incremental Project Cancer Risk – With Mitigation (30 Years of Full Operation) .....	215

## List of Tables

Table 1 Ambient Air Quality Standards .....	11
Table 2 Summary of Health Effects of the Major Criteria Air Pollutants .....	14
Table 3 Air Quality Index Descriptions .....	15
Table 4 Attainment Status of Criteria Pollutants in the South Coast Air Basin.....	29
Table 5 Ambient Air Quality Monitored in the Project Vicinity.....	35
Table 6 Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California) .....	84
Table 7 SCAG Assumptions for Moreno Valley .....	92
Table 8 Select 2012 Regional Transportation Plan Strategies .....	92
Table 9 Conceptual Operational Occupancy Schedule .....	111
Table 10 Trip Generation Rates .....	112
Table 11 Land Use Change.....	125
Table 12 Estimated Tree Inventory .....	126
Table 13 Tree Carbon Sequestration Rates (Age of Tree).....	127
Table 14 Tree Carbon Sequestration Rates (Height of Tree).....	127

Table 15 Tree Carbon Sequestration Estimates .....	127
Table 16 General Air Dispersion Modeling Assumptions – Localized Air Quality Assessment.....	131
Table 17 Project Localized Analysis Construction Emission Source Assumptions .....	132
Table 18 Project Localized Analysis Operational Emission Source Assumptions.....	133
Table 19 Toxicity Values.....	139
Table 20 Exposure Assumptions for Cancer Risk.....	143
Table 21 Speciation Profiles for Diesel and Gas Fuel Combustion Sources.....	147
Table 22 Short-Term Regional Construction Emissions–Without Mitigation .....	153
Table 23 Short-Term Regional 24-Hour Concrete Pour Emissions–Without Mitigation .....	154
Table 24 Operational Regional Air Pollutant Emissions (Worst-Case Scenario) .....	156
Table 25 Operational Regional Air Pollutant Emissions (Detail, Unmitigated) .....	158
Table 26 Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated).....	159
Table 27 Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, Pounds per Day, Unmitigated) .....	160
Table 28 Operational Regional Air Pollutant Emissions (Detail, Unmitigated) – No Net Effect (For Informational Purposes Only) .....	161
Table 29 Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Within the Project Boundaries (Without Mitigation) .....	163
Table 30 Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Outside the Project Boundaries (Without Mitigation) .....	164
Table 31 Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (Without Mitigation) .....	166
Table 38 Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation).....	167
Table 33 Localized Assessment – Construction and Operation, Year 2032 Maximum Impacts Within the Project Boundaries (Without Mitigation) .....	168
Table 34 Localized Assessment – Construction and Operation, Year 2032 Maximum Impacts Outside the Project Boundaries (without Mitigation).....	169
Table 35 Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (Without Mitigation) .....	170
Table 36 Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (Without Mitigation).....	170
Table 37 Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation .....	175
Table 38 Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation.....	176
Table 39 Carbon Monoxide Concentrations at Intersections, 2025.....	181
Table 40 Carbon Monoxide Concentrations at Intersections, 2035.....	181
Table 41 Construction Greenhouse Gas Emissions (Without Mitigation).....	184
Table 42 Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout) .....	185
Table 43 Project GHG Emissions at Buildout by GHG (Unmitigated) .....	186
Table 44a Project GHG Emissions (Year by Year without Mitigation).....	188
Table 45 Project Compliance with Federal/State Greenhouse Gas Reduction Strategies .....	191
Table 46 Analysis of Additional Measures in the 2017 Scoping Plan Update .....	194
Table 47 Consistency with City General Plan Air Quality Policies.....	195

Table 48 Consistency with City Climate Action Strategy ..... 196

Table 49 Mitigated Short-Term Regional Construction Emissions ..... 201

Table 50 Operational Regional Air Pollutant Emissions (Mitigated) ..... 205

Table 51 Combined Construction and Operational Regional Air Pollutant Emissions  
(Year by Year, Pounds per Day) – Mitigated..... 206

Table 52 Operational Regional Air Pollutant Emissions (Mitigated) – No Net Effect  
(For Informational Purposes Only)..... 207

Table 53 Comparison of Local Project Air Quality Impacts Before and After Mitigation ..... 208

Table 54 Estimated Cancer Risks, 30-Year Exposure Duration for  
Sensitive/Residential Receptors Starting from Beginning of Project  
Construction (Construction and Operation HRA), With Mitigation ..... 212

Table 55 Estimated Cancer Risks, 30-Year Exposure Duration for  
Sensitive/Residential Receptors Starting from Beginning of Project Full  
Operation in 2035, With Mitigation..... 213

Table 56 Greenhouse Gas Emissions Reduction Analysis..... 221

Table 57 GHG Reductions at Buildout (with Mitigation)..... 224

Table 58a Project GHG Emissions (Year by Year With Mitigation) ..... 225

Table 59 California and SCAQMD Electric Vehicle (EV) Penetration Estimates..... 228

Table 60a Project GHG Emissions (Year by Year with Mitigation and Medium EV  
Penetration) – Scoping Plan Scenario, For Informational Purposes Only ..... 229

**Appendices (electronic)**

Appendix A Construction Emissions

- A.1 Unmitigated Air Quality Emissions
- A.2 Mitigated Air Quality Emissions
- A.3 Architectural Coating and Paving
- A.4 Greenhouse Gas Emissions Unmitigated
- A.5 Greenhouse Gas Emissions Mitigated
- A.6 24-hour Concrete Pour Air Quality Emissions

Appendix B Operational Emissions

- B.1 Operational Summary (2020)
- B.2 Operational Summary (Net)
- B.3 Operational Summary (Project)
- B.4 Mobile Source Emissions (Net) Unmitigated
- B.5 Mobile Source Emissions (Net) Mitigated
- B.6 Mobile Source Emissions (Project) Unmitigated
- B.7 Mobile Source Emissions (Project) Mitigated
- B.8 Mobile Source Emissions Medium EV Penetration Scenario
- B.9 Emission Factor Interpolation
- B.10 CalEEMod Output

Appendix C CO Hot Spot Output

Appendix D Localized Significance Calculations

- D.1 Localized Background Concentrations
- D.2 Operations AERMOD Unitized Concentrations Outputs
- D.3 Unmitigated Localized Operations Emissions 2035
- D.4 Mitigated Localized Operations Emissions 2035
- D.5 Unmitigated Localized Operations Phase 1 2025
- D.6 Mitigated Localized Operations Phase 1 2025
- D.7 Unmitigated Localized Worst-Case Construction + Operations 2022
- D.8 Mitigated Localized Worst-Case Construction + Operations 2022
- D.9 Unmitigated Localized Operations 2020
- D.10 Unmitigated LST Calculations (Construction)

D.11	Mitigated LST Calculations (Construction)
Appendix E	Health Risk Assessment
E.1	Speed Bins
E.2	Fleet Mix by Year by Fuel Type
E.3	Occupancy Schedule
E.4	Emissions Speciation Profiles and Cancer Risk Factor Calculations
E.5	Construction Emissions for Health Risk Assessment
E.6	Operations Emissions for Health Risk Assessment
E.7	Construction + Operations 30-Year Health Risk Assessment, Unmitigated
E.8	Full Buildout Operations 30-Year Health Risk Assessment, Unmitigated
E.9	Construction + Operations 30-Year Health Risk Assessment, Mitigated
E.10	Full Buildout Operations 30-Year Health Risk Assessment, Mitigated
E.11	Maximum Chronic Hazard Index from Project
E.12	Maximum Acute Hazard Index from Project
E.13	Health Risk Assessment Results Summary

# Acronyms and Abbreviations

AB 32	California Global Warming Solutions Act of 2006
AQMP	Air Quality Management Plan
ATCM	Air Toxics Control Measure
BACT	Best Available Control Technology
Basin	South Coast Air Basin
Basin	South Coast Air Basin
BAU	Business as Usual
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen Code	California Green Building Standards Code
CAFE	Corporate Average Fuel Economy
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CBSC	California Building Standards Commission
CCAT	California Climate Action Team
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CEUS	Commercial End-Use Survey
CH <sub>4</sub>	Methane
City	City of Los Angeles
CO	carbon monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalents
CPUC	California Public Utilities Commission
DPM	Diesel Particulate Matter
EMFAC	on-road vehicle emissions factor model
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
hp	horsepower
HVAC	Heating, Ventilating and Air Conditioning
IPCC	Intergovernmental Panel on Climate Change
LADWP	Los Angeles Department of Water and Power
LAGBC	Los Angeles Green Building Code

LCFS	Low Carbon Fuel Standard
LOS	Level of Service
LST	localized significance threshold
MATES IV	Multiple Air Toxics Exposure Study, May 2015
MPO	Metropolitan Planning Organization
MTCO <sub>2e</sub>	Metric ton of carbon dioxide equivalent
MMTCO <sub>2e</sub>	Million metric tons of carbon dioxide equivalent
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
N <sub>2</sub> O	Nitrous Oxide
OPR	California Office of Planning and Research
Pb	lead
PM <sub>2.5</sub>	fine particulate matter
PM <sub>10</sub>	respirable particulate matter
ppm	parts per million
PFCs	Perfluorocarbons
RTIP	Regional Transportation Improvement Program
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RPS	Renewable Portfolio Standard
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SF <sub>6</sub>	Sulfur Hexafluoride
TAC	toxic air contaminant
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USGBC	United States Green Building Code
VDECS	Verified Diesel Emission Control Strategies
VMT	Vehicle miles travelled
VOC	volatile organic compounds
WLCSP	World Logistics Center Specific Plan
µg/m <sup>3</sup>	micrograms per cubic meter
µm	micrometers



# EXECUTIVE SUMMARY

---

The World Logistics Center Specific Plan (project) proposes 40.6 million square feet of logistics warehouse uses. These uses comprise a maximum of 40.4 million square feet of “high-cube logistics” warehouse distribution uses classified as “Logistics Development” (LD) and 200,000 square feet (approximately 0.5%) of warehousing-related uses classified as “Light Logistics” (LL). In addition, the LD designation includes land for two special use areas; a fire station and a “logistics support” facility for vehicle fueling and sale of convenience goods (3,000 square feet is assumed for planning purposes for the “logistics support”).

In accordance with the requirements under the California Environmental Quality Act (CEQA), this Technical Report provides an estimate of air quality and GHG emissions for the project and predicts the potential impacts from construction and operation activities. The report includes the categories and types of emission sources resulting from the Project, the calculation procedures used in the analysis, and any assumptions or limitations.

This report summarizes the potential for the project to conflict with an applicable air quality plan, to violate an air quality standard or threshold, to result in a cumulatively net increase of criteria pollutant emissions, or to expose sensitive receptors to substantial pollutant concentrations, and to generate GHG emissions that may have a significant impact on the environment and its potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. The findings of the analyses are as follows:

- The incremental increase in emissions from construction and operation of the project would exceed the regional daily emission thresholds set forth by the South Coast Air Quality Management District (SCAQMD) for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> even with the implementation of mitigation.
- The incremental increase in onsite emissions from construction and operation of the project would exceed the localized significance thresholds for PM<sub>10</sub> set forth by the SCAQMD even with implementation of mitigation.
- Emissions from the increase in traffic due to operation of the project would not have a significant impact upon 1-hour or 8-hour local carbon monoxide (CO) concentrations due to mobile source emissions.
- Project construction and operations would not expose off- or on-site receptors to significant levels of toxic air contaminants causing significant health risk with implementation of mitigation.

- The project would result in significant cumulative air quality impacts during construction and operations of the Project even with implementation of mitigation.
- Greenhouse gas emissions associated with the project would not exceed applicable thresholds and the project would be consistent with greenhouse gas reduction plans, policies, and regulations.

# SECTION 1

---

## Introduction

### 1.1 Existing Conditions

The project area is largely vacant undeveloped marginal agricultural land, with six occupied single-family homes and associated ranch/farm buildings in various locations on the property. In the 1920s, several farm buildings and related houses were constructed on the property and, in the 1940s, a stock farm operated on a portion of the site that was later expanded into a commercial horse farm and training facility that operated until the mid-1990s. The overall project site has been farmed by a variety of owners since the early 1900s and has supported dry (non-irrigated) farming, livestock grazing, and limited citrus groves. Much of the site continues to be used for dry farming today.

San Diego Gas & Electric (SDG&E) operates a natural gas compressor plant, known as the Moreno Compressor Station, on 19 acres south of the site. The Southern California Gas Company (SCGC) operates a metering and pipe cleaning station on two separate parcels (totaling 1.5 acres) south of the site south of Alessandro Boulevard along existing Virginia Street. The site contains a variety of overhead and underground utility lines associated with oil, natural gas, and electrical service.

Metropolitan Water District owns property and owns and operates facilities within the World Logistics Center Specific Plan (WLCSP) area. As shown on the attached map, Metropolitan's irregularly shaped fee-owned property (APN 422-040-009 and 422-040-015), Inland Feeder Tunnel, and appurtenant tunnel access structure are located within the WLCSP area. In addition, Metropolitan's Inland Feeder pipeline and appurtenant structures extend through the specific plan area in the street rights-of-way for Eucalyptus Avenue, World Logistics Center Parkway, and Davis Road. Metropolitan also has a 110-foot-wide easement along Davis Road.

At present, the project site contains a number of unimproved drainage features, but it does not contain any improved flood control facilities. The project area is largely vacant marginal agricultural land with six rural residential properties.

### 1.2 Project Description

The project proposes a maximum of 40.4 million square feet of “high-cube logistics” warehouse distribution uses classified as “Logistics Development” (LD) and 200,000 square feet (approximately 0.5%) of warehousing-related uses classified as “Light Logistics” (LL). In addition, the LD designation includes land for two special use areas; a fire station and a “logistics support”

facility for vehicle fueling and sale of convenience goods (3,000 square feet is assumed for planning purposes for the “logistics support”).

### 1.3 Project Location

The project is located in “Rancho Belago,” the eastern portion of the City of Moreno Valley, in northwestern Riverside County. The project site is immediately south of SR-60, between Redlands Boulevard and Gilman Springs Road (the easterly city limit), extending to the southerly city limit. **Figure 1** depicts the location of the project within the region and the City of Moreno Valley. The major roads that currently provide access to the project site are Redlands Boulevard, Theodore Street, World Logistics Center Parkway, Alessandro Boulevard, and Gilman Springs Road.

The World Logistics Center (WLC) project area is located in portions of Sections 1, 12, and 13 of Township 3 South, Range 3 West; and portions of Sections 6, 7, 8, 9, 16, 17, 18, 19, 20, and 21 of Township 3 South, Range 2 West, as depicted on the U.S. Geological Survey (USGS) 7.5-minute series Sunnymead and El Casco, California quadrangles.



SOURCE: ESRI

World Logistics Center

**Figure 1**  
Regional Location



## 1.4 Existing Air Quality Conditions

### Existing Setting

The project site is located in the South Coast Air Basin (Basin), a geographic area that encompasses the coastal plain and connecting broad inland valleys and low hills. The Pacific Ocean forms the southwestern border of the Basin, with mountain ranges forming the remainder of the border. The Basin includes Orange County and the non-desert portions of Los Angeles County, Riverside County, and San Bernardino County. The Basin is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

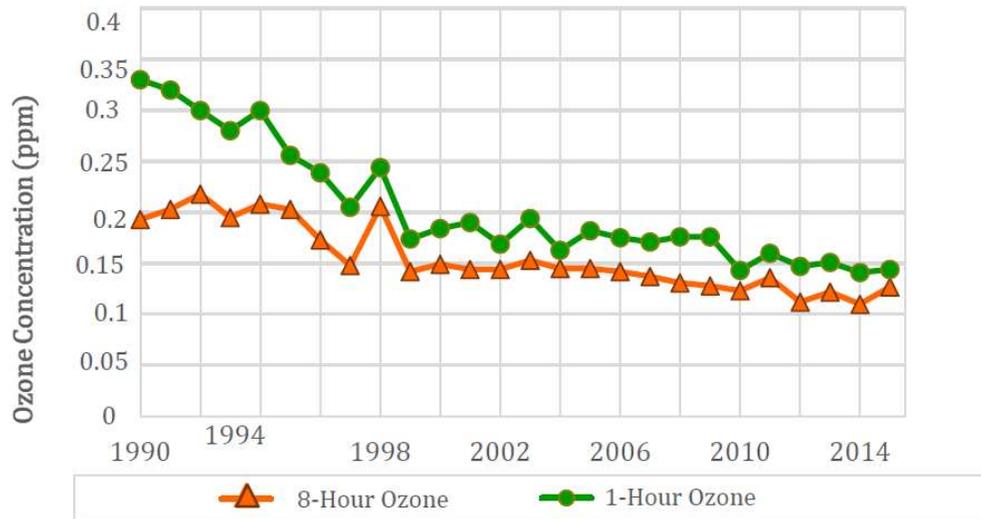
The air quality in the air basin has been steadily improving over the last couple of decades as measured in air pollutant concentrations by the SCAQMD. A concentration of a pollutant is a measure of the amount of a pollutant in the air. Some pollutants are measured in parts per million (ppm) and some are measured in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

When sensitive people, such as children, pregnant women, and the elderly, breathe in air pollutants, they can experience health effects. These health effects differ based on the type of pollutant, the length of time someone is exposed, pre-existing health conditions, and the concentration of the pollutant. In general, health effects can include coughing, sore throat, chest pain, difficulty breathing, eye irritation, reduced lung function, asthma aggravation, chronic lung diseases, cancer, and lung damage.

Federal, state, and local agencies enact rules and regulations to reduce air pollutant emissions to protect the health of sensitive individuals. The EPA sets federal ambient air quality standards and the CARB sets state ambient air quality standards. When concentrations of pollutants exceed the standards, sensitive individuals may experience health effects.

Ozone is a pollutant formed in the air when emissions of volatile organic compounds (VOC) and nitrogen oxides ( $\text{NO}_x$ ) combine in the presence of sunlight. Ozone is a pollutant of concern in the Basin because ozone levels exceed the ozone standards.

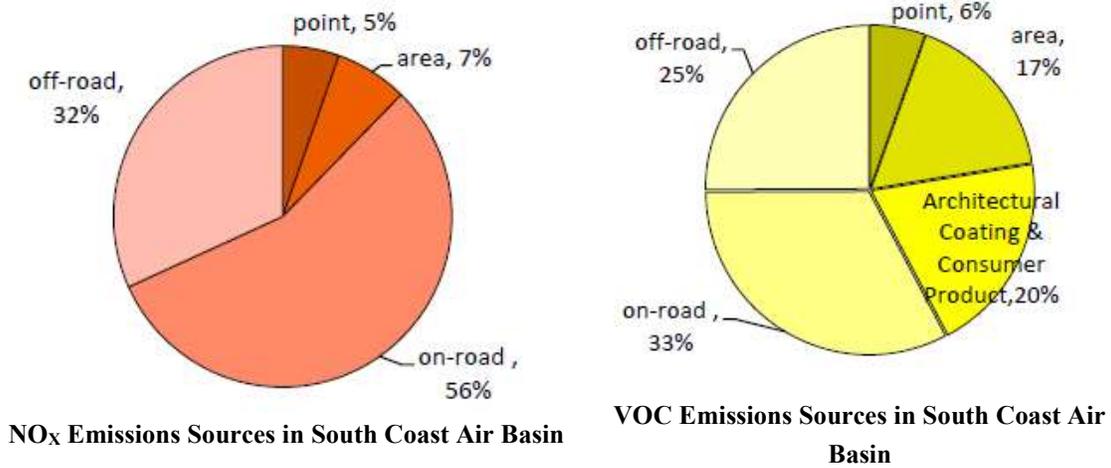
As shown in **Figure 2**, *Ozone Concentration Trends in the South Coast Air Basin*, ozone concentrations in the basin have generally decreased over the past twenty years for 1-hour and 8-hour averaging time periods as defined by the State and/or federal ambient air quality standards. The 1-hour and 8-hour concentration refers to the average of the concentration over a 1-hour and 8-hour time period, respectively.

**Figure 2: Ozone Concentration Trends in the South Coast Air Basin**

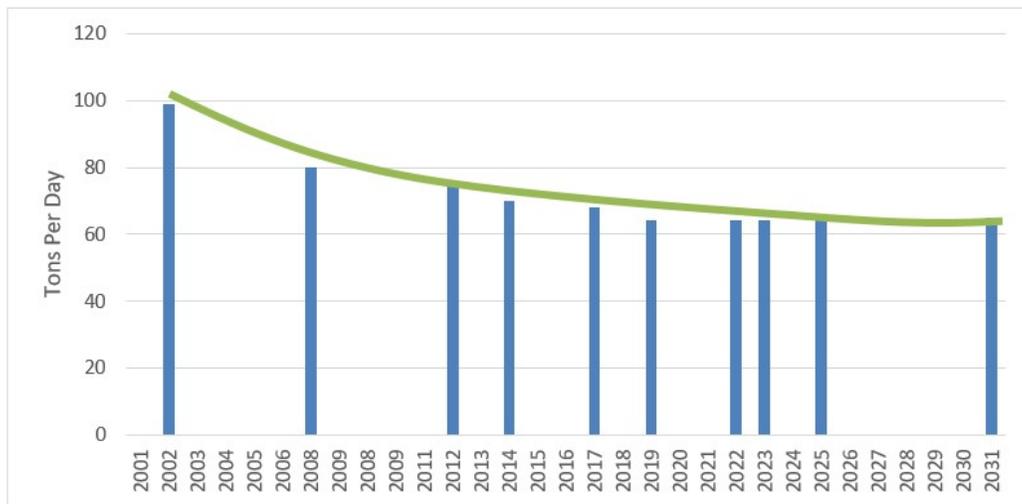
Sources of air pollution are typically categorized into one of three groups: area, mobile, or point. Area sources include small pollution sources like dry cleaners, gas stations, commercial buildings (heating and cooling units; surface coatings), and residential buildings (fire places; surface coatings). Mobile sources include both on-road vehicles (such as cars, trucks and buses) and off-road equipment (such as ships, airplanes, agricultural and construction equipment). Point sources include major industrial facilities like chemical plants, steel mills, oil refineries, power plants, and hazardous waste incinerators. As shown in **Figure 3**, *Ozone Precursor Emissions (VOC and NO<sub>x</sub>) in the South Coast Air Basin*, the main source of NO<sub>x</sub> and VOC emissions in the basin are from on-road motor vehicles, not from the operation of buildings. Although vehicle miles traveled in the basin continue to increase, ozone concentrations are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with cleaner and lower-emitting vehicles. VOC and NO<sub>x</sub> are ozone precursors; therefore, if those emissions decrease, it follows that ozone concentrations would also decrease.

Emissions of NO<sub>x</sub> in the air basin are expected to decrease in the future despite future growth in population, and vehicle miles traveled, as shown in **Figure 4**, *NO<sub>x</sub> Emissions Forecast in the South Coast Air Basin*.

**Figure 3: Ozone Precursor Emissions (VOC and NO<sub>x</sub>) in the South Coast Air Basin**



**Figure 4: NO<sub>x</sub> Emissions Forecast in the South Coast Air Basin**



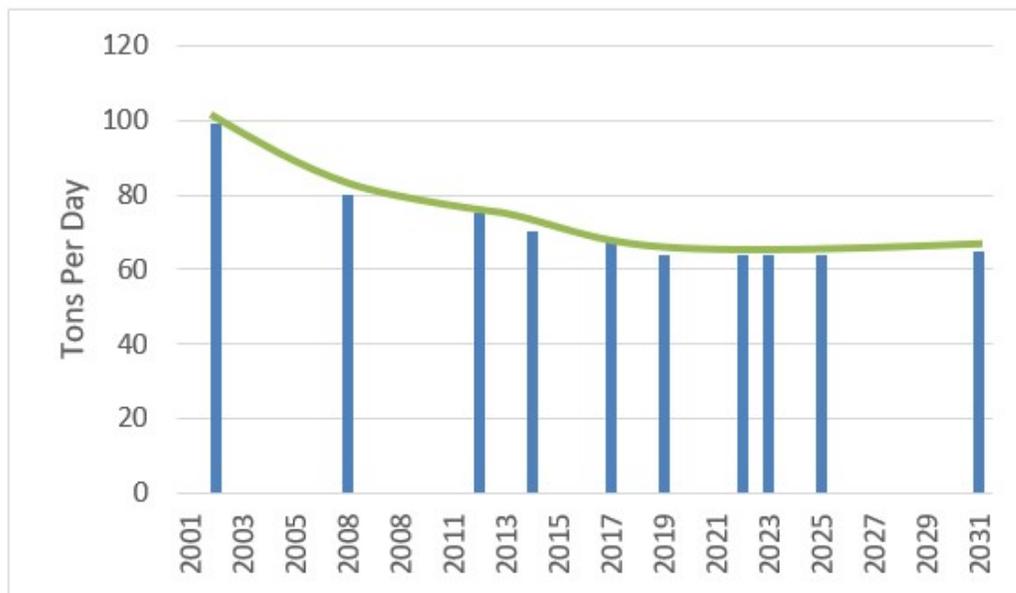
Another pollutant of concern is particulate matter (PM). PM is a mixture of small particles and liquid droplets suspended in the air. It is made up of components such as chemicals, metals, soil, or dust particles. The size of these particulates is linked to their potential for causing health problems. Ultrafine particles are less than 0.1 in micron in diameter, fine particles are less than 2.5 microns in diameter (PM<sub>2.5</sub>), and coarse particles are larger than 2.5 microns and smaller than 10 microns in diameter (PM<sub>10</sub>). The CARB and EPA have established standards for PM<sub>2.5</sub> and PM<sub>10</sub> but not for ultrafine particles. PM<sub>2.5</sub> and PM<sub>10</sub> are a concern in the air basin because sometimes the concentrations exceed the standards. PM<sub>2.5</sub> is often used as a marker for toxic air pollutants such as diesel PM.

As shown in **Figure 5**, *PM<sub>2.5</sub> Emissions Forecast in the South Coast Air Basin*, PM<sub>2.5</sub> emissions are expected to decrease in the Basin and then level out after the year 2014.

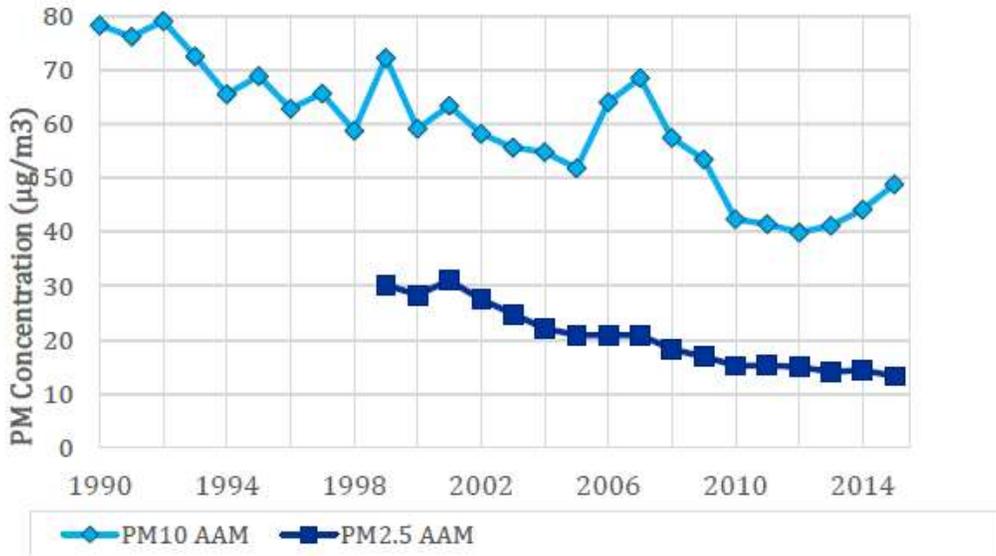
As shown in **Figure 6**, *Particulate Matter Concentration Trends in the South Coast Air Basin*, PM<sub>10</sub> and PM<sub>2.5</sub> annual concentrations have continued to decrease since 1990 within the air basin as a whole.

**Figure 7**, *PM<sub>2.5</sub> Concentration Trends in the Inland Empire*, provides an additional view of PM<sub>2.5</sub> trends specifically in the Inland Empire. As shown, there is a marked decreasing trend in PM<sub>2.5</sub> concentrations in Riverside-Rubidoux, Fontana, and San Bernardino from 2001 to 2016 and at Mira Loma from 2006 to 2016. This decreasing trend in the Inland Empire PM<sub>10</sub> concentration continues despite simultaneous increases in urban development including the development of large warehouse complexes since 2001.

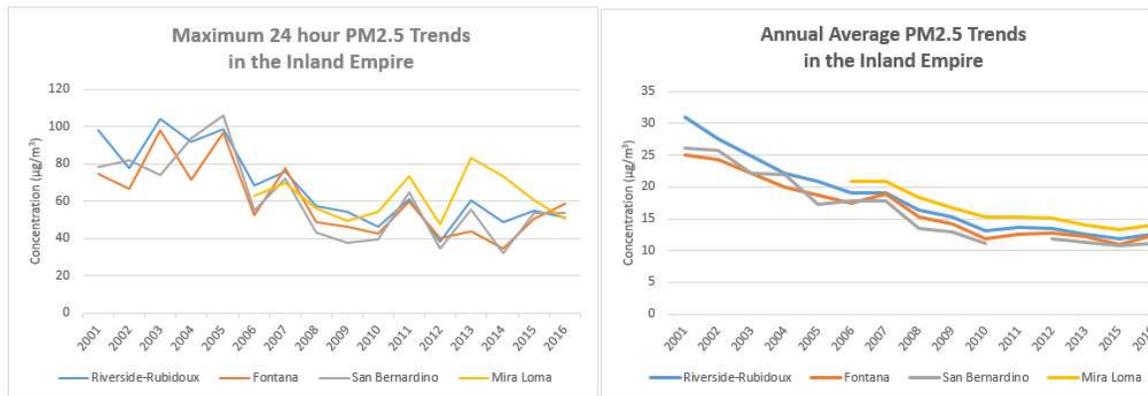
**Figure 5: PM<sub>2.5</sub> Emissions Forecast in the South Coast Air Basin**



**Figure 6: Particulate Matter Concentration Trends in the South Coast Air Basin**

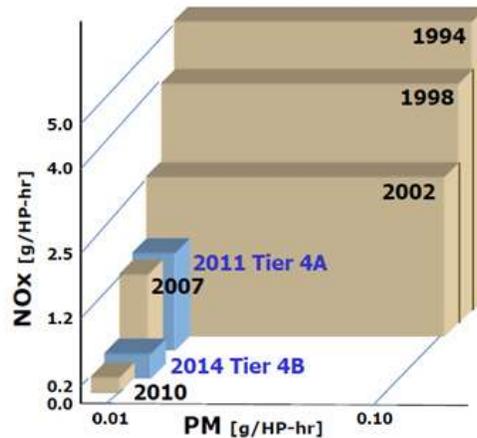


**Figure 7: PM<sub>2.5</sub> Concentration Trends in the Inland Empire**



Part of the success in the decreasing NO<sub>x</sub> and PM emissions are increasingly stringent standards placed on motor vehicles. **Figure 8**, *Changes in U.S. Heavy-Duty Diesel NO<sub>x</sub> and PM Emission Standards Over Time*, demonstrates the changes in U.S. heavy duty diesel emission standards for NO<sub>x</sub> and PM over the last twenty-five years. The project would incorporate mitigation that would require that all diesel trucks accessing the project be model 2010 or younger. As shown below, emissions from 2010 trucks are only a fraction of emissions from an older vehicle, at 0.2 grams per horsepower hour (g/HP-hr) of NO<sub>x</sub> and 0.01 g/HP-hr of PM. The text in blue represents the off-road construction standards; 2011 model vehicles incorporate Tier 4 Interim standards and 2014 models incorporate Tier 4 Final standards. The project will incorporate mitigation that requires use of only Tier 4 models of equipment.

**Figure 8: Changes in U.S. Heavy-Duty Diesel NO<sub>x</sub> and PM Emission Standards Over Time**



## Climate and Meteorology

Air quality in the project area is not only affected by various emission sources (mobile, industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, rainfall, and amount of sunshine. The combination of topography, low atmospheric mixing height, abundant sunshine, and emissions from the second largest urban area in the United States combine to give the Basin one of the worst air pollution problems in the nation.

Winds in the Basin are predominantly of relatively low velocities, averaging about 4.0 miles per hour (mph). These low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. These conditions tend to last for several days at a time.

During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas of Los Angeles County are transported predominantly inland into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are increased concentrations of carbon monoxide (CO) and oxides of nitrogen (NO<sub>x</sub>), due to extremely low inversions and air stagnation during the night and early morning hours that trap emissions principally from mobile sources at ground level. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO<sub>x</sub> to form photochemical smog.

## Regional Air Quality

Both the State of California and the Federal government have established health-based ambient air quality standards (AAQS) for six air pollutants. These pollutants are known as “criteria pollutants.”

- Carbon monoxide (CO)
- Lead (Pb)
- Ozone (O<sub>3</sub>)

- Nitrogen Dioxide (NO<sub>2</sub>)
- Particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>)
- Sulfur dioxide (SO<sub>2</sub>)

Federal standards for 8-hour ozone and for fine particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) have also been adopted. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety and are listed in **Table 1, *Ambient Air Quality Standards***. **Table 2, *Summary of Health Effects of the Major Criteria Air Pollutants***, lists the health effects of these criteria pollutants and their potential sources.

The Air Quality Index is metric index developed by the United States EPA for reporting daily air quality. It indicates how clean or polluted the air is and what associated health effects might be a concern. The Air Quality Index focuses on health effects that may be experienced within a few hours or days after breathing polluted air. Descriptions for the various pollutant levels in the Air Quality Index are shown in **Table 3, *Air Quality Index Descriptions***.

The federal and California 8-hour ambient air quality standard for ozone is 70 ppb. The California 1-hour standard for ozone is 90 ppb (there is no federal 1-hour standard). As shown in the table, in order to achieve the federal ambient air quality standard for ozone, the Air Quality Index would need to be below 101. In order to achieve the state 8-hour ambient air quality standard for ozone, the Air Quality Index would need to be below 84.

In the Moreno Valley area during 2016 and 2017, the air quality index was greater than 150 one day each year. That means the air was unhealthy for one day in 2016 and one day in 2017. Although the main source of NO<sub>x</sub> and VOC emissions are from on-road motor vehicles, NO<sub>x</sub> and VOC emissions during project construction could contribute to unhealthy air days. Therefore, the project will incorporate mitigation that prohibits grading on days when an Air Quality Index is greater than 150 for particulates or ozone. If future years follow that trend, there would one day during each of the construction years when construction activities would need to be suspended.

**Table 1**  
**Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
Ozone (O <sub>3</sub> ) <sup>8</sup>	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )		
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>9</sup>	24-Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		—		
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>9</sup>	24-Hour	No Separate State Standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>	
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—	—	—
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>10</sup>	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	53 ppb (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )		100 ppb (188 µg/m <sup>3</sup> )	None	
Sulfur Dioxide (SO <sub>2</sub> ) <sup>11</sup>	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas) <sup>11</sup>	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (for certain areas) <sup>11</sup>	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m <sup>3</sup> )	
	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )		75 ppb (196 µg/m <sup>3</sup> )	—	
Lead <sup>12, 13</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m <sup>3</sup> (for certain areas) <sup>12</sup>	Same as Primary Standard	
	Rolling 3-Month Average <sup>11</sup>	—		0.15 µg/m <sup>3</sup>		

**Table 1  
Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
<b>Visibility-Reducing Particles<sup>1</sup></b> 4	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.	Beta Attenuation and Transmittance through Filter Tape	<b>No Federal Standards</b>		
<b>Sulfates</b>	24-Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
<b>Hydrogen Sulfide</b>	1-Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
<b>Vinyl Chloride<sup>1</sup></b> 2	24-Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			

**Table 1**  
**Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>

<sup>1</sup> California standards for ozone; carbon monoxide (except 8-hour Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub> and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

<sup>2</sup> National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal policies.

<sup>3</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

<sup>4</sup> Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

<sup>5</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

<sup>6</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

<sup>7</sup> Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

<sup>8</sup> On October 1, 2015, the natural eight-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

<sup>9</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

<sup>10</sup> To attain the 1-hour national standard, the 3-year average of the 98<sup>th</sup> percentile of the daily maximum concentrations at each site must not exceed 0.100 ppm. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

<sup>11</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99<sup>th</sup> percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm).

<sup>12</sup> The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

<sup>13</sup> The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

°C = degrees Celsius

EPA = United States Environmental Protection Agency

µg/m<sup>3</sup> = micrograms per cubic meter

mg/m<sup>3</sup> = milligrams per cubic meter

ppm = parts per million

ppb = parts per billion

Source: California Air Resources Board, 2016 (<https://www.arb.ca.gov/research/aaqs/aaqs2.pdf>).

**Table 2**  
**Summary of Health Effects of the Major Criteria Air Pollutants**

<i>Pollutants</i>	<i>Sources</i>	<i>Primary Effects</i>
Ozone (O <sub>3</sub> )	<ul style="list-style-type: none"> <li>▪ Atmospheric reaction of organic gases (ROG or VOC) with nitrogen oxides in the presence of sunlight.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Breathing difficulty.</li> <li>▪ Lung tissue damage.</li> <li>▪ Damage to rubber and some plastics.</li> </ul>
Nitrogen Dioxide (NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>▪ Motor vehicle exhaust.</li> <li>▪ Heavy construction equipment exhaust.</li> <li>▪ Farming equipment exhaust.</li> <li>▪ Residential heating.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lung irritation and damage.</li> <li>▪ Formation of acid rain.</li> </ul>
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>▪ Motor vehicle exhaust.</li> <li>▪ Heavy construction equipment exhaust.</li> <li>▪ Farming equipment exhaust.</li> <li>▪ Residential heating.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduced tolerance for exercise.</li> <li>▪ Impairment of mental function.</li> <li>▪ Impairment of fetal development.</li> <li>▪ Death at high levels of exposure.</li> <li>▪ Aggravation of some heart diseases (angina).</li> </ul>
Suspended Particulate Matter (PM <sub>2.5</sub> and PM <sub>10</sub> )	<ul style="list-style-type: none"> <li>▪ Motor vehicle exhaust (PM<sub>2.5</sub>).</li> <li>▪ Equipment and industrial sources (PM<sub>2.5</sub>).</li> <li>▪ Residential and agricultural burning (PM<sub>2.5</sub> and PM<sub>10</sub>).</li> <li>▪ Atmospheric chemical reactions (PM<sub>2.5</sub> and PM<sub>10</sub>).</li> <li>▪ Road dust (PM<sub>10</sub>).</li> <li>▪ Windblown dust (Agriculture [PM<sub>10</sub>])</li> <li>▪ Construction (Fireplaces [PM<sub>10</sub>])</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduced lung function.</li> <li>▪ Aggravation of the effects of gaseous pollutants.</li> <li>▪ Aggravation of respiratory and cardiorespiratory diseases.</li> <li>▪ Increased cough and chest discomfort.</li> <li>▪ Soiling.</li> <li>▪ Reduced visibility.</li> </ul>
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>▪ Coal/oil- burning power plants.</li> <li>▪ Industries, refineries, and diesel engines.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased lung disease.</li> <li>▪ Breathing problems for asthmatics.</li> <li>▪ Formation of acid rain.</li> </ul>
Lead (Pb)	<ul style="list-style-type: none"> <li>▪ Metal smelters.</li> <li>▪ Resource recovery.</li> <li>▪ Leaded gasoline.</li> <li>▪ Deterioration of lead paint.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Learning disabilities.</li> <li>▪ Brain and kidney damage.</li> </ul>

Source: California Air Resources Board 2009 (<http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm>).

**Table 3  
Air Quality Index Descriptions**

Air Quality Index Levels of Health Concern	Air Quality Index Numerical Range	Ozone Concentration for Air Quality Index (ppb)		Meaning
		8-Hour	1-Hour	
Good	Low: 0 High: 50	—	—	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	Low: 51 Std: 84* High: 100	Low: 59 Std: 70*	Low: 85	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	Low: 101 High: 150	Low: 75 (also the federal standard)	Low: 125	Members of sensitive groups may experience health effects. The general public is not likely to be affected. People with heart or lung disease, children, and older adults are considered sensitive and are at greater risk. For ozone, people who are active outdoors are also considered sensitive.
Unhealthy	Low: 151 High: 200	Low: 95	Low: 165	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	Low: 201 High: 300	Low: 115	Low: 205	Health alert: everyone may experience more serious health effects
Hazardous	Low: 301 High: 500	Low: 374	Low: 405	Health warnings of emergency conditions. The entire population is more likely to be affected.

ppb = parts per billion (a measure of concentration) \* Std = 8-hour California ozone ambient air quality standard

Source: Environmental Protection Agency (<https://airnow.gov/index.cfm?action=aqibasics.aqi>); MBA-FCS 2015

Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. An example of indirect source contribution would be the motor vehicles at intersections, malls, and on highways. The California Clean Air Act (CCAA) provides the SCAQMD with the authority to manage transportation activities at indirect sources. The SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the CARB.

The narrative below describes the pollutant characteristics, mechanisms of pollutant origination, and health effects each of the criteria pollutants (i.e., pollutants specifically regulated under the Federal Clean Air Act [CAA] and/or the California Clean Air Act [CCAA]) and other pollutants of concern. Because the concentration levels of the AAQS were set with an adequate margin to protect public health and safety, these health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. State AAQS are more stringent than Federal AAQS.

- *Carbon Monoxide*
  - Description and Properties: CO is colorless, odorless toxic gas produce by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and

biomass). CO is a primary pollutant, meaning it is emitted directly into the air (unlike secondary pollutants such as ozone that are formed by the reactions of other pollutants). CO levels tend to be highest during the winter months when the meteorological conditions support the accumulation of the pollutants. This occurs when relatively low inversion levels trap pollutants near the ground and concentrated the CO. Because CO is somewhat soluble in water, normal winter conditions of rainfall and fog can suppress CO conditions.

- Health Effects: CO is essentially inert to plants and materials but can have significant effects on human health. CO gas enters the body through the lungs, dissolves in the blood, and replaces oxygen as an attached hemoglobin. This binding reduces available oxygen in the blood and; therefore, reduces oxygen delivery to the body's organs and tissues. Effects on humans range from slight headaches to nausea to death. Elevated levels of CO can also cause visual impairments, reduced manual dexterity, poor learning ability, reduced work capacity, and trouble performing complex tasks.
- Sources: The major sources of CO are on-road vehicles, aircraft, and off-road equipment, or any source that burns fuel including residential heaters and stoves. Since most of the CO sources are the indirect result of urban development, most emissions and unhealthy CO levels occur in major urban areas.

- *Ozone*

- Description and Physical Properties: O<sub>3</sub> is known as a photochemical pollutant. Ozone is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between reactive organic gases (ROG) or volatile organic compounds (VOC), NO<sub>x</sub>, and sunlight. ROG and NO<sub>x</sub> are emitted from automobiles, solvents and fuel combustion, the sources of which are widespread throughout the SCAQMD. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. The conditions conducive to the formation of ozone include extended periods of daylight (solar radiation) and hot temperatures. These conditions are prevalent during the summer when thermal inversions are most likely to occur. As a result, summertime conditions of long periods of daylight and hot temperatures form ozone in the greatest quantities. During the summer, thermal inversions trap ozone from dispersing vertically, high concentrations of this pollutant are prevalent.
- Health Effects: Health effects of ozone can include respiratory system irritation, reduction of lung capacity, asthma aggravation, inflammation and damage to lung cells, aggravated cardiovascular disease, and permanent lung damage. The greatest health risk is to those who are more active outdoors during smoggy periods, such as children, athletes, and outdoor workers. Ozone also damages natural ecosystems such as forests, foothill communities, and damages

agricultural crops and some man-made materials such as rubber, paint, and plastics.

- Sources: Ozone is a secondary pollutant, thus is not emitted directly in the lower level of the atmosphere. The sources of ozone precursors (ROG and NO<sub>x</sub>) are discussed above in the description of ozone.
- *Oxides of Nitrogen*
  - Description and Physical Properties: During combustion of fossil fuels, oxygen reacts with nitrogen to produce NO<sub>x</sub> (NO, NO<sub>2</sub>, NO<sub>3</sub>, N<sub>2</sub>O, N<sub>2</sub>O<sub>3</sub>, N<sub>2</sub>O<sub>4</sub>, and N<sub>2</sub>O<sub>5</sub>). Atmospheric deposition of NO<sub>x</sub> occurs when atmospheric or airborne nitrogen is transferred to water, vegetation, soil, or other materials. Acid deposition involves the deposition of nitrogen and/or sulfur acidic compounds that can harm natural resources and materials. NO<sub>x</sub> is also an ozone precursor. When NO<sub>x</sub> and ROG are released in the atmosphere, they can also be a precursor to PM<sub>10</sub> and PM<sub>2.5</sub>.
  - Health Effects: The EPA has concluded that the only form of NO<sub>x</sub> that exists at a level high enough to cause public health concerns is nitrogen dioxide (NO<sub>2</sub>). Nitrogen dioxide is a brown gas with a strong odor. NO<sub>x</sub> can react with moisture, ammonia, and other compounds to form nitric acid and related particles. The main human health concerns of nitrogen dioxide include lung damage, increased incidence of chronic bronchitis, eye and mucus membrane damage, negative effects on the respiratory system, pulmonary dysfunction, and premature death. Small particles can penetrate deeply into the sensitive tissue of the lungs and can cause or worsen respiratory disease such as emphysema, asthma, and bronchitis, and can also aggravate existing heart disease. Because NO<sub>x</sub> is an ozone precursor, the health effects associated with ozone are also indirect health effects associated with unhealthful levels of NO<sub>x</sub> emissions.
  - Sources: A major source of NO<sub>x</sub> includes stationary source fuel combustion (i.e. manufacturing and industrial, food and agricultural processing, and service commercial uses). Additionally, NO<sub>x</sub> emission sources include motor vehicles internal combustion engines and electric utility and industrial boilers powered by fossil fuel combustion. Natural sources of NO<sub>x</sub> include lightning, soils, wildfires, stratospheric intrusion, and the oceans. Natural sources accounted for approximately seven percent of 1990 emissions of NO<sub>x</sub> for the United States. On-road vehicles also contribute to NO<sub>x</sub> emissions.
- *Sulfur Dioxide*
  - Description and Physical Properties: Sulfur dioxide (SO<sub>2</sub>) is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfuric acid is formed from sulfur dioxide, which is an aerosol particle component that affects acid deposition. Sulfur oxides (SO<sub>x</sub>) include sulfur

dioxide and sulfur trioxide (SO<sub>3</sub>). The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. Historically, sulfur dioxide was a pollutant of concern. However, with the successful application of regulations at the State and local level, the levels of sulfur dioxide have been reduced dramatically in the past several decades. The CARB, the State regulatory agency charged with regulating air pollution in the State, demonstrates that sulfur dioxide levels in the State are well below the maximum standards. Although sulfur dioxide concentrations have been reduced to levels well below State and Federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM<sub>10</sub>. Sulfates are a particulate formed through the photochemical oxidation of sulfur dioxide.

- Health Effects: Sulfur dioxide is a soluble gas; therefore, it can be absorbed in the mucous membranes of the respiratory tract and nose. Long-term exposure of high levels of sulfur dioxide can cause irritation of existing cardiovascular disease, respiratory illness, and changes in the defenses in the lungs. When people with asthma are exposed to high levels of sulfur dioxide for short periods of time during moderate activity, effects may include wheezing, chest tightness, or shortness of breath.
- Sources: Anthropogenic, or human caused, sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide.
- *Lead*
  - Description and Physical Properties: Lead (Pb) is a solid heavy metal that can exist in air pollution as an aerosol particle component. An aerosol is a collection of solid, liquid, or mixed-phase particles suspended in the air. Lead was first regulated as an air pollutant in 1976. Leaded gasoline was first marketed in 1923 and was used in motor vehicles until around 1970. The exclusion of lead from gasoline helped to decrease emissions of lead in the United States from 219,000 to 4,000 short tons per year between 1970 and 1997. Even though leaded gasoline has been phased out in most countries, some still use leaded gasoline. The mechanisms by which lead can be removed from the atmosphere (sinks) include deposition to soils, ice caps, and oceans, and inhalation.
  - Health Effects: Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. The more serious effects of lead poisoning include behavior disorders, mental retardation, and neurological impairment. Low levels of lead in fetuses and young children can result in nervous system damage, which can cause learning deficiencies and low IQs. Lead may also contribute to high blood pressure and heart disease.

- Sources: Lead-ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, soil waste disposal, and crustal physical weathering.
- *Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)*
  - Description and Physical Properties: Particulate matter is a generic term that defines a broad group of chemically and physically different particles (either liquid droplets or solids) that can exist over a wide range of sizes. Examples of atmosphere particles include those produced from combustion (diesel soot or fly ash), light produced (urban haze), sea spray produced (salt particles), and soil-like particles from re-suspended dust. In discussions of air pollution, particulate matter is typically divided up into two size categories: PM<sub>10</sub> and PM<sub>2.5</sub> because of the adverse health effects associated with the smaller-sized particles. PM<sub>10</sub> refers to particulate matter that is 10 microns or less in diameter (1 micron is one-millionth of a meter, also known as a micrometer [ $\mu\text{m}$ ]). PM<sub>2.5</sub> refers to particulate matter that is 2.5 microns or less in a diameter. Soil dust consists of the minerals and organic material found in soil being lifted up into the air by winds (e.g., fugitive dust).
  - Health Effects: Particulate matter can be inhaled directly into the lungs where it can be absorbed into the bloodstream. It is a respiratory irritant and can cause direct pulmonary effects such as coughing, bronchitis, lung disease, respiratory illnesses, increased airway reactivity, and exacerbation of asthma. Relatively recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health related effects include reduced visibility and soiling of property.
  - Sources: Particulate matter originates from a variety of stationary and mobile sources. Stationary sources include fuel combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal and recycling. Mobile or transportation-related sources include particulate matter from highway vehicles and non-road vehicles and fugitive dust from paved and unpaved roads. Secondary particulate matter is formed in the atmosphere through chemical reactions that can involve ROG, SO<sub>x</sub>, NO<sub>x</sub>, and ammonia.
- *Diesel Particulate Matter*
  - Description and Physical Properties: Diesel particulate matter (DPM) is a source of PM<sub>2.5</sub> as the size of diesel particles are typically 2.5 microns and smaller. In 1998, DPM made up about 6 percent of the total PM<sub>2.5</sub> inventory nationwide. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. DPM includes the particles-phase

constituents in diesel exhaust. Organic compounds account for 80 percent of the total particulate matter mass, which is composed of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons (PAHs) and their derivatives. Fifteen PAHs have been confirmed for carcinogenicity, a number of which are found in diesel exhaust. The chemical composition and particle sizes of diesel PM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), expected load, engine emission controls, fuel formulations (high/low sulfur fuel), and the year of the engine.

- Cancer Health Effects: Human studies on the carcinogenicity of diesel particulate matter demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure. Several occupational and ambient studies have documented the health effects due to exposure to diesel PM. The California Office of Environmental Health Hazards Assessment (OEHHA), in its role in assessing risk from environmental factors reviews such studies and makes recommendations on how environmental risk should be evaluated through programs like the AB2588 Hot Spots Program. In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, 1950's era railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provided strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. However, all of these studies were based on exposure to exhaust from traditional diesel engines and prior to the advent of highly efficient emissions controls like the diesel particulate filter. Based on these studies, CARB identified diesel exhaust a toxic air contaminant in 1998.
- Non-Cancer Health Effects: Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and can cause coughs, headaches, light-headedness, and nausea. Diesel exhaust is a major source of ambient particulate matter pollution as well, and numerous studies have linked elevated particle levels in the air to increase hospital admission, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.
- Sources: Diesel exhaust.
- *Visibility-Reducing Particles*
  - Description and Physical Properties: Visibility-reducing particles (VRP) are suspended particulate matter that reduces visibility. Visibility is the distance through the air that can be seen without the use of instrumental assistance. The distance that can be seen is limited by the amount of gases and aerosol particles

in the way. The EPA implemented a Regional Haze Rule in 1999 to attempt to protect visibility in 156 national parks and wilderness areas in the United States. The regulation requires states to establish goals for improving their areas and to work together with other states as the pollution is often transported over long distances.

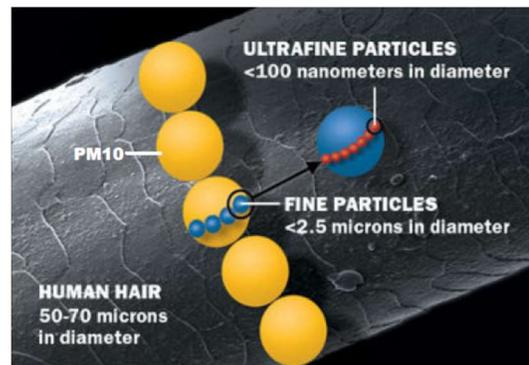
- Health Effects: The human health effects of VRP are those of pollution (particulate matter, oxides of nitrogen, and sulfur dioxide) discussed above.
- Sources: The sources are other pollutants (particulate matter, oxides of nitrogen, and sulfur dioxide) as discussed above.
- *Vinyl Chloride*
  - Description and Physical Properties: Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. Vinyl chloride is formed when other substances such as trichloroethylene and tetrachloroethylene are broken down. This can occur when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites due to microbial breakdown of chlorinated solvents. In 1978, the CARB established a State ambient air quality standard for vinyl chloride. The standard was set at 0.01 ppm for a 24-hour duration because that was the lowest level that could be detected at that time. In 1990, the CARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.
  - Health Effects: Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.
  - Sources: Manufacturing of PVC plastic and vinyl products.
- *Hydrogen Sulfide*
  - Description and Physical Properties: Hydrogen sulfide (H<sub>2</sub>S) is a flammable, colorless, poisonous gas that smells like rotten eggs.
  - Health Effects: High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause symptoms like headache, nausea, vomiting, and cough. Long exposure to hydrogen sulfide can cause pulmonary edema.

- Sources: Hydrogen sulfide and other reduced sulfur compounds form by the anaerobic decomposition of manure some types of bacteria found in animal and human by-products produce hydrogen sulfide during reduction of sulfur-containing compounds, such as proteins. Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide emissions. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal) and organic matter that undergoes putrefaction. It is used in the production of heavy water for nuclear reactors, the manufacture of chemicals, in metallurgy, and as an analytical reagent.
- *Reactive Organic Gases and Volatile Organic Compounds*
  - Description and Physical Properties: Reactive organic gases (ROG), or volatile organic compounds (VOC), are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. ROG consist of nonmethane hydrocarbons and oxygenated hydrocarbons. Hydrocarbons are organic compounds that contain only hydrogen and carbon atoms. Nonmethane hydrocarbons are hydrocarbons that do not contain the unreactive hydrocarbon, methane. Oxygenated hydrocarbons are hydrocarbons with oxygenated functional groups attached.
  - It should be noted that there are no State or Federal ambient air quality standard for ROG because they are not classified as criteria pollutants. They are regulated, however, because a reduction in ROG emissions reduces certain chemical reactions that contribute to the formulation of ozone. ROG are also transformed into organic aerosols in the atmosphere, which contribute to higher PM<sub>10</sub> and lower visibility.
  - Health Effects: Although health-based standards have not been established for ROG, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of ROG are suspected to cause eye, nose, and throat irritation; headaches, loss of coordination, nausea, damage to liver, kidney, and the central nervous system. There are many ROG that have been classified as toxic air contaminants. A particular ROG of concern is benzene, which is described in more detail below. The EPA maintains a list of all air substances that have been classified as hazardous to humans and/or animals, and includes ROG, pesticides, herbicides, and radionuclides.
  - Sources: The major sources of ROG are on-road motor vehicles and solvent evaporation.
- *Benzene*

- **Description and Physical Properties:** Benzene is an ROG. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" (human) carcinogen.
- **Health Effects:** Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, unconsciousness can occur. Long-term (chronic) occupational exposure of high dose by inhalation has caused blood disorders, including aplastic anemia and lower levels of red blood cells. Occupational exposure to benzene has been shown to cause leukemia (mainly acute myelogenous leukemia). Studies have also found that benzene exposure increased the risks of lymphatic and hematopoietic cancer (cancers of lymphatic system and of organs and tissues involved in the production of blood), total leukemia, and specific histologic types of leukemia.
- **Sources:** Benzene is emitted into the air from gasoline services station (fuel evaporation), motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is also used as a solvent for paints, inks, oils, waxes, plastic, and rubber. It is used in the extraction of oils from seeds and nuts. It is also used in manufacturing detergents, explosives, dyestuffs, and pharmaceuticals.

**Ultrafine Particles.** Ultrafine particles are particulate matter (PM) that exists in the ambient air and are less than 0.1 micrometer ( $\mu\text{m}$  or microns) in diameter. Ultrafine particles (UFP or  $\text{PM}_{0.1}$ ) are included in the group called  $\text{PM}_{2.5}$ , particulate matter less than 2.5 micrometers in diameter.

The picture to the right displays the relative size of the particles compared with a human hair, with  $\text{PM}_{10}$  (particulate matter less than 10 micrometers in diameter) indicated as yellow circles,  $\text{PM}_{2.5}$  shown as blue circles, and ultrafine particles shown as red circles.



The CARB or the EPA have not set an ambient air quality standard for ultrafine particles because health effect evidence and measurements are currently limited. In its recent revisions to the national ambient air quality standards for particulate matter, the EPA states, "In considering both the currently available health effects evidence and the air quality data, the Policy Assessment concluded that this information was still too limited to provide support for consideration of a distinct PM standard for ultrafine particles".<sup>1</sup>

The EPA indicates that evidence and research regarding health effects from short-term and long-term exposure to ultrafine particles are still too limited to establish a standard for ultrafine particles. In addition, the EPA reports that the studies that do exist have reported inconsistent and mixed results. The following is an excerpt from the Federal Register illustrating this point:

<sup>1</sup> U.S. Environmental Protection Agency. 2013. Federal Register. National Ambient Air Quality Standards for Particulate Matter. Website: <http://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf>. Accessed May 2018.

*“New evidence, primarily from controlled human exposure and toxicological studies, expands our understanding of cardiovascular and respiratory effects related to short-term ultrafine particle exposures. However, the Policy Assessment concluded that this evidence was still very limited and largely focused on exposure to diesel exhaust, for which the Integrated Science Assessment concluded it was unclear whether the effects observed are due to ultrafine particles, larger particles within the PM<sub>2.5</sub> mixture, or the gaseous components of diesel exhaust. In addition, the Integrated Science Assessment noted uncertainties associated with the controlled human exposure studies using concentrated ambient particle systems, which have been shown to modify the composition of ultrafine particles.*

*The Policy Assessment recognized that there are relatively few epidemiological studies that have examined potential cardiovascular and respiratory effects associated with short-term exposures to ultrafine particles. These studies have reported inconsistent and mixed results.*

*Collectively, in considering the body of scientific evidence available in this review, the Integrated Science Assessment concluded that the currently available evidence was suggestive of a causal relationship between short-term exposures to ultrafine particles and cardiovascular and respiratory effects. Furthermore, the Integrated Science Assessment concluded that evidence was inadequate to infer a causal relationship between short-term exposure to ultrafine particles and mortality as well as long-term exposure to ultrafine particles and all outcomes evaluated”.<sup>2</sup>*

The Integrated Science Assessment for Particulate Matter concluded that evidence is inadequate to determine a causal relationship between short-term exposures of ultrafine particles to mortality or central nervous system effects, but that the evidence suggests short-term (24-hour) exposures cause cardiovascular and respiratory effects. The assessment also concluded that there is inadequate evidence linking long-term exposure (typically measured in terms of an annual concentration) of ultrafine particles to health effects, including respiratory, developmental, cancer, and mortality. Overall, epidemiological studies of atmospheric PM suggest that cardiovascular effects are associated with smaller particles, but there are few reports that make a clear link between ultrafine particle exposures and increased mortality. In January 2015, a new study<sup>3</sup> on the relationship of mortality to long-term exposure to fine and ultra-fine particles was released. The study found there was a relationship between mortality and both fine and ultra-fine particles exposure.

In its Quantitative Health Risk Assessment for Particulate Matter, the EPA did not assess ultrafine particles, stating “that there was insufficient data to support a quantitative risk assessment for other size fractions (e.g., ultrafine particles).”<sup>4</sup>

<sup>2</sup> U.S. Environmental Protection Agency. 2013. Federal Register. National Ambient Air Quality Standards for Particulate Matter. Website: <http://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf>. Accessed May 2018.

<sup>3</sup> Environmental Health Perspectives, January 2015. Associations of Mortality with Long-Term Exposures to Fine and Ultrafine Particles, Species and Sources: Results from the California Teachers Study Cohort

<sup>4</sup> U.S. Environmental Protection Agency. 2010. Quantitative Health Risk Assessment for Particulate Matter. EPA-452/R-10-005. Website: <http://www.epa.gov/nscep/index.html>. (Search for the document.)

The availability of measurements of ultrafine particles to support health studies is also limited:

*With respect to our understanding of ambient ultrafine particle concentrations, at present, there is no national network of ultrafine particle samplers; thus, only episodic and/or site-specific data sets exist. Therefore, the Policy Assessment recognized a national characterization of concentrations, temporal and spatial patterns, and trends was not possible at this time, and the availability of ambient ultrafine measurements to support health studies was extremely limited. In general, measurements of ultrafine particles are highly dependent on monitor location and, therefore, more subject to exposure error than accumulation mode particles. Furthermore, the number of ultrafine particles generally decreases sharply downwind from sources, as ultrafine particles may grow into the accumulation mode by coagulation or condensation. Limited studies of ambient ultrafine particle measurements have suggested that these particles exhibit a high degree of spatial and temporal heterogeneity driven primarily by differences in nearby source characteristics. Internal combustion engines and, therefore, roadways are a notable source of ultrafine particles, so concentrations of these particles near roadways are generally expected to be elevated. Concentrations of ultrafine particles have been reported to drop off much more quickly with distance from roadways than fine particles.<sup>5</sup>*

In addition, it was hypothesized that chemical composition of PM may be a better predictor of health effects than particle size:

*In addressing the issue of particle composition, the Integrated Science Assessment concluded that, '[f]rom a mechanistic perspective, it is highly plausible that the chemical composition of PM would be a better predictor of health effects than particle size.' Heterogeneity of ambient concentrations of PM<sub>2.5</sub> constituents (e.g., elemental carbon, organic carbon, sulfates, nitrates) observed in different geographical regions as well as regional heterogeneity in PM<sub>2.5</sub>-related health effects reported in a number of epidemiological studies are consistent with this hypothesis.<sup>6</sup>*

The SCAQMD's Multiple Air Toxics Exposure Study (MATES-IV) states, "the health impact caused by exposure to UFPs [ultrafine particles] is still not well-understood." MATES-IV presents measurements of black carbon and ultrafine particles at 10 fixed sites within the Basin. The results indicate that the highest black carbon levels were at more urban sites located near major roadways. Black carbon was not measured in the previous MATES-III; however, elemental carbon levels decreased about 35 percent during from 2005 to 2012. Black carbon is a term used for elemental and graphitic components of soot.

The SCAQMD's 2016 Air Quality Management Plan (AQMP), discusses its progress in implementing the 2012 AQMP which contains a detailed chapter on near roadway exposure and ultrafine particles. The 2012 AQMP summarizes current health effect research on ultrafine particles. The potential health effects from ultrafine particle exposure are similar to those of PM<sub>2.5</sub>

<sup>5</sup> U.S. Environmental Protection Agency. 2013. Federal Register. National Ambient Air Quality Standards for Particulate Matter. Website: <http://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf>. Accessed May 2018.

<sup>6</sup> U.S. Environmental Protection Agency. 2013. Federal Register. National Ambient Air Quality Standards for Particulate Matter. Website: <http://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf>. Accessed May 2018.

and PM<sub>10</sub>: such as adverse cardio-respiratory responses including elevated blood pressure, and mild inflammatory and prothrombotic (obstruction of circulation) responses. The AQMP indicated that future research and assessment is needed in the following areas:

- **Chemical Composition.** Chemical composition of ultrafine particles depends on many factors, including vehicle technology, fuel, and atmospheric chemical reactions after being emitted. Particle composition may be a factor determining particle toxicity; therefore, knowledge regarding the chemistry is important.
- **Formation.** More research is needed regarding the processes leading to ultrafine particle formation.
- **Standardized Measurement Methods and Procedures.** Currently, there is no standard method for conducting size-classified or particle-number measurements. Characteristics measured in ambient and emission-testing studies are highly dependent on the measurement instrument/protocol used and its setting.
- **Measurements at Hot Spot Locations.** More measurements should be taken at “hot spots” where large numbers of vehicles are operated.
- **Emissions Inventories.** Vehicle emission factors for different particle size ranges and for particle numbers are highly uncertain, and there are no emission inventories for ultrafine particles from motor vehicles. New estimations of ultrafine particle levels should not be derived solely from vehicle emission factors (i.e., EMFAC), but have to include predictions for formation near the tailpipe and in the atmosphere.
- **Air Quality Modeling.** Modeling tools will need to be developed to simulate the formation and transport over a wide range of atmospheric conditions and emissions scenarios. The dispersion near the first few hundred meters of the roadway needs to be better understood.
- **Health Effects.** New toxicological and epidemiological studies targeting exposure to controlled and uncontrolled emissions from gasoline and diesel vehicles are needed to better characterize the exposure-response relationships to ultrafine particles and to help develop health guidelines and potential regulations. The health effects of inorganic ultrafine particle emissions from vehicles are only now starting to receive significant attention.
- **Other Sources.** More work is needed to better understand size, composition, and health impact of particles near stationary sources and other processes (rather than just motor vehicles).

**Children and Air Pollution.** Numerous studies have shown strong links between air pollution exposures and a range of health outcomes. One particular study was carried out over a 10-year experimental time period by the University of Southern California, the Children’s Health Study.<sup>7</sup> The Children’s Health Study, which began in 1992, is a large, long-term, study of the effects of chronic air pollution exposures on the health of children living in Southern California. Children

---

<sup>7</sup> Gauderman, W, et. al. Peters: Association between Air Pollution and Lung Function Growth in Southern California Children. American Journal of Respiratory and Critical Medicine. Vol 162. Page 1383. 2000.

may be more strongly affected by air pollution because their lungs and their bodies are still developing. Children are also exposed to more air pollution than adults since they breathe faster and spend more time outdoors in strenuous activities. About 5,500 children in twelve communities were enrolled in the study; two-thirds of them were enrolled as fourth-graders. Data on the children's health, their exposures to air pollution, and many factors that affected their responses to air pollution were gathered annually until they graduated from high school. The major conclusions reached in the University of Southern California's Children's Health Study are shown below. Note however, that the conclusions provided below were developed based on measurements made in the 1990's when levels of air pollution in the Basin were substantially higher than current levels.

- Children exposed to higher levels of particulate matter, nitrogen dioxide, acid vapor and elemental carbon, had significantly lower lung function at age 18, an age when the lungs are nearly mature and lung function deficits are unlikely to be reversed.
- Children who were exposed to current levels of air pollution had significantly reduced lung growth and development when exposed to higher levels of acid vapor, ozone, nitrogen dioxide, and particulate matter, which is made up of very small particles that can be breathed deeply into the lungs.
- Children living in communities with higher concentrations of nitrogen dioxide, particulate matter, and acid vapor had lungs that both developed and grew more slowly and were less able to move air through them. This decreased lung development may have permanent adverse effects in adulthood.
- Children who moved away from study communities had increased lung development if the new communities had lower particulate matter levels, and had decreased lung development if the new communities had higher particulate matter levels.
- Days with higher ozone levels resulted in significantly higher school absences due to respiratory illness. Children with asthma who were exposed to higher concentrations of particulate matter were much more likely to develop bronchitis.
- In the most recent update to the Children's Health Study, researchers discovered that improvements in regional air quality contributed to improved children's lung function. Specifically, combined exposure to two harmful pollutants, nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter, fell approximately 40 percent for children in the third study group (2007-2011) compared to the first study group (1994-98). The study followed children from Long Beach, Mira Loma, Riverside, San Dimas and Upland.
- Children's lungs grew faster as air quality improved. Lung growth from age 11 to 15 was more than 10 percent greater for children breathing the lower levels of NO<sub>2</sub> from 2007 to 2011 compared to those breathing higher levels from 1994 to 1998.
- The percentage of children in the study with abnormally low lung function at age 15 dropped from nearly 8 percent for the 1994-98 group, to 6.3 percent in 1997-2001, to just 3.6 percent for children followed between 2007 and 2011.

## Air Pollution Constituents and Attainment Status

The CARB has many responsibilities with respect to air quality, including the following:

- Coordination and oversight of State and Federal air pollution control programs in California;
- Oversight activities of local air quality management agencies (e.g., the SCAQMD);
- Responsibility for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval; and
- Maintaining air quality monitoring stations throughout the State in conjunction with local air districts.

The CARB has divided the State into 15 air basins based on meteorological and topographical factors that affect air pollution. An air basin generally has similar meteorological and geographic conditions throughout. The CARB and EPA use the data collected at monitoring stations to classify air basins as attainment, nonattainment, nonattainment transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the AAQS.

Nonattainment areas are imposed with additional restrictions, as required by the EPA to attain and maintain air quality standards. The air quality data are also used to monitor progress in attaining and maintaining air quality standards.

Significant authority for air quality control within the various air basins has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

**Table 4, *Attainment Status of Criteria Pollutants in the South Coast Air Basin***, identifies the attainment status for the criteria pollutants in the Basin. The State AAQS are more stringent than the Federal AAQS.

**Table 4**  
**Attainment Status of Criteria Pollutants in the South Coast Air Basin**

Pollutant	State	Federal
O <sub>3</sub> 1-hour	Nonattainment	N/A
O <sub>3</sub> 8-hour	Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Nonattainment	Maintenance – serious (San Bernardino County is in nonattainment)
PM <sub>2.5</sub>	Nonattainment	Moderate Nonattainment
CO	Attainment	Serious Maintenance
NO <sub>2</sub>	Attainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Pb	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Unclassified designation: a pollutant that is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment designation: a pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment: a pollutant is designated nonattainment if there was at least one violation at any site in the area during a 3-year period.

Source: California Air Resources Board (<https://www.arb.ca.gov/desig/adm/adm.htm>), 2018; Environmental Protection Agency (<https://www.epa.gov/green-book>), 2018

## Regional Air Quality Improvements

The SCAQMD website ([aqmd.gov](http://aqmd.gov)) contains historical air quality data dating back to 1994; the year after air pollution emissions thresholds were established. As described on the SCAQMD website,<sup>8</sup> in 1994 pollutant concentrations in the Basin exceeded three of the six Federal ambient air quality standards. The state sulfate standard was exceeded in some Basin areas. The state lead standard was exceeded in one localized area immediately adjacent to a source of lead emissions. No areas of the Basin exceeded standards for nitrogen dioxide or sulfur dioxide. The Los Angeles and Riverside County areas of the Southeast Desert Air Basin (SEDAB) served by the District exceeded standards for ozone and PM<sub>10</sub>. No other standards were exceeded in the District SEDAB areas. The Federal standards were exceeded at one or more locations in the Basin during 142 days in 1994.

The American Lung Association website ([lung.org](http://lung.org)) includes data collected from State air quality monitors that are used to compile an annual *State of the Air* report. These reports have been published over the last 13 years. The latest *State of the Air Report* compiled for the Basin was in 2017.<sup>9</sup> As noted in this report, air quality in the Basin has significantly improved in terms of both pollution levels and high pollution days over the past three decades. Riverside County's average number of unhealthy ozone days dropped from 203 days per year in the initial 2000 State of the Air report to 122 in 2017 report and San Bernardino County's number of unhealthy ozone days dropped from 230 in 2000 to 142 in 2017. Both Counties has seen dramatic reduction in particle pollution since the initial State of the Air report (2000). While the 2017 *State of the Air Report* shows a slight uptick in the number of days of unhealthy particle pollution for both counties since

<sup>8</sup> Historical Air Quality, Summary of 1994 Air Quality, <http://aqmd.gov/smog/AirQualityStandardsComplianceReport/AirQualitySummary94.html>, website accessed December 17, 2012.

<sup>9</sup> *State of the Air 2017*, American Lung Association, <http://www.lung.org/associations/states/california/assets/pdfs/sota/south-coast-fact-sheet.pdf>, website accessed April 2018.

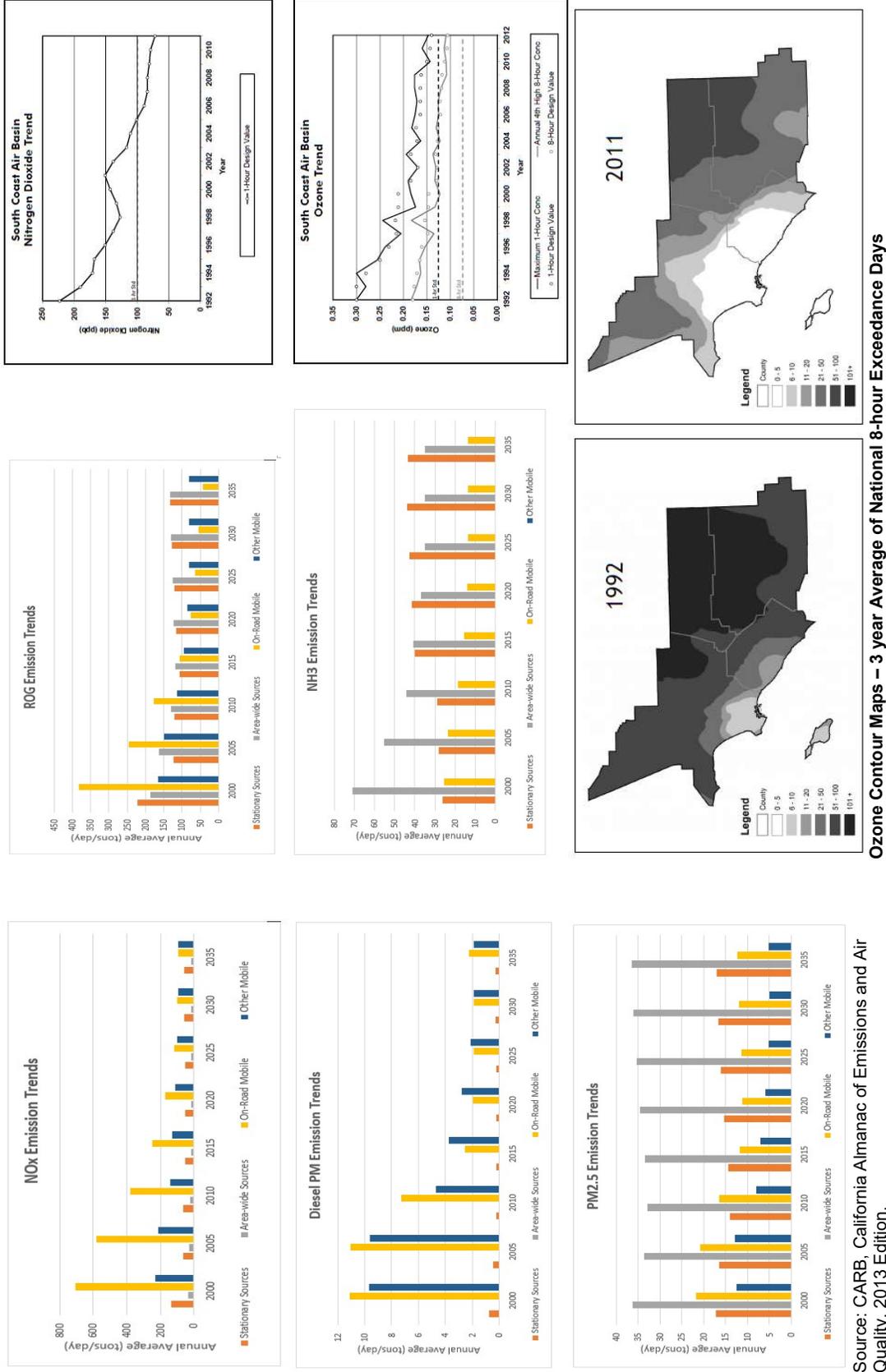
the 2016 report, it is important to note that pollution levels measured in this latter report were affected by fluctuations in weather conditions.

The 2016 Air Quality Management Plan 2016 AQMP outlines a comprehensive control strategy that meets the requirement for expeditious progress towards an attainment date for the five National Ambient Air Quality Standards (NAAQS) being analyzed. As stated in the 2016 AQMP, “The ozone and PM levels continue to trend downward as the economy and population increase, demonstrating that it is possible to maintain a healthy economy while improving public health through air quality improvements” (South Coast Air Quality Management District 2016). As shown in **Figure 9**, *NO<sub>x</sub>, VOC, CO, and Ozone Trends in the South Coast Air Basin*, NO<sub>x</sub>, VOC, PM, NH<sub>3</sub>, have been decreasing in the Basin since 2000 and are projected to continue to decrease through 2035.<sup>10</sup> These decreases result primarily from motor vehicle controls and reductions in evaporative emissions. Although vehicle miles traveled in the Basin continue to increase, NO<sub>x</sub> and VOC levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO<sub>x</sub> emissions from electric utilities have also decreased due to use of cleaner fuels and renewable energy.

---

<sup>10</sup> CARB, California Almanac of Emissions and Air Quality, 2013 Edition

Figure 9: NOx, VOC, CO, and Ozone Trends in the South Coast Air Basin

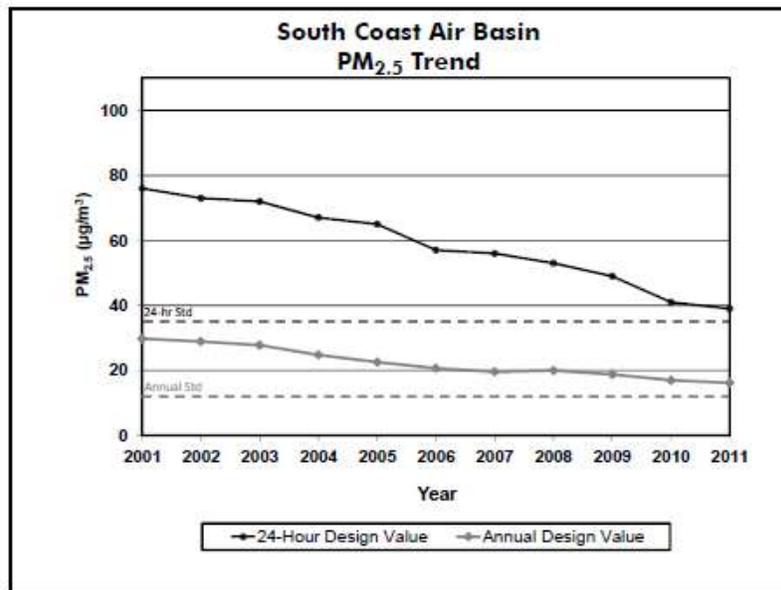


Source: CARB, California Almanac of Emissions and Air Quality, 2013 Edition.

Figure 9 also displays ozone contour maps, which show that the number of days exceeding the national 8-hour standard has decreased between 1992 and 2011. During the 1992 time period, nearly all of the South Coast had more than 50 exceedance days, with more than 100 days in nearly one-third of the Basin. This is equivalent to more than three months during a year with ozone concentrations above the level of the standard. The 2011 map now shows a large area with less than ten exceedance days. Much of this area currently meets the national standard, including about two-thirds of Orange County and one-third of Los Angeles County, where the majority of the Basin population lives and works.<sup>11</sup>

As shown in the top portion of **Figure 10**, *Particulate Matter Trends in the South Coast Air Basin*, the overall trends of PM<sub>2.5</sub> in the air (not emissions) show an overall improvement since 2001. Area-wide sources (fugitive dust from roads, dust from construction and demolition, and other sources) contribute the greatest amount of direct particulate matter emissions.

**Figure 10: Particulate Matter Trends in the South Coast Air Basin**



Source: CARB, California Almanac of Emissions and Air Quality, 2013 Edition.

The reduction in air pollution levels experienced in the Basin is attributable to multiple factors. First, Federal and State regulatory strategies requiring the use of cleaner fuels and use of emissions control technology in the transportation and energy production industries have proven to greatly reduce the amount of tailpipe emission (vehicles) and point source (power plants) pollutants (e.g., NO<sub>x</sub> and ROG). Second, the SCAQMD's rules and regulatory programs have proven to be instrumental in improving the air quality in the Basin. As an example, the SCAQMD has adopted multiple rules regarding fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) and construction emissions that have resulted in reduced emission levels. Third, the SCAQMD's creation of the 1993 CEQA review handbook has resulted in lead agencies throughout the air basin employing uniform

<sup>11</sup> CARB. The California Almanac of Emissions and Air Quality, 2013 Edition.  
<https://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm>. Accessed April 2018

CEQA analyses and methodologies. The use of uniform CEQA review has allowed the SCAQMD and lead agencies that rely on the 1993 SCAQMD Air Quality Handbook to perform CEQA analysis to better track progress and to employ uniform mitigation and design feature strategies. Fourth, the use of the SCAQMD thresholds of significance to determine a project's direct and cumulative impact has allowed the SCAQMD to make tremendous progress toward achieving air quality attainment. The discussion above (pertaining to the air quality improvements achieved over the past 20 years) demonstrates that the SCAQMD's rules and procedures, including the uniform utilization of the thresholds of significance recommended in the SCAQMD *CEQA Air Quality Handbook* are contributing toward the achievement of improved air quality in the Basin.

It is for this reason the City have chosen to rely on the thresholds of significance established by the SCAQMD in its 1993 CEQA Handbook and subsequent additions to the Handbook. These thresholds of significance (which serve as both direct and cumulative thresholds) have been uniformly utilized by lead agencies throughout the Basin for the past 20 years and the improvement of air quality within the Basin throughout this time period has demonstrated the efficacy of these thresholds, along with the other regional and statewide regional programs discussed above, in improving air quality throughout the Basin.

## Local Air Quality

The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station most representative of the project site is the Riverside-Rubidoux station. This station monitors CO, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Some monitoring data for SO<sub>2</sub> has been omitted as attainment is regularly met for this pollutant within the Basin. This station characterizes the air quality representative of the ambient air quality in the project area. The ambient air quality data in **Table 5, *Ambient Air Quality Monitored in the Project Vicinity***, identify that CO and NO<sub>2</sub> levels are consistently below the relevant State and Federal standards in the project vicinity. O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> levels all exceed State and/or Federal standards regularly. **Figure 11, *Air Quality Monitoring Station***, identifies the location of the monitoring station relative to the project site.

## Sensitive Land Uses in the Project Vicinity

Sensitive receptors include residences, schools, medical offices, convalescent facilities, and similar uses where people sensitive to air pollutants may be located (i.e., the ill, elderly, pregnant women, and children). There are currently six occupied single-family homes and associated ranch/farm buildings in various locations on the project site. These residences are existing on-site sensitive receptors. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, west of Redlands Boulevard, and scattered residences along Gilman Springs Road north of Alessandro Boulevard. Nearby sensitive land uses are depicted in **Figure 12, *Existing Sensitive Receptors***.

## Existing Project Area Emissions

The project area is largely vacant undeveloped marginal agricultural land, with six occupied single-family homes and associated ranch/farm buildings in various locations on the property.

Much of the site is currently used for dry farming generating criteria pollutant and dust emissions. San Diego Gas & Electric (SDG&E) operates a natural gas compressor plant, known as the Moreno Compressor Station, on 19 acres south of the site. The Southern California Gas Company (SCGC) also operates a metering and pipe cleaning station on two separate parcels (totaling 1.5 acres) south of the site south of Alessandro Boulevard along existing Virginia Street. Existing air quality conditions at the project site reflect ambient<sup>12</sup> monitored conditions as presented in **Table 5**.

---

<sup>12</sup> Ambient: of or related to the immediate surroundings of something; in this context it means “in the air”

**Table 5**  
**Ambient Air Quality Monitored in the Project Vicinity**

Pollutant	Standard	2014	2015	2016	2017
<b>Carbon Monoxide (CO)</b>					
Maximum 1-hr concentration (ppm)		2.4	2.5	1.6	2.4
Number of days exceeded:	State: > 20 ppm	0	0	0	0
	Federal: > 35 ppm	0	0	0	0
Maximum 8-hr concentration (ppm)		1.9	1.7	1.3	1.8
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0	0
	Federal: ≥ 9 ppm	0	0	0	0
<b>Ozone (O<sub>3</sub>)</b>					
Maximum 1-hr concentration (ppm)		0.141	0.132	0.142	0.145
Number of days exceeded:	State: > 0.09 ppm	29	31	33	ND
Maximum 8-hr concentration (ppm)		0.105	0.106	0.105	0.118
Number of days exceeded:	State: > 0.070 ppm	69	59	71	ND
	Federal: > 0.075 ppm	41	39	47	84
<b>Coarse Particulates (PM<sub>10</sub>)</b>					
Maximum 24-hr concentration (µg/m <sup>3</sup> )		100	69	84	92
Number of days exceeded:	State: > 50 µg/m <sup>3</sup>	125	92	ND	ND
	Federal: > 150 µg/m <sup>3</sup>	0	0	0	0
Annual arithmetic mean concentration (µg/m <sup>3</sup> )		44.8	40.0	ND	ND
Exceeded for the year	State: > 20 µg/m <sup>3</sup>	Yes	Yes	ND	ND
<b>Fine Particulates (PM<sub>2.5</sub>)</b>					
Maximum 24-hr concentration (µg/m <sup>3</sup> )		50.6	61.1	60.8	50.3
Number of days exceeded:	Federal: > 35 µg/m <sup>3</sup>	ND	10	5	ND
Annual arithmetic mean (µg/m <sup>3</sup> )		16.8	15.3	12.6	12.2
Exceeded for the year	State: > 12 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
	Federal: > 12.0 µg/m <sup>3</sup>	Yes	Yes	Yes	Yes
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Maximum 1-hr concentration (ppm)		0.0600	0.057	0.073	0.063
Number of days exceeded:	State: > 0.18 ppm	0	0	0	0
Annual arithmetic mean concentration (ppm)		0.015	0.0144	0.015	0.015
Exceeded for the year	State: > 0.030 ppm	No	No	ND	ND
	Federal: > 0.053 ppm	No	No	ND	ND
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Maximum 24-hr concentration (ppm)		1.3	1.0	1.2	1.2
Number of days exceeded:	State: > 0.04 ppm	ND	ND	ND	ND
Annual arithmetic average concentration (ppm)		0.26	0.27	0.23	0.29
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No	No

µg/m<sup>3</sup> = micrograms per cubic meter  
Agency

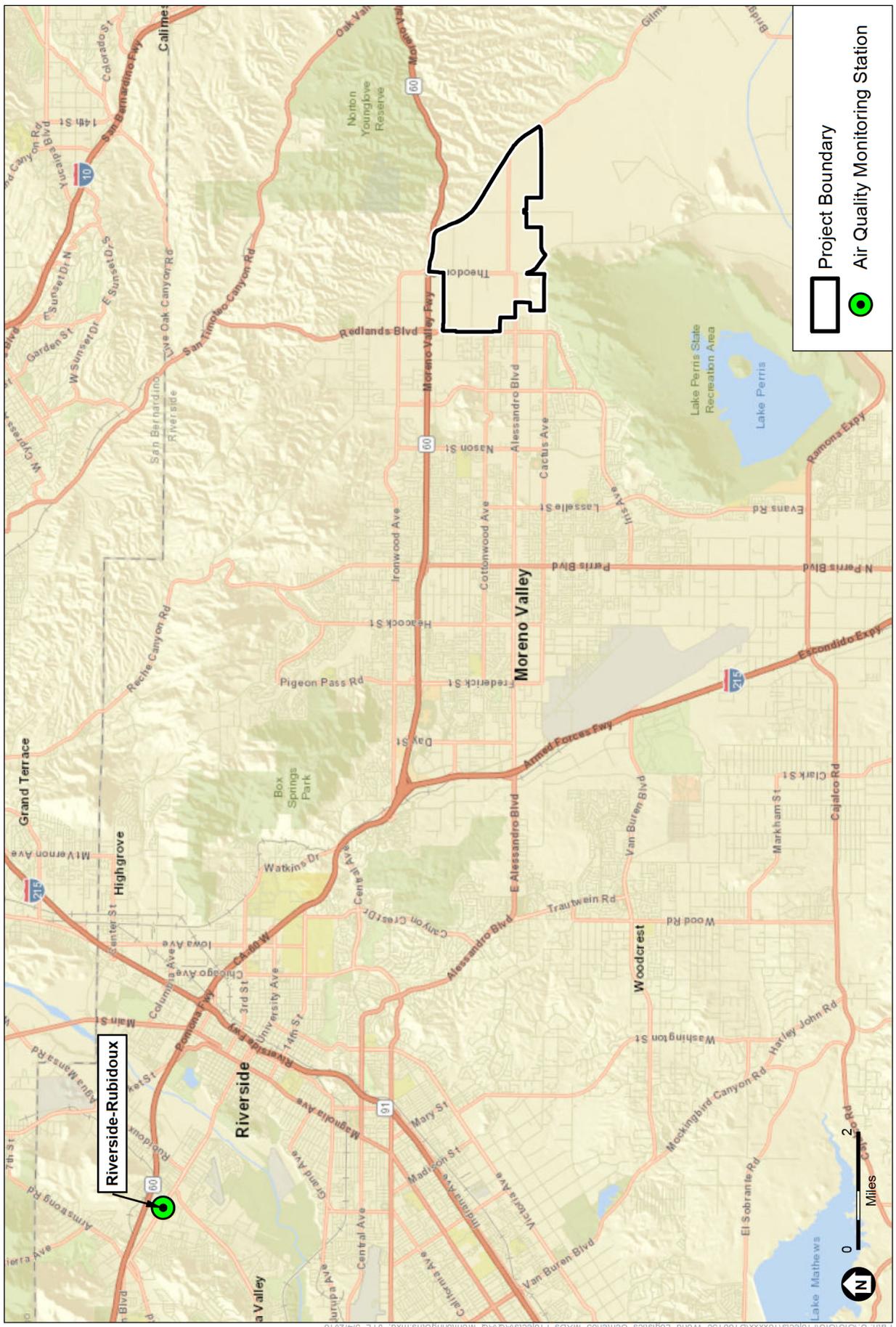
EPA = United States Environmental Protection

ID = Insufficient data

ND = No data

ppm = parts per million

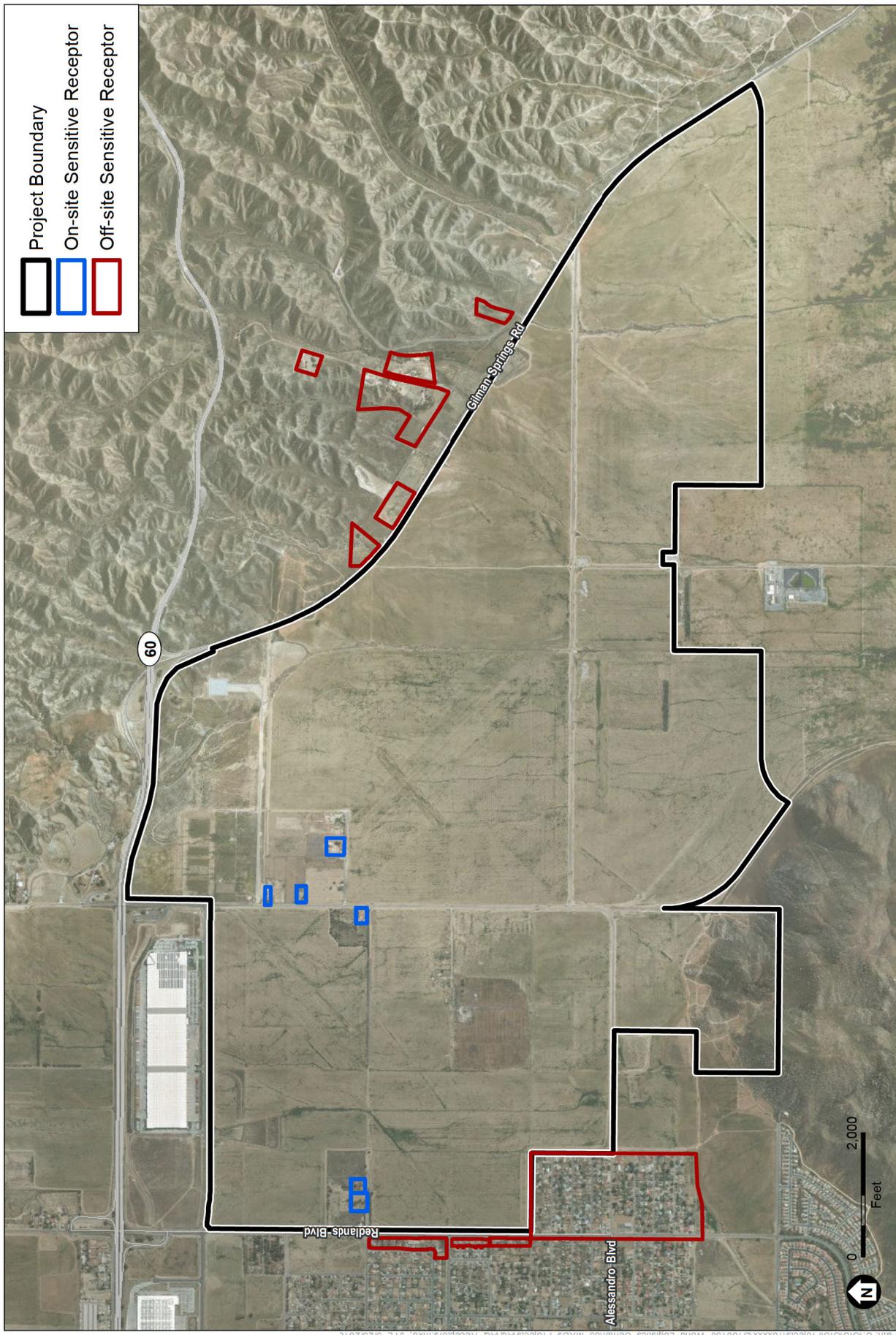
Source: CARB, iADAM: Air Quality Data Statistics. Available at <https://www.arb.ca.gov/adam> for the SCAQMD Riverside-Rubidoux air monitoring station.



World Logistics Center  
**Figure 11**  
 Air Quality Monitoring Station

SOURCE: ESRI





SOURCE: ESRI 2016; County of Riverside 2017

World Logistics Center  
**Figure 12**  
 Existing Sensitive Receptors



## 1.5 Existing Greenhouse Gas Environment

### Global Climate Change

Global climate change is the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The term “global climate change” is often used interchangeably with the term “global warming,” but “global climate change” is preferred by some scientists and policy makers to “global warming” because it helps convey the notion that there are other changes in addition to rising temperatures.

Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind, lasting for decades or longer. Climate change may result from:

- Natural factors, such as changes in the sun’s intensity or slow changes in the Earth’s orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere’s composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

The primary observed effect of global climate change has been a rise in the average global tropospheric<sup>13</sup> temperature of 0.36 degrees Fahrenheit (°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold and increased intensity of tropical cyclones (hurricanes). Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California’s coastline, and seawater intrusion in the Delta.

Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO<sub>2</sub>) and other compounds, cumulatively termed greenhouse gases (GHGs). GHGs are effective in trapping infrared radiation that otherwise would have escaped the atmosphere, thereby warming the atmosphere, the oceans, and earth’s surface.<sup>14</sup> Many scientists believe that “most of the warming observed over the last 50 years is attributable to human activities.”<sup>15</sup> The increased amounts of CO<sub>2</sub> and other GHGs are alleged to be the primary causes of the human-induced component of warming.

<sup>13</sup> The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

<sup>14</sup> U.S. Environmental Protection Agency (EPA). *Climate Change: Basic Information*. Available at <https://archive.epa.gov/epa/climatechange/climate-change-basic-information.html>. Website accessed June 2018.

<sup>15</sup> Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis*, <http://www.ipcc.ch>.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>). In the last 200 years, substantial quantities of GHGs have been released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, enhancing the natural greenhouse effect, which is believed to be causing global climate change. While human-made GHGs include CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere.

GHGs vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO<sub>2</sub>, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO<sub>2</sub> over a specified time period. GHG emissions are typically measured in terms of metric tons of “CO<sub>2</sub> equivalents” (mt CO<sub>2</sub>e or MTCO<sub>2</sub>e).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Human-made sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. As for CO<sub>2</sub>, the major removal process of atmospheric CH<sub>4</sub>—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH<sub>4</sub> concentrations in the atmosphere are increasing.

Worldwide emissions of GHGs in 2010 were approximately 47,351 million mt CO<sub>2</sub>e<sup>16</sup> Emissions from the top five countries and the European Union accounted for approximately 57 percent of the total global GHG emissions, according to the most recently available data. The United States was the number two producer of GHG emissions, contributing 13 percent of the emissions. The primary GHG emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 82 percent of total GHG emissions. CO<sub>2</sub> from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 85 percent of the GHG emissions.<sup>17</sup>

In 2016, the United States emitted approximately 5.3 billion mt CO<sub>2</sub>e or approximately 16.5 tons per year (tpy) per person. Of the six major sectors nationwide (electric power industry, transportation, industry, agriculture, commercial, and residential), the electric power industry and transportation sectors combined account for approximately 72 percent of the GHG emissions; the majority of the electrical power industry and all of the transportation emissions are generated

<sup>16</sup> World Resources Institute, CAIT. 2018. Climate Analysis Indicators Tool: WRI’s Climate Data Explorer. Washington, DC. Available at: <http://cait2.wri.org>. Accessed April 6, 2018.

<sup>17</sup> Ibid.

from direct fossil fuel combustion. Between 1990 and 2016, total United States GHG emissions rose approximately 2.8 percent.<sup>18</sup>

World carbon dioxide emissions<sup>19</sup> are expected to increase by 1.9 percent annually between 2001 and 2025. Much of the increase in these emissions is expected to occur in the developing world where emerging economies, such as China and India, fuel economic development with fossil energy. Developing countries' emissions are expected to grow above the world average at 2.7 percent annually between 2001 and 2025; and surpass emissions of industrialized countries near 2018.

The California Air Resources Board (CARB) is responsible for developing the California Greenhouse Gas Emission Inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the State of California and supports the Assembly Bill (AB) 32 Climate Change Program. The most recent inventory of GHG emissions in California estimated 440.4 million mt CO<sub>2</sub>e in 2015.<sup>20</sup> This is a 2.2 percent increase in GHG emissions from 1990. The top contributor of emissions in 2015 was transportation, which contributed 37 percent of the emissions. The second highest sector was industrial (21 percent), which includes sources from refineries, general fuel use, oil and gas extraction, and cement plants. According to CARB, California is on track to meet the 2020 GHG reduction target codified in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming Solutions Act of 2006 (AB 32).<sup>21</sup>

## Effects of Global Climate Change

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use these data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The International Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean surface temperature change for 2081-2100 relative to the period from 1986 to 2005, given six scenarios, could range from 0.3 degrees Celsius (°C) to 4.8 °C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2014). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning

<sup>18</sup> U.S. Environmental Protection Agency (EPA). 2018. *Inventory of U.S. Greenhouse Gas Emissions And Sinks: 1990 – 2016*. <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. Accessed April 6, 2018.

<sup>19</sup> <http://www.eia.gov/oiaf/1605/ggcebro/chapter1.html>.

<sup>20</sup> California Air Resources Board. *California Greenhouse Gas Inventory: 2000-2015*. 2017 edition. <http://www.arb.ca.gov/cc/inventory/data/data.htm>

<sup>21</sup> California Air Resources Board, *Frequently Asked Questions for the 2016 Edition California Greenhouse Gas Emission Inventory*, (2016). Available at: [https://www.arb.ca.gov/cc/inventory/pubs/reports/2000\\_2014/ghg\\_inventory\\_faq\\_20160617.pdf](https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_faq_20160617.pdf). Accessed April 2018.

of fossil fuels. However, the scientific literature is not consistent regarding many of the aspects of global warming or climate change, including actual temperature changes during the 20<sup>th</sup> century, the accuracy of the IPCC report, and contributions of human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

Additionally, the following climate change effects, which are based on trends established by the IPCC, can be expected in California over the course of the next century:

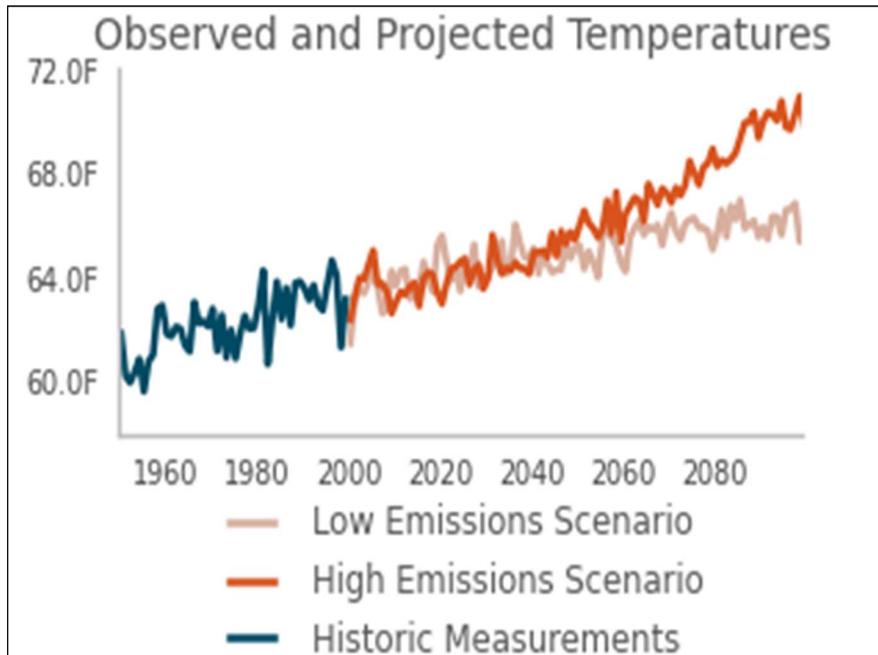
- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply. If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier.
- A rise in sea levels resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the project area as it is a significant distance away from coastal areas.)
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Precipitation, winds, temperature, and vegetation influence wildfire risk; therefore, wildfire risk is not uniform throughout the state. Changes in current precipitation patterns could influence that risk. As an example, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas (see below).

- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

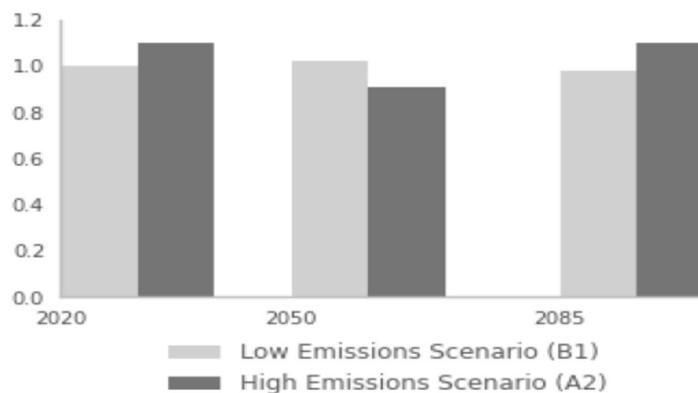
### **Consequences of Climate Change in Moreno Valley**

**Figure 13, *Observed and Projected Temperatures***, below, displays a chart of measured historical and projected annual average temperatures in the Moreno Valley area. As shown in Figure 13, temperatures are expected to rise in the low and high GHG emissions scenarios.

Water for the project would be provided by the Eastern Municipal Water Department (EMWD). The EMWD 2015 Urban Water Management Plan considered the impact of climate change on water supplies as part of its long-term strategic planning. One of the outcomes of climate change could be more frequent limitations on imported supplies. To limit the impact of climate change, EMWD's long-term planning focuses on the development of reliable local resources and the implementation of water use efficiency. This includes the full utilization of recycled water and the recharge of local groundwater basins to increase supply reliability during periods of water shortage. EMWD is also focused on reducing demand for water supplies, especially outdoors. Increasing the use of local resource and reducing the need for imported water has the dual benefit of not only improving water quality reliability, but reducing the energy required to import water to EMWD's service area.

**Figure 13: Observed and Projected Temperatures**

**Figure 14, *Wildfire Risk in Moreno Valley***, displays the fire risk in Moreno Valley relative to 2010 levels. Figure 14 displays the projected increase in potential area burned given three different 30-year averaging periods ending in 2020, 2050, and 2085 and two different scenarios (A2, B1). The data are modeled solely on climate projections and do not take landscape and fuel sources into account (there is very little combustible material in the project area). The data modeled the ratio of additional fire risk for an area as compared to the expected burned area. The data are shown in Figure 14 and indicate that under the low-emissions scenario, the additional wildfire risk is about 1, which means that wildfire risk is expected to remain about the same. Under the high-emission scenario, additional risk is variable with a slight increase.

**Figure 14: Wildfire Risk in Moreno Valley**

## 1.6 Greenhouse Gases

The most common greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Greenhouse gases defined by AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Natural processes and human activities emit greenhouse gases. The presence of greenhouse gases in the atmosphere affects the earth's temperature. Many scientists believe that emissions from human activities, such as electricity production and vehicle use, have led to elevated concentrations of these gases in the atmosphere beyond the level of naturally occurring concentrations. Greenhouse gases, the effects of each greenhouse gas, and some of the sources for each of the greenhouse gases are listed below.

- *Water Vapor*
  - Description and Physical Properties: Water vapor (H<sub>2</sub>O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization.
  - Health Effects: There are no health effects from water vapor. When some pollutants come in contact with water vapor, they can dissolve and then the water vapor can be a transport mechanism to enter the human body.
  - Source: The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.
  
- *Carbon Dioxide*
  - Description and Physical Properties: Carbon dioxide (CO<sub>2</sub>) is an odorless, colorless natural greenhouse gas.
  - Health Effects: Outdoor levels of carbon dioxide are not high enough to result in negative health effects.
  - Sources: Carbon dioxide is emitted from natural and anthropogenic (human) sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.

- *Methane*
  - Description and Physical Properties: Methane (CH<sub>4</sub>) is an extremely effective GHG with a global warming potential of 21, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10–12 years) compared to other greenhouse gases.
  - Health Effects: There are no health effects from methane.
  - Sources: Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.
  
- *Nitrous Oxide*
  - Description and Physical Properties: Nitrous oxide (N<sub>2</sub>O), also known as laughing gas, is a colorless greenhouse gas. It has a lifetime of 114 years. Its global warming potential is 310.
  - Health Effects: Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses it is harmless. In some cases, heavy and extended use can cause Olney's Lesions (brain damage).
  - Sources: Concentrations of nitrous oxide also began to rise at the beginning of the Industrial Revolution. In 1998, the global concentration was 314 ppb. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars.
  
- *Chlorofluorocarbons*
  - Description and Physical Properties: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C<sub>2</sub>H<sub>6</sub>) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100.

- Health Effects: In confirmed indoor locations, working with CFC-113 or other CFCs is thought to have resulted in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.
- Sources: CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.
- *Hydrofluorocarbons*
  - Description and Physical Properties: Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential (depending on the gas, ranges from 140 to 11,700). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant.
  - Health Effects: There are no health effects from HFCs.
  - Sources: HFCs are man-made for applications such as automobile air conditioners and refrigerants.
- *Perfluorocarbons*
  - Description and Physical Properties: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF<sub>4</sub>) and hexafluoroethane (C<sub>2</sub>F<sub>6</sub>). Global warming potentials range from 6,500 to 9,200.
  - Health Effects: There are no health effects from PFCs.
  - Sources: The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
- *Sulfur Hexafluoride*
  - Description and Physical Properties: Sulfur hexafluoride (SF<sub>6</sub>) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 ppt. It has a lifetime of 3,200 years.

- Health Effects: In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.
  - Sources: Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
- *Aerosols*
    - Description and Physical Properties: Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols.
    - Health Effects: See health effects associated with particulate matter, above.
    - Sources: Sulfate aerosols are emitted when fuel containing sulfur is burned. Another source of aerosols (in the form of black carbon or soot) is the result of incomplete combustion or the incomplete burning of fossil fuels. Although particulate matter regulation has been lowering aerosol concentrations in the United States, global concentrations are likely increasing as a result of other sources around the world.
    - *Black Carbon*. A specific aerosol of concern is black carbon. Black carbon is a light absorbing component of particulate matter and is formed by the incomplete combustion of fossil fuels, biofuels, and biomass. The following is additional information on black carbon:
      - Black carbon is emitted directly into the atmosphere in the form of fine particles (PM<sub>2.5</sub>).
      - Black carbon contributes to the adverse impacts on human health, ecosystems, and visibility associated with PM<sub>2.5</sub>.
      - Black carbon influences climate by: 1) directly absorbing light, 2) reducing the reflectivity (“albedo”) of snow and ice through deposition, and 3) interacting with clouds.

The direct and snow/ice albedo effects of black carbon are widely understood to lead to climate warming. However, the globally averaged net climate effect of black carbon also includes the effects associated with cloud interactions, which are not well quantified and may cause either warming or cooling. Therefore, though most estimates indicate that black carbon has a net warming influence, a net cooling effect cannot be ruled out.

- Sensitive regions such as the Arctic and the Himalayas are particularly vulnerable to the warming and melting effects of black carbon.

- Black carbon is emitted with other particles and gases, many of which exert a cooling influence on climate. Therefore, estimates of the net effect of black carbon emissions sources on climate should include the offsetting effects of these co-emitted pollutants. This is particularly important for evaluating mitigation options.
- Black carbon's short atmospheric lifetime (days to weeks), combined with its strong warming potential, means that targeted strategies to reduce black carbon emissions can be expected to provide climate benefits within the next several decades.
- The different climate attributes of black carbon and long-lived GHGs make it difficult to interpret comparisons of their relative climate impacts based on common metrics.
- Based on recent emissions inventories, the majority of global black carbon emissions come from Asia, Latin America, and Africa. Emissions patterns and trends across regions, countries and sources vary significantly.
- Control technologies are available to reduce black carbon emissions from a number of source categories.
- Black carbon mitigation strategies, which lead to reductions in PM<sub>2.5</sub>, can provide substantial public health and environmental benefits.

Climate change is driven by radiative forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. In other terms, radiative forcing is the energy absorbed by the greenhouse gas that would otherwise be lost to space. Positive forcing tends to warm the surface while negative forcing tends to cool it. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath, which absorbs more radiation and causes more warming.

In order to attempt to quantify the impact of greenhouse gases, the gases are assigned global warming potentials. Individual greenhouse gas compounds have varying global warming potential and atmospheric lifetimes. Carbon dioxide, the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a greenhouse gas is a potential of a gas or aerosol to trap heat in the atmosphere compared to the reference gas, carbon dioxide, and is a measurement of the radiative forcing of a gas. There are positive (warming) and negative (cooling) forcings. To describe how much global warming a given type and amount of greenhouse gas may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various greenhouse gas emissions to a consistent reference gas, carbon dioxide. Carbon dioxide as a molecule has a certain potential for warming; other molecules have a different potential. For example, methane's warming potential of 21 indicates that methane has 21 times greater warming effect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual greenhouse gas multiplied by its global warming potential.

## SECTION 2

---

# Regulatory Setting

## 2.1 International Regulation of Climate Change

### Intergovernmental Panel on Climate Change

In 1988, the United Nations created the IPCC to provide independent scientific information regarding climate change to policymakers. The IPCC does not conduct research itself, but rather compiles information from a variety of sources into reports regarding climate change and its impacts. The IPCC has thereafter periodically released reports on climate change, and in 2007 released its Fourth Assessment Report which concluded most global climate change was the result of human activity, mainly the burning of fossil fuels.

### United Nations Framework Convention on Climate Change

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (Convention). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

### Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas emissions at average of five percent against 1990 levels over the five-year period 2008-2012. The Convention (discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.” The United States has not entered into force of the Kyoto Protocol.

Moreover, since the United States declined to ratify the Kyoto Protocol in 1995, it has become increasingly clear that global climate change cannot be addressed without limiting GHG emissions from developing, as well as developed, countries. According to many sources, China has already surpassed the United States as the world’s largest GHG emitter and is building new coal-fired power plants at a rate of approximately one per week. A recent study conducted by

economists at the UC Berkeley and UC San Diego estimated that China's CO<sub>2</sub> emissions are growing by as much as 11 percent annually. In 2007, China released its first national plan on climate change, which includes goals related to increasing energy efficiency and increasing use of renewable resources. The plan, however, makes no commitments regarding reduction of GHG emissions.

Like China, India is already one of the top emitters of GHGs and continues to grow rapidly. India has recently pledged to take more action to fight global warming, for example, by pursuing solar energy, urging energy efficiency, and conservation, but it has not set any concrete goals in these areas, let alone pledged to reduce its carbon emissions. To the contrary, India's emissions are projected to increase fourfold by 2030 (see "Melting Asia," *The Economist*, June 5, 2008). Similarly, Brazil, the largest economy in South America, and another rapidly developing country, has no national policy requiring it to reduce carbon emissions. Brazil's carbon emissions increased by more than 60 percent between 1990 and 2004, and are projected to continue to rise at a similar pace (see International Energy Agency, *World Energy Outlook 2006*).

The Kyoto Protocol expired in 2012. Formal negotiations to replace the protocol officially began in December 2007 at the UNFCCC Climate Change Conference in Bali, Indonesia (<http://unfccc.int/.php>). Whether a workable agreement can be reached, however, remains to be seen, as the United States continues to press for an agreement that requires firm commitments from developing nations, and countries like China and India continue to oppose binding targets (see <http://news.bbc.co.uk/////stm>).

In addition, it should be noted that most mitigation measures that address greenhouse gas reduction typically parallel those that reduce the consumption of energy (i.e., electricity and natural gas). Reducing energy use in a market economy typically reduces the cost of energy. However, a reduced cost of energy can release pent-up demand (latent demand) for energy use, particularly in less developed portions of the world, such as Africa and Asia. As such, it is not clear how much energy use reduction in California or the U.S. would actually reduce worldwide energy use. The same would apply to measures to reduce greenhouse gas emissions.

## 2.2 Federal

### Federal Clean Air Act

Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

The EPA established national air quality standards for ground-level O<sub>3</sub> and PM<sub>2.5</sub> in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O<sub>3</sub> and particulate matter, was unconstitutional as an improper delegation of legislative authority to the EPA. On February 27, 2001, the U.S. Supreme Court upheld the way that the government sets air quality standards

under the CAA. The Court unanimously rejected industry arguments that the EPA must consider financial cost as well as health benefits in writing standards. The Justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for O<sub>3</sub> and soot in 1997. Nevertheless, the Court threw out the EPA's policy for implementing new O<sub>3</sub> rules, stating that the EPA ignored a section of the law that restricts its authority to enforce such rules.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the eight-hour ground-level O<sub>3</sub> standard. The EPA issued the proposed rule implementing the eight-hour O<sub>3</sub> standard in April 2003. The EPA completed final eight-hour nonattainment status on April 15, 2004. The EPA issued the final PM<sub>2.5</sub> implementation rule in fall 2004. The EPA issued final designations on December 14, 2004.

Effective January 22, 2010, the EPA strengthened the standard for NO<sub>2</sub> by setting a new 1-hour standard at the level of 100 parts per billion (ppb). This standard defines the maximum allowable concentration anywhere in an area and will protect against adverse health effects associated with short-term exposure to NO<sub>2</sub>. To attain this standard, the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb. On January 25, 2010, the EPA issued the final rule setting the one-hour maximum standard for NO<sub>2</sub> at 100 ppb. The agency retained the annual standard of 53 ppb.

Effective June 2, 2010, the EPA revised the primary standard for SO<sub>2</sub> by establishing a new 1-hour standard at a level of 75 ppb. The EPA revoked the two existing primary standards of 140 ppb evaluated over 24 hours and 30 ppb evaluated over an entire year as they would not provide additional public health protection given a 1-hour standard at 75 ppb. To attain this standard, the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Effective December 14, 2012, the national annual PM<sub>2.5</sub> standard was lowered from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup> but the existing 24-hour and annual secondary standards were retained.

On October 1, 2015, the national eight-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm, respectively.

## Greenhouse Gas Endangerment

*Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four greenhouse gases, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act. The Court held that the EPA Administrator must determine whether emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- *Endangerment Finding:* The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- *Cause or Contribution Finding:* The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing greenhouse gas emissions standards for vehicles, as discussed in the section “Clean Vehicles” below.

In September 2011, the EPA Office of Inspector General evaluated the EPA’s compliance with established policy and procedures in the development of the endangerment finding, including processes for ensuring information quality. The evaluation concluded that the technical support document should have had more rigorous EPA peer review.

In June 2012, a Federal appeals court rejected a lawsuit against the EPA. The suit alleged that the EPA violated the law by relying almost exclusively on data from the United Nations IPCC rather than doing its own research or testing data according to Federal standards. The U.S. Chamber of Commerce and the National Association of Manufacturers (with others) filed petitions to the U.S. Court of Appeals – D.C. Circuit to rehear the case. The EPA and Department of Justice provided a response on October 12, 2012.

## Clean Vehicles

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation’s Highway Traffic and Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The vehicles had to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards were designed to cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO<sub>2</sub> per mile. According to

the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle.<sup>22</sup>

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses (also known as “Phase 1”). For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and up to a 15 percent reduction for diesel vehicles by 2018 model year (12% and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles (includes other vehicles like buses, refuse trucks, concrete mixers; everything except for combination tractors and heavy-duty pickups and vans), the agencies are proposing engine and vehicle standards starting in the 2014 model year, which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by the 2018 model year. Building on the success of the standards, the EPA and U.S. Department of Transportation jointly finalized additional standards (called “Phase 2”) for medium- and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. The final standards are expected to lower CO<sub>2</sub> emissions by approximately 1.1 billion metric tons.

## Mandatory Reporting of GHG

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases rule. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions, are required to submit annual reports to the EPA.

This rule does not apply to high cube logistics developers within the WLC Project because, although the project would emit more than 25,000 mt CO<sub>2</sub>e per year of GHGs, the rule only applies to the following categories: fossil fuel suppliers and industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and engines. The EPA’s Applicability Tool was used to determine if the project developer would need to report the GHG emissions. The source categories that are required to report GHG emissions (i.e., production, manufacturing, electricity generation, and industrial waste landfills) did not apply to the project.

<sup>22</sup> United States Environmental Protection Agency, EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, (August 2012). Available at: <http://www.epa.gov/oms/climate/documents/420f12051.pdf>. Accessed March 2017.

## New Source Review Prevention of Significant Deterioration (GHG Tailoring Rule)

The EPA issued a final rule on May 13, 2010, that establishes thresholds for greenhouse gases that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. Operating permits are legally enforceable documents that permitting authorities issue to air pollution sources after the source has begun to operate. Title V Operating Permits are required from Title V of the Clean Air Act. This final rule “tailors” the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

*This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.*

EPA estimates that facilities responsible for nearly 70 percent of the national greenhouse gas emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation’s largest greenhouse gas emitters—power plants, refineries, and cement production facilities.

On December 23, 2010, the EPA issued a series of rules that put the necessary regulatory framework in place to ensure that 1) industrial facilities can get Clean Air Act permits covering their GHG emissions when needed and 2) facilities emitting GHGs at levels below those established in the Tailoring Rule do not need to obtain Clean Air Act permits.

## Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units.

As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new affected fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatt would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour.

## Cap and Trade

Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Successful examples in the United States include the Acid Rain Program and the NO<sub>x</sub> Budget Trading Program in the northeast. There is no Federal cap and trade program currently and no pending legislation exists to establish a national cap and trade program.

## Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the National Highway Traffic and Safety Administration (NHTSA), which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon (mpg). Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. The Corporate Average Fuel Economy (CAFE) program, administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance. Please also refer to the subsection, "Clean Vehicles," above.

## Energy Policy Act of 1992

The Energy Policy Act (EPAct) of 1992 was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain Federal, State, and local governments and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the Act to consider a variety of incentive programs to help promote AFVs.

## Energy Policy Act of 2005

The Energy Policy Act of 2005 includes provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a Federal purchase requirement for renewable energy.

## 2.3 State of California

### Mulford-Carrell Act

The State began to set California Ambient Air Quality Standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Originally, there were no attainment deadlines for CAAQS; however, the CCAA of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the State to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

### California Clean Air Act

The CCAA was passed into law in 1988. The CCAA provides the basis for air quality planning and regulation independent of federal regulations. A major element of the CCAA is the requirement that local air districts in violation of the CAAQS must prepare attainment plans that identify air quality problems, causes, trends and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date. The CCAA provides air districts with the authority to manage transportation activities at indirect sources that individually are minor but collectively emit a substantial amount of pollution such as motor vehicles at intersections, malls, and on highways. The SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the CARB.

### CARB Airborne Toxic Control Measure/Asbestos

Asbestos is listed as a toxic air contaminant by CARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in surface deposits of several types of rock formations. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer,

and mesothelioma. In July 2001, the CARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a “Dust Mitigation Plan” and approval by the air district prior to the start of a project. There is no asbestos in the project area.<sup>23</sup>

## California Code of Regulations Title 24, Part 6

The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to establish statewide building energy efficiency standards to reduce California’s energy consumption. These standards include provisions applicable to all buildings, residential and nonresidential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include mandatory requirements for efficiency and design of energy systems, including space conditioning (cooling and heating), water heating, and indoor and outdoor lighting systems and equipment, and appliances. California’s Building Energy Efficiency Standards are updated on an approximately three-year cycle as technology and methods have evolved. The 2016 Standards, effective January 1, 2017, focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, and include requirements that will enable both demand reductions during critical peak periods and future solar electric and thermal system installations.

## California Code of Regulations Title 24, Part 11

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California

<sup>23</sup> U.S. Geological Survey. 2011. Van Gosen, B.S., and Clinken beard, J.P. California Geological Survey Map Sheet 59. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Open-File Report 2011-1188

Building Standards Commission (CBSC). Key provisions of the CALGreen Code that apply to the type of new non-residential development proposed for the project site are as follows:

Division 5.1—Planning and Design

Section 5.106 Site Development

5.106.4 Bicycle Parking and Changing Rooms:

*Short-term bicycle parking.* If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1).

*Long-term bicycle parking.* For buildings with over 10 tenant-occupants or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking for 5 percent of tenant vehicular parking spaces being added, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and shall meet the following: 1. Covered, lockable enclosures with permanently anchored racks for bicycles; 2. Lockable bicycle rooms with permanently anchored racks; or 3. Lockable, permanently anchored bicycle lockers (5.106.4.2).

5.106.5 Clean Air Vehicle Parking: For new projects or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles [201 spaces and over require at least 8 percent] (5.106.5.2).

5.106.8 Light Pollution Reduction (specific backlight, uplight, and glare ratings)

5.106.10 Grading and Paving: Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings.

Division 5.2—Energy Efficiency

Section 5.201.1 Energy Efficiency (Mandatory energy efficiency standards through California Code of Regulations, Title 24, Part 6)

Division 5.3—Water Efficiency and Conservation

Section 5.303 Indoor Water Use

5.303.1 Meters: Separate water meters for buildings in excess of 50,000 sq. ft or buildings projected to consume more than 1,000 gallons per day.

5.303.2 Twenty Percent Savings: Use of plumbing fixtures and fittings that will reduce the overall use of potable water within the building by 20 percent, based on the maximum allowable water use per fixture and fitting as required by the California Building Code (California Code of Regulations, Title 24, Part 2)

5.304.3 Irrigation design: Automatic irrigation system controllers installed at the time of final inspection shall be weather- or soil moisture-based controllers that adjust irrigation in response to changes in plant needs; weather-based controllers.

5.303.4 Wastewater Reduction: Each building shall reduce by 20 percent wastewater by one of the following methods: 1. The installation of water-conserving fixtures or 2. Use of non-potable water systems (5.303.4).

5.303.6 Plumbing Fixtures and Fittings

#### Section 5.304 Outdoor Water Use

5.304.1 Water Budget: A water budget shall be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.

5.304.2 Outdoor Water Use (separate submeters or metering devices)

5.304.3 Irrigation Design (irrigation controllers and sensors)

#### Division 5.4—Material Conservation and Resource Efficiency

##### Section 5.407 Water Resistance and Moisture Management

##### Section 5.408 Construction Waste Reduction, Disposal and Recycling

5.408.1 and 5.408.3 Construction Waste Diversion: Recycle and/or salvage for reuse a minimum 50 percent of the nonhazardous construction and demolition waste. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.

5.408.2 Construction Waste Management Plan

##### Section 5.410 Building Maintenance and Operation

5.410.1 and 5.713.10 Recycling by Occupants: Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling.

#### Division 5.5—Environmental Quality

## Section 5.504 Pollutant Control

5.504.3 Covering of Duct Openings and Protection of Mechanical Equipment During Construction

5.504.4 Finish Material Pollutant Control: Low-pollutant emitting interior finish materials such as adhesives, paints, carpet, and flooring

5.404.5.3 Filters: Minimum Efficiency Reporting Value (MERV) of 8 or higher in mechanically ventilated buildings.

## California Code of Regulations Titles 14 and 27

These parts of the California Code require energy-efficient practices as part of solid and hazardous waste handling and disposal.

## Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required the CARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. The regulation was stalled by automaker lawsuits and by the EPA's denial of an implementation waiver. On January 21, 2009, the CARB requested that the EPA reconsider its previous waiver denial. On January 26, 2009, President Obama directed that the EPA assess whether the denial of the waiver was appropriate. On June 30, 2009, the EPA granted the waiver request. On September 8, 2009, the U.S. Chamber of Commerce and the National Automobile Dealers Association sued the EPA to challenge its granting of the waiver to California for its standards. California assisted the EPA in defending the waiver decision. The U.S. District Court for the District of Columbia denied the Chamber's petition on April 29, 2011.

The standards phased in during the 2009 through 2016 model years. The near term (2009–2012) standards were expected to result in about a 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards were expected to result in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program includes components to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. The zero emissions vehicle (ZEV) program will act as the focused technology of the

Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEV) in the 2018 to 2025 model years.<sup>24</sup>

In May 2016, CARB released the updated Mobile Source Strategy that demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years, through a transition to zero-emission vehicles (ZEVs), cleaner transit systems and reduction of vehicle miles traveled. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 “last mile” delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels.<sup>25</sup>

## Low Carbon Fuel Standard, Executive Order S-01-07

The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission (CEC), the CARB, the University of California, and other agencies to develop and propose protocols for measuring the “life-cycle carbon intensity” of transportation fuels. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. The Low Carbon Fuel Standard requires producers of petroleum based fuels to reduce the carbon intensity of their products, beginning with a quarter of a percent in 2011, ending in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS Credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas or hydrogen. The Low Carbon Fuel Standard was challenged in the United States District Court in Fresno in 2011. The court’s ruling issued on December 29, 2011, included a preliminary injunction against the CARB’s implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the CARB to continue to implement and enforce the regulation and vacated the injunction on September 18, 2013, and remanded the case to the district court for further consideration.

## Senate Bill 1383

This bill creates goals for short-lived climate pollutant (SLCP) reductions in various industry sectors. The SLCPs included under this bill – including methane, fluorinated gases, and black carbon – are GHGs that are much more potent than carbon dioxide and can have detrimental effects on human health and climate change. SB 1383 requires the CARB to adopt a strategy to

<sup>24</sup> California Air Resources Board (CARB). *The Advanced Clean Cars Program*, 2017. Available at <https://www.arb.ca.gov/msprog/acc/acc.htm>. Website accessed June 2018

<sup>25</sup> California Air Resources Board (CARB). *Mobile Source Strategy*, 2016. Available at <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsr.htm>. Website accessed June 2018

reduce methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030. The methane emission reduction goals include a 75% reduction in the level of statewide disposal of organic waste from 2014 levels by 2025.

## Senate Bill 1368

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission (CPUC) to adopt a performance standard for greenhouse gas emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as combined cycle natural gas power plants. Accordingly, the new law will effectively prevent California's utilities from investing in, financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower greenhouse gas emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for greenhouse gas emissions required by SB 1368. The CPUC adopted the regulations required by SB 1368 on August 29, 2007.

## Senate Bill 97 and the CEQA Guidelines Update

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the California Governor's Office of Planning and Research (OPR) pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010, for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of greenhouse gases would not violate CEQA.

On April 13, 2009, the OPR submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the CEQA Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for

inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of GHG emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, the CEQA Guidelines offer little guidance on the crucial next step in this assessment process—how to determine whether the project’s estimated greenhouse gas emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze greenhouse gas emissions in an EIR when a project’s incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of how to determine whether emissions are cumulatively considerable.

Section 15183.5 permits programmatic greenhouse gas analysis and later project-specific tiering. A tiered project is a project that was addressed in a certified program document, such as an EIR or Mitigated Negative Declaration. The CEQA Guidelines state the following:

*Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of greenhouse gas emissions (Section 15183.5(a)).*

Compliance with plans for the reduction of GHG emissions can support a determination that a project’s cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on energy conservation. The sample environmental checklist in the CEQA Guidelines’ Appendix G was amended to include greenhouse gas impact questions, which are used in this analysis.

## Executive Order S-3-05

Executive Order S-3-05 was signed by Governor Schwarzenegger in 2005 proclaiming California is vulnerable to the impacts of climate change. It states that increased temperatures could reduce

the Sierra Nevada’s snowpack, worsen California’s air quality problems, and potentially cause a rise in sea levels. The Executive Order establishes total GHG emission targets including emissions reductions to the 2000 level by 2010, and the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target.

## Assembly Bill 32

California’s major initiative for reducing GHG emissions is outlined in AB 32, the “Global Warming Solutions Act,” passed by the California State legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. The original 2020 GHG emissions limit was 427 million mt CO<sub>2</sub>e. The current 2020 GHG emissions limit is 431 million mt CO<sub>2</sub>e. AB 32 requires the CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change.

The Scoping Plan was approved by the CARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures.<sup>26</sup> The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. The Scoping Plan, even after Board approval, remains a recommendation. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process. The CARB rule-making process includes preparation and release of each of the draft measures, public input through workshops and a public comment period, followed by a CARB hearing and rule adoption.

Pursuant to AB 32, the CARB and the Climate Action Team (CAT)<sup>27</sup> did the following:

- Adopted a list of discrete early action measures;
- Established a statewide GHG emissions cap for 2020 based on 1990 emissions and adopted mandatory reporting rules for significant sources of GHG;
- Indicated how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions; and
- Adopted regulations to achieve the maximum technologically feasible and cost-effective reductions in GHG, including provisions for using both market mechanisms and alternative compliance mechanisms.

In June 2007, the CARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming

<sup>26</sup> CARB, *Climate Change Proposed Scoping Plan: a Framework for Change*, October 2008.

<sup>27</sup> CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of CARB’s jurisdiction.

Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The CARB adopted additional early action measures in October 2007<sup>28</sup> that tripled the number of discrete early action measures. These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and sulfur hexafluoride (SF<sub>6</sub>) reductions from the non-electricity sector. The combination of early action measures was estimated to reduce statewide GHG emissions by nearly 16 million mt CO<sub>2</sub>e.<sup>29</sup>

AB 32 codifies Executive Order S-3-05's<sup>30</sup> year 2020 goal by requiring that statewide GHG emissions be reduced to 1990 levels by the year 2020.

The first AB 32 Scoping Plan, published in 2008, identified a future cap-and-trade program covering refineries, power plants, industrial facilities, and transportation fuels as a central element of California's overall strategy to reduce GHG emissions to 1990 levels. More information on the Scoping Plan and California's Cap and Trade program is provided below.

### **Amendments to California Global Warming Solutions Act of 2006: Emission Limit (SB 32)**

Signed into law on September 8, 2016, Senate Bill (SB) 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit) amends HSC Division 25.5 and codifies the 2030 target in the recent Executive Order B-30-15 (40 percent below 1990 levels by 2030). The 2030 target is intended to ensure that California remains on track to achieve the goal set forth by Executive Order B-30-15 to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels. SB 32 states the intent of the legislature to continue to reduce GHGs for the protection of all areas of the state and especially the state's most disadvantaged communities, which are disproportionately impacted by the deleterious effects of climate change on public health (California Legislative Information Website 2017). SB 32 was passed with companion legislation AB 197, which provides additional direction for developing the Scoping Plan. In 2016, the California State Legislature adopted SB 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030, while AB 197 includes provisions to ensure the benefits of state climate policies reach into disadvantaged communities.

### **California Cap and Trade Program**

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is a core strategy that California is using to meet its statewide GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050.

<sup>28</sup> CARB. 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. October.

<sup>29</sup> CARB. 2007. "ARB approves tripling of early action measures required under AB 32." News Release 07-46. <http://www.arb.ca.gov/newsrel/nr102507.htm>. October 25.

<sup>30</sup> Executive Order S-3-05 establishes greenhouse gas emission reduction targets for California.

Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed “covered entities”) by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32’s emission-reduction mandate of returning to 1990 levels of emissions by 2020.<sup>31</sup> Under the Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production, fuel suppliers, and large industrial facilities that emit more than 25,000 metric tons CO<sub>2</sub>e per year) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program’s duration.<sup>32</sup> On July 17, 2017 the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through 2030.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are assured on a State-wide basis.

Since 2015, fuels, such as gasoline, diesel, and natural gas, have been covered under the Cap-and-Trade Program. Fuel suppliers are required to reduce GHG emissions by supplying low carbon fuels or purchasing pollution permits, called “allowances,” to cover the GHGs produced when the conventional petroleum-based fuel they supply is combusted.

## 2008 Scoping Plan

The California State Legislature adopted AB 32 in 2006 which focuses on reducing greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an “ambitious but achievable” reduction in California’s greenhouse gas emissions, cutting approximately 30 percent from BAU emission levels projected for 2020, or about 10 percent from today’s levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman, and child in California down to about 10 tons per person by 2020.

The Scoping Plan<sup>33</sup> contains the following 18 strategies to reduce the State’s emissions:

1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California’s program meets all applicable AB 32 requirements for market-based mechanisms.

<sup>31</sup> 17 CCR §§ 95800 to 96023.

<sup>32</sup> See generally 17 CCR §§ 95811, 95812.

<sup>33</sup> Scoping Plan Reduction Measures from California Air Resources Board 2008.

2. California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.
4. Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.
7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.
8. Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.
11. Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. High Speed Rail. Support implementation of a high-speed rail system.
13. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.
15. Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.

18. Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

## 2014 Scoping Plan Update

This First Update to California’s Climate Change Scoping Plan (2014 Scoping Plan Update) was developed by the CARB in collaboration with the Climate Action Team and reflects the input and expertise of a range of state and local government agencies. The Update reflects public input and recommendations from business, environmental, environmental justice, utilities and community-based organizations provided in response to the release of prior drafts of the Update, a Discussion Draft in October 2013, and a draft Proposed Update in February 2014.

This report highlights California’s success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The First Update includes recommendations for establishing a mid-term emissions limit that aligns with the State’s long-term goal of an emissions limit 80 percent below 1990 levels by 2050 and sector-specific discussions covering issues, technologies, needs, and ongoing State activities to significantly reduce emissions throughout California’s economy through 2050. The focus areas include energy, transportation, agriculture, water, waste management, and natural and working lands.<sup>34</sup> With respect to the transportation sector, California has outlined several steps in the State’s zero emission vehicle (ZEV) Action Plan to further support the market and accelerate its growth. Committed implementation of the actions described in the plan will help meet Governor Brown’s 2012 Executive Order (EO) B-16-2012, which—in addition to establishing a more specific 2050 GHG target for the transportation sector of 80 percent from 1990 levels—called for 1.5 million ZEVs on California’s roadways by 2025.

Achieving such an aggressive 2050 target will require innovation and unprecedented advancements in energy demand and supply.<sup>35</sup> Emissions from 2020 to 2050 will have to decline at more than twice the rate of that which is needed to reach the 2020 statewide emissions limit. In addition to our climate objectives, California also must meet federal clean air standards. Emissions of criteria air pollutants, including ozone precursors (primarily oxides of nitrogen, or NO<sub>x</sub>) and particulate matter, must be reduced by an estimated 90 percent by 2032 to comply with federal air quality standards. The scope and scale of emission reductions necessary to improve air quality is similar to that needed to meet long-term climate targets. Achieving both objectives will align programs and investments to leverage limited resources for maximum benefit.

## 2017 Scoping Plan Update

On December 14, 2017, CARB approved the final version of California’s 2017 Climate Change Scoping Plan (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990

<sup>34</sup> California Air Resources Board, *First Update to the Climate Change Scoping Plan*, [http://www.arb.ca.gov/cc/scopingplan/2013\\_update/first\\_update\\_climate\\_change\\_scoping\\_plan.pdf](http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf), May 2014, Accessed September 12, 2016.

<sup>35</sup> Ibid.

levels.<sup>36</sup> The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target Statewide 2030 emissions limit is 260 MMTCO<sub>2</sub>e, and that further commitments will need to be made to achieve an additional reduction of 50 MMTCO<sub>2</sub>e beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by E.O. B-30-15.

The 2017 Scoping Plan Update's strategy for meeting the 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030. These include:

- Extending the low carbon fuel standard (LCFS) beyond 2020 and increasing the carbon intensity reduction requirement to 18 percent by 2030;
- SB 350, which increase renewables portfolio standard (RPS) to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030;
- The 2016 Mobile Source Strategy is estimated to reduce emissions from mobile sources including an 80 percent reduction in smog-forming emissions and a 45 percent reduction in diesel particulate matter from 2016 level in the South Coast Air Basin, a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels;
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies (described in more detail below);
- SB 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030; and
- Assembly Bill 398, which extends the state Cap-and-Trade Program through 2030.

With respect to project-level GHG reduction actions and thresholds for individual development projects, the 2017 Scoping Plan Update Indicates,

*Beyond plan-level goals and actions, local governments can also support climate action when considering discretionary approvals and entitlements of individual projects through CEQA. Absent conformity with an adequate geographically-specific GHG reduction plan as described in the preceding section above, CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net*

<sup>36</sup> CARB, *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); accessed December 18, 2017.

*additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development.*<sup>37</sup>

## Mobile Source Strategy

Implementing CARB’s Mobile Source Strategy includes measures to reduce total light-duty VMT by 15 percent from the business-as-usual in 2050. The Mobile Source Strategy includes an expansion of the Advanced Clean Cars program (which further increases the stringency of GHG emissions for all light-duty vehicles, and 4.2 million zero-emission and plug-in hybrid light-duty vehicles by 2030). It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 “last mile” delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels.<sup>38</sup>

## Sustainable Freight Action Plan

Executive Order B-32-15 directed the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California’s freight transport system. The targets are not mandates, but rather aspirational measures of progress towards sustainability for the State to meet and try to exceed. The targets include:

- **System Efficiency Target:** Improve freight system efficiency by 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030.
- **Transition to Zero Emission Technology Target:** Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
- **Increased Competitiveness and Economic Growth Targets:** Establish a target or targets for increased State competitiveness and future economic growth within the freight and goods movement industry based on a suite of common-sense economic competitiveness and growth metrics and models developed by a working group comprised of economists, experts, and industry. These targets and tools will support flexibility, efficiency, investment, and best business practices through State policies and programs that create a positive environment for growing freight volumes and jobs, while working with industry to mitigate potential negative economic impacts. The targets and tools will also help evaluate the strategies proposed under the Action Plan to ensure consideration of the impacts of actions on economic growth and competitiveness throughout the development and implementation process.

---

<sup>37</sup> *Id.* at 101.

<sup>38</sup> California Air Resources Board (CARB). *Mobile Source Strategy*, 2016. Available at <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm>. Website accessed June 2018.

## California Transportation Plan 2040

The California Transportation Plan (CTP) 2040 provides a long-range policy framework to meet future mobility needs and reduce GHG emissions. The CTP defines goals, performance-based policies, and strategies to achieve maximum feasible emission reductions in order to attain a statewide reduction in GHG emissions.

The CTP 2040 recognizes that the Governor is committed to reduce by one-half current petroleum use in cars and trucks; increase from one-third to one-half the electricity derived from renewable sources; double the efficiency savings of existing buildings and make heating fuels cleaner; reduce the release of methane, black carbon, and other short-lived climate pollutants; and manage farm and rangelands, forests, and wetlands to store more carbon.

Transportation GHG reduction strategies within the CTP 2040 include demand management (including telecommuting/working at home, increased carpoolers, and increase car sharing), mode shift (including transit service improvements, high-speed rail, bus rapid transit, expanded bike and pedestrian facilities, carpool land occupancy requirements, and increased HOV lanes), travel cost (implement expanded pricing policies), and operational efficiency (incident/emergency management, Caltrans' Master Plan, ITS/TSM, and eco-driving).

## Executive Order B-16-2012 (Zero-Emission Vehicles)

This executive order indicates that all State entities under the Governor's control support and facilitate the rapid commercialization of zero-emission vehicles. The order contains a target similar to Executive Order S-3-05, but for the transportation sector instead of all sectors: that California target for 2050 a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels. Executive order B-16-2012 also indicates that the CARB, the California Energy Commission, the Public Utilities Commission and other relevant agencies are ordered to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following:

- By 2015: The State's major metropolitan areas able to accommodate zero-emission vehicles, each with infrastructure plans and streamlined permitting; the State's manufacturing sector expand zero-emission vehicle and component manufacturing; an increase in the private sector's investment in zero-emission vehicle infrastructure; and the State's academic and research institutions contributing to zero-emission vehicle research, innovation and education.
- By 2020: The State's zero-emission vehicle infrastructure ability to support up to one million vehicles; the costs of zero-emission vehicles competitive with conventional combustion vehicles; zero-emission vehicles accessible to mainstream consumers; widespread use of zero-emission vehicles for public transportation and freight transport; and a decrease in transportation sector GHG emissions as a result of the switch to zero-emission vehicles; electric vehicle charging integrated into the electricity grid.
- By 2025: over 1.5 million zero-emission vehicles on California roads; easy access to zero-emission vehicle infrastructure in California; the zero-emission vehicle industry

strong and sustainable part of California’s economy; and California’s vehicles displace at least 1.5 billion gallons of petroleum fuels per year.

## Greenhouse Gas Emissions Performance Standard for Power Plants

On January 25, 2007, the CPUC adopted an interim GHG emissions performance standard. This standard is a facility-based emissions standard requiring all new long-term commitments for baseload generation to serve California consumers with power plants that have emissions no greater than a combined cycle gas turbine plant. The established level is 1,100 pounds of CO<sub>2</sub> per megawatt-hour.

## Senate Bill 375

SB 375 was signed into law on October 1, 2008. SB 375 provides emissions-reduction goals around which regions can plan, integrates disjointed planning activities, and provides incentives for local governments and developers to implement “smart growth” planning and development strategies, including reducing the average VMT to reduce commuting distances and reduce criteria and greenhouse gas air pollutant emissions. SB 375 has three major components:

- Using the regional transportation planning process to achieve reductions in GHG emissions consistent with AB 32’s goals;
- Offering CEQA incentives to encourage projects that are consistent with a regional plan that achieves GHG emission reductions; and
- Coordinating the regional housing needs allocation process with the regional transportation process while maintaining local authority over land use decisions.

SB 375 requires each Metropolitan Planning Organization (MPO) to include a Sustainable Communities Strategy (SCS) in the regional transportation plan that demonstrates how the region will meet the greenhouse gas emission targets and creates CEQA streamlining incentives for projects that are consistent with the regional SCS. The focus of SB 375 is on placement of new residential projects and coordinated transportation planning.

## Renewable Electricity Standards

There have been several renewable electricity senate bills in California. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard (RPS) target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the CARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state’s load serving entities to meet a 33 percent renewable energy target by 2020. The CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. Senate Bill X1-2 (2011) codifies the Renewable Electricity Standard into law.

## Senate Bill 350

The Clean Energy and Pollution Reduction Act of 2015 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350 (1) increases the standards of the California RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator (ISO) into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the Legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

## Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS, increasing required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by December 31, 2030. Incrementally, these energy providers must also have a renewable energy supply of 44 percent by December 31, 2024, and 52 percent by December 31, 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

## SmartWay Partners

SmartWay effectively refers to aerodynamic and rolling resistance requirements geared toward reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. CARB's Tractor-Trailer Greenhouse Gas Regulation requires that all 2010 and older model year tractors that pull 53-foot or longer box type trailers must use SmartWay verified low rolling resistance tires beginning January 1, 2013.

The EPA has evaluated the fuel saving benefits of various devices through emissions and fuel economy testing, demonstration projects and technical literature review. As a result, EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications:

- **Idle Reduction Technologies** allow engine operators to refrain from long-duration idling of the main propulsion engine by using an alternative technology. An idle reduction technology is generally defined as the installation of a technology or device that:
  - Reduces unnecessary main engine idling of the vehicle or equipment; and/or

- Is designed to provide services (e.g., heat, air conditioning, and/or electricity) to the vehicle or equipment that would otherwise require the operation of the main drive engine while the vehicle or equipment is temporarily parked or remains stationary.
- **Aerodynamic Technologies** minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- **Low Rolling Resistance Tires:** Certain tire models can reduce NO<sub>x</sub> emissions and fuel use by 3 percent or more, relative to the best-selling new tires for line haul class 8 tractor trailers. These improvements are achieved under the following conditions:
  - Tires are used on the axle positions stated on the list below.
  - Verified low rolling resistance tires are installed on all of the axle positions of the tractor and trailer.
  - All tires must be properly inflated according to the manufacturer's specifications.
- **Retrofit Technologies:** Diesel retrofit technologies that the EPA has approved or conditionally approved, such as:
  - Diesel Particulate Filter (DPF);
  - CMX Catalyst Muffler;
  - Selective Catalytic Reduction (SCR) System;
  - Diesel Oxidation Catalyst (DOC); and
  - Diesel Oxidation Catalyst (DOC) plus CDTi Closed Crankcase Ventilation (CCV) System.

Within each of these categories, the EPA has verified specific products and continues to evaluate and verify new products. Although the EPA has verified the fuel saving and/or emission reducing benefits of the listed products, it does not endorse the purchase of products or services from any specific vendor.

## 2.4 Regional

### Lewis Air Quality Management Act

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the State. The Federal CAA Amendments of 1977 required that each state adopt an

implementation plan outlining pollution control measures to attain the Federal standards in nonattainment areas of the State.

The CARB is responsible for incorporating air quality management plans for local air basins into an SIP for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

## Carl Moyer Memorial Air Quality Standards Attainment Program

Since 1998, the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) has provided funding to encourage the voluntary purchase of cleaner engines, equipment, and emission reduction technologies. The Carl Moyer Program plays a complementary role to California's regulatory program by funding emission reductions that are surplus, i.e., early and/or in excess of what is required by regulation. The Carl Moyer Program accelerates the turnover of old highly-polluting engines, speeds the commercialization of advanced emission controls, and reduces air pollution impacts on environmental justice communities. Emission reductions achieved through the Carl Moyer Program are an important component of the California State Implementation Plan.

## Regional Air Quality Management Plan

The SCAQMD and the SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP), which has a 20-year horizon for the Basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the Federal and/or California ambient air quality standards. The SCAQMD and SCAG must update the AQMP every three years.

### 2012 AQMP

The 2012 AQMP was adopted December 7, 2012.<sup>39</sup> The purpose of the 2012 AQMP for the Basin was to set forth a program that would lead the Basin into compliance with the Federal 24-hour PM<sub>2.5</sub> air quality standard, and to provide an update of the Basin's projections in meeting the Federal 8-hour ozone standards. The AQMP was adopted by the SCAQMD Board; therefore, it was submitted to the EPA as the State Implementation Plan (SIP). Specifically, the AQMP served as the official SIP submittal for the Federal 2006 24-hour PM<sub>2.5</sub> standard. In addition, the AQMP updated specific elements of the previously approved 8-hour ozone SIP: 1) an updated emissions inventory, and 2) new control measures and commitments for emissions reductions to help fulfill the Section 182(e)(5) portion of the 8-hour ozone SIP.

<sup>39</sup> South Coast Air Quality Management District. *2012 Air Quality Management Plan*, February 2013. [http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-\(february-2013\)/main-document-final-2012.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2012-air-quality-management-plan/final-2012-aqmp-(february-2013)/main-document-final-2012.pdf)

The 2012 AQMP states, “The remarkable historical improvement in air quality since the 1970’s is the direct result of Southern California’s comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs.”

The 2012 AQMP proposed Basin-wide  $PM_{2.5}$  measures that would be implemented by the 2014 attainment date, episodic control measures to achieve air quality improvements (would only apply during high  $PM_{2.5}$  days), Section 182(e)(5) implementation measures (to maintain progress toward meeting the 2023 8-hour ozone national standard), and transportation control measures. Most of the control measures focused on incentives, outreach, and education.

Proposed  $PM_{2.5}$  reduction measures in the 2012 AQMP included the following:

- Further  $NO_x$  reductions from the SCAQMD’s Regional Clean Air Incentives Market (RECLAIM) program. The RECLAIM program was adopted by the SCAQMD in October 1993 and set an emissions cap and declining balance for many of the largest facilities emitting  $NO_x$  and  $SO_x$  in the South Coast Air Basin. RECLAIM includes over 350 participants in its  $NO_x$  market and about 40 participants in its  $SO_x$  market. RECLAIM has the longest history and practical experience of any locally designed and implemented air emissions cap and trade program. RECLAIM allows participating facilities to trade air pollution while meeting clean air goals.
- Further reductions from residential wood-burning devices.
- Further reductions from open burning.
- Emission reductions from under-fired char broilers.
- Further ammonia reductions from livestock waste.
- Backstop measures for indirect sources of emissions from ports and port-related sources.
- Further criteria pollutant reductions from education, outreach, and incentives.

There were multiple VOC and  $NO_x$  reductions in the 2012 AQMP to attempt to reduce ozone formation, including further VOC reductions from architectural coatings, miscellaneous coatings, adhesives, solvents, lubricants, and mold release products.

The 2012 AQMP also contained proposed mobile source implementation measures for the deployment of zero and near-zero emission on-road heavy-duty vehicles, locomotives, and cargo handling equipment. There were measures for the deployment of cleaner commercial harbor craft, cleaner ocean-going marine vessels, cleaner off-road equipment, and cleaner aircraft engines.

The 2012 AQMP proposed the following mobile source implementation measures:

- On-road mobile sources:
  - Accelerated penetration of partial zero-emission and zero-emission vehicles. This measure proposed to continue incentives for the purchase of zero-emission

vehicles and hybrid vehicles with a portion of their operation in an all-electric range mode. The state Clean Vehicle Rebate Pilot program was proposed to continue from 2015 to 2023 with a proposed funding for up to \$5,000 per vehicle. The measure seeks to provide funding assistance for up to 1,000 zero-emission or partial-zero emission vehicles per year.

- Accelerated penetration of partial zero-emission and zero-emission light-heavy and medium-heavy duty vehicles through funding assistance for purchasing the vehicles. The objective of the proposed action was to accelerate the introduction of advanced hybrid and zero-emission technologies for Class 4 through 6 heavy-duty vehicles. The state is currently implementing a Hybrid Vehicle Incentives Project program to promote zero-emission and hybrid heavy-duty vehicles. The proposed measure aimed to continue the program from 2015 to 2023 to deploy up to 1,000 zero- and partial-zero emission vehicles per year with up to \$25,000 funding assistance per vehicle. Zero-emission vehicles and hybrid vehicles with a portion of their operation in an all-electric range mode would be given the highest priority.
- Accelerated retirement of older light-, medium-, and heavy-duty vehicles through funding incentives.
- Further emission reductions from heavy-duty vehicles serving near-dock rail yards This proposed control measure called for a requirement that any cargo container moved between the ports of Los Angeles and Long Beach to the nearby rail yards be with zero-emission technologies. The measure would be fully implemented by 2020 through the deployment of zero-emission trucks or any alternative zero-emission container movement system such as a fixed guideway system. The measure called for the CARB to either adopt a new regulation or amend an existing regulation to require such deployment by 2020.
- Off-road mobile sources:
  - Extension of the Surplus Off-Road Opt-In for NO<sub>x</sub> (SOON) provision for construction/industrial equipment, which provides funding to repower or replace older Tier 0 and Tier 1 equipment.
  - Further emission reductions from freight and passenger locomotives called for an accelerated use of Tier 4 locomotives in the Basin.
  - Further emission reductions from ocean-going marine vessels while at berth.
  - Emission reductions from ocean-going marine vessels.

The 2012 AQMP also relied upon the SCAG regional transportation strategy, which is in its adopted 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and 2011 Federal Transportation Improvement Program, which contains the following sections:

1. Linking regional transportation planning to air quality planning and making sure that the regional transportation plan supports the goals and objectives of the AQMP/SIP.
2. Regional transportation strategy and transportation control measures: The RTP/SCS contains improvements to the regional multimodal transportation system including the following: active transportation (non-motorized transportation, e.g., biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground access; highways; arterials; and operations and maintenance.
3. Reasonably available control measure analysis.

## 2016 AQMP

On March 3, 2017, SCAQMD approved the Final 2016 Air Quality Management Plan (AQMP) that demonstrates attainment of the 1-hr and 8-hr ozone NAAQS as well as the latest 24-hr and annual PM<sub>2.5</sub> standards. Currently, the 2016 AQMP is being reviewed by the U.S. EPA and CARB. Until the approval of the EPA and CARB, the current regional air quality plan is the Final 2012 Air Quality Management Plan (AQMP) adopted by the SCAQMD on December 7, 2012. The Final 2016 AQMP includes the integrated strategies and measures needed to meet the NAAQS.

The 2016 AQMP seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, greenhouse gases, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts on the health of our nearly 17 million residents, including those in disproportionately impacted and environmental justice communities that are concentrated along our transportation corridors and goods movement facilities, is to reduce emissions from mobile sources, the principal contributor to our air quality challenges. For that reason, the SCAQMD worked closely with CARB and the U.S. EPA who have primary responsibility for these sources. The Plan recognized the critical importance of working with other agencies to develop new regulations, as well as secure funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy. These “win-win” scenarios will be key to implementation of this Plan with broad support from a wide range of stakeholders. The 2016 AQMP also includes transportation control measures (TCMs) developed by SCAG from the 2016 RTP/SCS.

The RTP/SCS and Federal Transportation Improvement Program (FTIP) were developed in consultation with federal, state and local transportation and air quality planning agencies and other stakeholders. The four County Transportation Commissions (CTCs) in the South Coast Air Basin, namely Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, Orange County Transportation Authority and the San Bernardino Associated Governments, were actively involved in the development of the regional transportation measures. In the South Coast Air Basin, TCMs include the following three main categories of transportation improvement projects and programs that have funding programmed for right-of-way and/or construction in the first two years of the 2015 FTIP:

- Transit, Intermodal Transfer, and Active Transportation Measures;
- High Occupancy Vehicle (HOV) Lanes, High Occupancy Toll (HOT) Lanes, and their pricing alternatives; and
- Information-based Transportation Strategies.

## South Coast Air Quality Management District Proposed Indirect Sources Rules for Warehouse

In order to obtain the 80 ppb and 75 ppb 8-hour ozone standards by the 2023 and 2031 attainment dates, respectively, and in support of the 2016 AQMP, the SCAQMD is formulating Facility Based Mobile Sources Rules to reduce NO<sub>x</sub> emissions from indirect sources (e.g., mobile sources generated by, or attracted to facilities). This proposed rule or set of rules would reduce emissions associated with emissions sources operating in and out of warehouse and distribution centers, consistent with Control Measures MOB 03 from the 2016 AQMP, and is anticipated to be brought before the Board for consideration in the second quarter of 2020 (SCAQMD, 2019a).<sup>40</sup> The SCAQMD is looking at a variety of options which could include voluntary reduction strategies, as well as, regulations to limit emissions. The voluntary emission reduction strategies for warehouses and distribution centers could include: (1) development of a SCAQMD administered CEQA air quality mitigation fund, for warehouse projects to opt into, which would be used to reduce project emissions by funding financial incentives for fleet owners to purchase cleaner trucks; (2) development of updated guidance for warehouse siting and operations; (3) development of the necessary fueling/charging infrastructure by working with utilities and regulatory agencies; and (4) development of “green delivery options” which could involve a small, voluntary, opt-in surcharge for consumers when purchasing goods online with the funds generated used towards reducing truck fleet emissions (SCAQMD, 2018).<sup>41</sup> A regulatory approach is being proposed as well, since the recommended voluntary measures would only result in limited emissions reductions. The proposed Warehouse Indirect Source Rule is aimed at reducing trucking emissions and could provide several compliance options that facilities could choose including: (1) requirements for warehouses to ensure that construction fleets and truck fleets that serve their facility during operations are cleaner than required by CARB regulations (verified through a voluntary fleet certification program); (2) facility emission caps that would require warehouses to directly control the emissions associated with trucks visiting the facility; (3) mitigation fees if the facilities emissions exceed cap levels set in the Indirect Source Rule, (4) crediting options for other activities like installation of charging/fueling infrastructure for cleaner trucks and transportation refrigeration units, conversion of cargo handling equipment to zero emission technologies, etc.; (5) requiring facilities to utilize zero emission trucks and build the infrastructure to support them; and (6) a points based system for the warehouse Indirect

<sup>40</sup> South Coast Air Quality Management District, 2019a. General Board Meeting November 1, 2019 Agenda No. 1. Attached Minutes of the October 4 2019 Meeting. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-nov1-001.pdf?sfvrsn=6> Accessed November 6, 2015.

<sup>41</sup> South Coast Air Quality Management District, 2018. Board Meeting, March 2, 2018. Agenda No. 32. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-mar2-032.pdf?sfvrsn=7>. Accessed November 3, 2019.

Source Rule (SCAQMD, 2019a, SCAQMD, 2019b,<sup>42</sup> SJVAPCD, 2017<sup>43</sup>). This proposed rule would further reduce air quality emissions, beyond those calculated in this analysis, as future operations of the WLC would be subject to this rule once it is proposed and approved.

## Greenhouse Gases

In April 2008, the SCAQMD, in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a “GHG CEQA Significance Threshold Working Group.”<sup>44</sup> The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until the CARB (or some other State agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential, non-residential, industrial, etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects in which it is the lead agency. This threshold uses a tiered approach to determine a project’s significance, with 10,000 metric tons (mt) of carbon dioxide equivalent (CO<sub>2</sub>e) as a screening numerical threshold.

In September 2010, the Working Group released additional revisions, which recommended a project-level efficiency target of 4.8 mt CO<sub>2</sub>e per service population (SP) as a 2020 target and 3.0 mt CO<sub>2</sub>e, per SP as a 2035 target. The recommended plan-level target for 2020 was 6.6 mt CO<sub>2</sub>e and the plan level target for 2035 was 4.1 mt CO<sub>2</sub>e. The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the Governing Board.

The SCAQMD has also adopted Rules 2700, 2701, and 2702 to establish a voluntary program to encourage, quantify, and certify voluntary GHG emission reductions in the SCAQMD’s jurisdiction. The CARB adopted a resolution regarding the adoption of GHG accounting protocols that distinguishes between the offset certification programs that were developed for the voluntary market, and the program that must be developed to certify offsets to be used under CARB’s cap-and-trade rule. This resolution withdrew CARB approval of voluntary protocols but would not impact the use of these protocols for voluntary purposes. Protocols in Rules 2701 and 2702 are voluntary protocols, which no longer have CARB’s approval.

## Diesel Regulations

The Ports of Long Beach and Los Angeles and the CARB have adopted regulations aimed at reducing the amount of diesel particulate. These programs are the Ports of Los Angeles and Long

---

<sup>42</sup> South Coast Air Quality Management District General Board Meeting March 1, 2019 Agenda No. 25. Mobile Source Committee Meeting February 15, 2019. Available online: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-mar1-025.pdf?sfvrsn=6>. Accessed November 6, 2019.

<sup>43</sup> San Joaquin Valley Air Pollution Control District, 2017. Rule 9510 Indirect Source Review (ISR) (Adopted December 15, 2005, Amended December 21, 2017, but not in effect until March 21, 2018). Available online: <http://www.valleyair.org/rules/currnrules/r9510-a.pdf>. Accessed November 6, 2015.

<sup>44</sup> For more information see: <http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html>.

Beach “Clean Truck Program,”<sup>45</sup> the CARB Drayage Truck Regulation,<sup>46</sup> and the CARB statewide On-road Truck and Bus Regulation.<sup>47</sup> Each of these regulatory programs will require an accelerated introduction of “clean trucks” into the statewide truck fleet that will result in substantially lower diesel emissions during the 2008 to 2020 timeframe. Additionally, the Ports of Long Beach and Los Angeles updated the Clean Air Action Plan in 2017, providing new strategies and emission targets supporting zero-emissions and freight efficiency targets.<sup>48</sup>

- Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 horsepower and Greater. Effective February 19, 2011, each fleet shall comply with weighted reduced particulate matter emission fleet averages by compliance dates listed in the regulation.
- CARB Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling adopts new Section 2485 within Chapter 10, Article 1, Division 3, Title 13 in the California Code of Regulations. The measure limits the idling of diesel vehicles (i.e., commercial trucks over 10,000 pounds) to reduce emissions of toxics and criteria pollutants. The driver of any vehicle subject to this section: (1) shall not idle the vehicle’s primary diesel engine for greater than five minutes at any location; and (2) shall not idle a diesel-fueled auxiliary power system for more than five minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).
- CARB Final Regulation Order, Requirements to Reduce Idling Emissions from New and In-Use Trucks, requires that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to ‘neutral’ or ‘park,’ and the parking brake is engaged. If the parking brake is not engaged, then the engine shutdown system shall shut down the engine after 900 seconds of continuous idling operation once the vehicle is stopped and the transmission is set to neutral or park.” There are a few conditions where the engine shutdown system can be overridden to prevent engine damage. Any project trucks manufactured after 2008 would be consistent with this rule, which would ultimately reduce air emissions.
- CARB Regulation for In-Use Off-Road Diesel Vehicles. On July 26, 2007, the CARB adopted a regulation to reduce diesel particulate matter and NO<sub>x</sub> emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. All self-propelled off-road diesel vehicles over 25 horsepower (hp) used in California and most two-engine vehicles (except on-road two-engine sweepers) are subject to this regulation. This includes vehicles that are rented or leased (rental or leased fleets). Such vehicles are used in construction, mining, and industrial operations. The regulation:
  - imposes limits on idling to no more than five consecutive minutes,

<sup>45</sup> [http://www.portoflosangeles.org/ctp/idx\\_ctp.asp](http://www.portoflosangeles.org/ctp/idx_ctp.asp).

<sup>46</sup> <http://www.arb.ca.gov/msprog/onroad/porttruck/porttruck.htm>.

<sup>47</sup> <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>.

<sup>48</sup> <http://www.cleanairactionplan.org/2017-clean-air-action-plan-update/>

- restricts adding of older equipment (such as Tier 0 and Tier 1) into fleets,
- requires reporting and labeling, and
- requires disclosure of the regulation upon vehicle sale.

The CARB is enforcing that with fines up to \$10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO<sub>x</sub> emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

## Toxic Air Contaminants

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality (death) or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. Hazardous Air Pollutants (HAPs) and TACs are used interchangeably in this discussion. HAPs are regulated by the EPA under the Federal Clean Air Act. TAC is the term used under the California Clean Air Act to regulate the same hazardous pollutants. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for periods of several years. Many of these contaminants originate from human activities, such as fuel combustion and solvent use.

In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants carbon dioxide, nitrogen dioxide, particulate matter, and ozone for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards. For this reason, thresholds for TAC impacts for regulatory purposes and for CEQA thresholds have been set based on the increase in risk of cancer of a specific amount at sensitive receptors located near the source of TAC emissions.

The California Almanac of Emissions and Air Quality presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. These TACs are as follows: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM).

TAC measurements, available at the SCAQMD Riverside Rubidoux monitoring station (14 miles northwest of the project site) can be used to characterize the "background" health risks from regional TAC emission sources. **Table 6, Toxic Air Contaminant Concentration Levels and Associated Health Effects**, provides this summary of TAC levels in the project area and health risk information. This table lists the air concentration levels and associated health cancer risks for

eight of the nine TACs reported by the CARB in its Almanac as measured at the Riverside-Rubidoux air monitoring station. Note that since diesel PM cannot be measured directly, the table does not provide estimates of either measured diesel PM or the cancer risk associated with diesel PM.

Past studies have indicated that diesel PM poses the greatest health risk among the TACs listed in Table 6. The principal concern regarding exposures to diesel PM lies in its small size and thus its ability to penetrate deep into lung tissues when inhaled. Diesel exhaust has been found to cause health effects from short-term or acute exposures and from long-term chronic exposures, such as repeated occupational exposures. The type and severity of health effects depends upon several factors including the amount of chemical you are exposed to and the length of time you are exposed. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

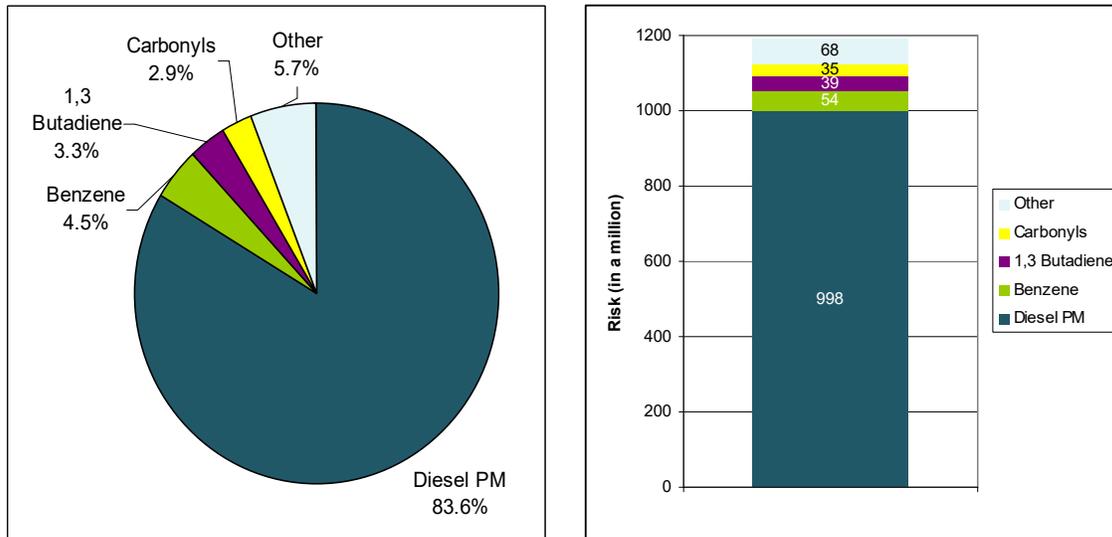
Long-term (chronic) exposure to diesel exhaust is likely to occur when a person works in a field where diesel is used regularly or experiences repeated exposure to diesel fumes over a long period of time. Human health studies demonstrate a correlation between exposure to diesel exhaust and increased lung cancer rates in occupational settings. Experimental animal inhalation studies of chronic exposure to diesel exhaust have shown that a range of doses causes varying levels of inflammation and cellular changes in the lungs. Human and laboratory studies have also provided considerable evidence that diesel exhaust is a likely carcinogen.

Several occupational and ambient studies have documented the health effects due to exposure to diesel PM. The California Office of Environmental Health Hazards Assessment (OEHHA), in its role in assessing risk from environmental factors reviews such studies and makes recommendations on the way environmental risk should be evaluated through programs like the AB2588 Hot Spot Program. In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, 1950's era railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. However, all of these studies were based on exposure to exhaust from traditional diesel engines and prior to the advent of highly efficient emissions controls like the diesel particulate filter. Based on these studies, CARB identified diesel exhaust a toxic air contaminant in 1998.

In 2008, the SCAQMD released the third iteration of the Multiple Air Toxics Exposure Study (MATES-III). The MATES-III report includes monitoring of various air toxic compounds in the Basin, establishes and updates existing baseline toxic air contaminants, and simulates cancer risk in the Basin. The study focuses on the carcinogenic risk from exposure to air toxics. It does not estimate mortality or other health effects from particulate exposures. The SCAQMD MATES-III report indicates that overall in the Basin, diesel PM contributes 83.6 percent of the risk.

In 2014, the SCAQMD released the fourth iteration of the Multiple Air Toxics Exposure Study (MATES-IV). The MATES-IV is a follow up to the previous MATES studies and included an updated toxics air emission inventory, new air toxics air dispersion modeling, and enhanced air toxics monitoring. A key conclusion reached in the MATES-IV study was that the population weighted cancer risk in the Basin decreased by 57 percent from the MATES-III period in 2005 to the MATES-IV period in 2012 indicating that overall, cancer risks are declining in the Basin as a result of the implementation of emission controls principally on large diesel trucks. The MATES-IV study also concluded that diesel PM contributed 68 percent to the total cancer risk in the Basin with benzene and 1.3 Butadiene also making important contributions to cancer risk. **Figure 15, Summary of MATES IV Cancer risks**, summarizes the basin-wide cancer risks as derived from the MATES-IV study.

**Figure 15: Summary of MATES IV Cancer Risks**



**Table 6  
Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
Acetaldehyde	Mean	1.48	1.44	1.08	<p>Acetaldehyde is a carcinogen that also causes chronic non-cancer toxicity in the respiratory system. Symptoms of chronic intoxication of acetaldehyde in humans resemble those of alcoholism.</p> <p>The primary acute effect of inhalation exposure to acetaldehyde is irritation of the eyes, skin, and respiratory tract in humans. At higher exposure levels, erythema, coughing, pulmonary edema, and necrosis may also occur. Acute inhalation of acetaldehyde resulted in a depressed respiratory rate and elevated blood pressure in experimental animals.</p>
	Health Risk	22	21	16	

**Table 6**  
**Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
Benzene	Mean	ID	0.27	0.271	<p>Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.</p> <p>Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.</p> <p>Chronic inhalation of certain levels of benzene causes disorders in the blood in humans. Benzene specifically affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.</p>
	Health Risk	ID	85	70	
Chromium Hex	Mean	0.083	0.045	ID	<p>In California, hexavalent chromium has been identified as a carcinogen. There is epidemiological evidence that exposure to inhaled hexavalent chromium may result in lung cancer. The principal acute effects are renal toxicity, gastrointestinal hemorrhage, and intravascular hemolysis.</p> <p>The respiratory tract is the major target organ for chromium (VI) following inhalation exposure in humans. Other effects noted from acute inhalation exposure to very high concentrations of chromium (VI) include gastrointestinal and neurological effects, while dermal exposure causes skin burns in humans. Chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, with perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness reported. Chronic human exposure to high levels of chromium (VI) by inhalation or oral exposure may produce effects on the liver, kidneys, gastrointestinal and immune systems, and possibly the blood.</p>
	Health Risk	34	19	ID	
Para-Dichlorobenzene	Mean	ID	ID	ID	<p>In California, para-dichlorobenzene has been identified as a carcinogen. Acute exposure to 1,4-dichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans (e.g., cerebellar ataxia, dysarthria, weakness in limbs, and hyporeflexia).</p>
	Health Risk	ID	ID	ID	
Formaldehyde	Mean	3.52	3.64	3.35	<p>The major toxic effects caused by acute formaldehyde exposure via inhalation are eye, nose, and throat irritation and effects on the nasal cavity. Other effects seen from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic exposure to formaldehyde by inhalation in humans has been associated with</p>
	Health Risk	70	76	70	

**Table 6**  
**Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
					respiratory symptoms and eye, nose, and throat irritation. Animal studies have reported effects on the nasal respiratory epithelium and lesions in the respiratory system from chronic inhalation exposure to formaldehyde. Occupational studies have noted statistically significant associations between exposure to formaldehyde and increased incidence of lung and nasopharyngeal cancer. This evidence is considered "limited" rather than "sufficient" due to possible exposure to other agents that may have contributed to the excess cancers. EPA considers formaldehyde to be a probable human carcinogen (cancer-causing agent) and has ranked it in EPA's Group B1. In California, formaldehyde has been identified as a carcinogen.
Methylene Chloride	Mean	ID	48.2	12.3	Case studies of methylene chloride poisoning during paint-stripping operations have demonstrated that inhalation exposure to extremely high levels can be fatal to humans. Acute inhalation exposure to high levels of methylene chloride in humans has resulted in effects on the central nervous system, including decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Methylene chloride also irritates the nose and throat at high concentrations. The major effects from chronic inhalation exposure to methylene chloride in humans are effects on the central nervous system, such as headaches, dizziness, nausea, and memory loss. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. EPA considers methylene chloride to be a probable human carcinogen and has ranked it in EPA's Group B2. California considers methylene chloride to be carcinogenic.
	Health Risk	ID	477	122	
Perchloroethylene	Mean	ID	0.018	0.013	In California, perchloroethylene has been identified as a carcinogen. Perchloroethylene vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity, as well as kidney dysfunction and neurological disorders.
	Health Risk	ID	2	2	
Diesel PM	Mean	No Monitoring Data Available			In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provided strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. This research was based on studies prior to the advent of modern diesel engines with high efficiency emissions controls.
	Health Risk				

ID = Insufficient data

**Table 6**  
**Toxic Air Contaminant Concentration Levels and Associated Health Effects (Riverside, California)**

TAC	Concentration <sup>A</sup> / Health Risk <sup>B</sup>	2015	2016	2017	Health Effects
-----	--	------	------	------	----------------

A = Concentrations for Hexavalent Chromium are expressed as  $\mu\text{g}/\text{m}^3$ , and concentrations for Diesel PM are expressed as  $\mu\text{g}/\text{m}^3$ . Concentrations for all other TACs are expressed as ppb.

B = Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available

Source: CARB 2018 for the SCAQMD Riverside-Rubidoux air monitoring station.

The basin-wide population weighted cancer risk is 367 per million based on averages at fixed monitoring sites estimated during the MATES-IV study. This level of risk means that on average an estimated 367 individuals in the basin could contract cancer out of a population of one million individuals exposed to all sources of toxic air contaminants over a lifetime of 70 years. A comprehensive air dispersion model and a detailed air toxics emission inventory were then used to estimate cancer risks at other locations where no monitoring sites were deployed. A 10-year research program<sup>49</sup> demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk.

In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust has been a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

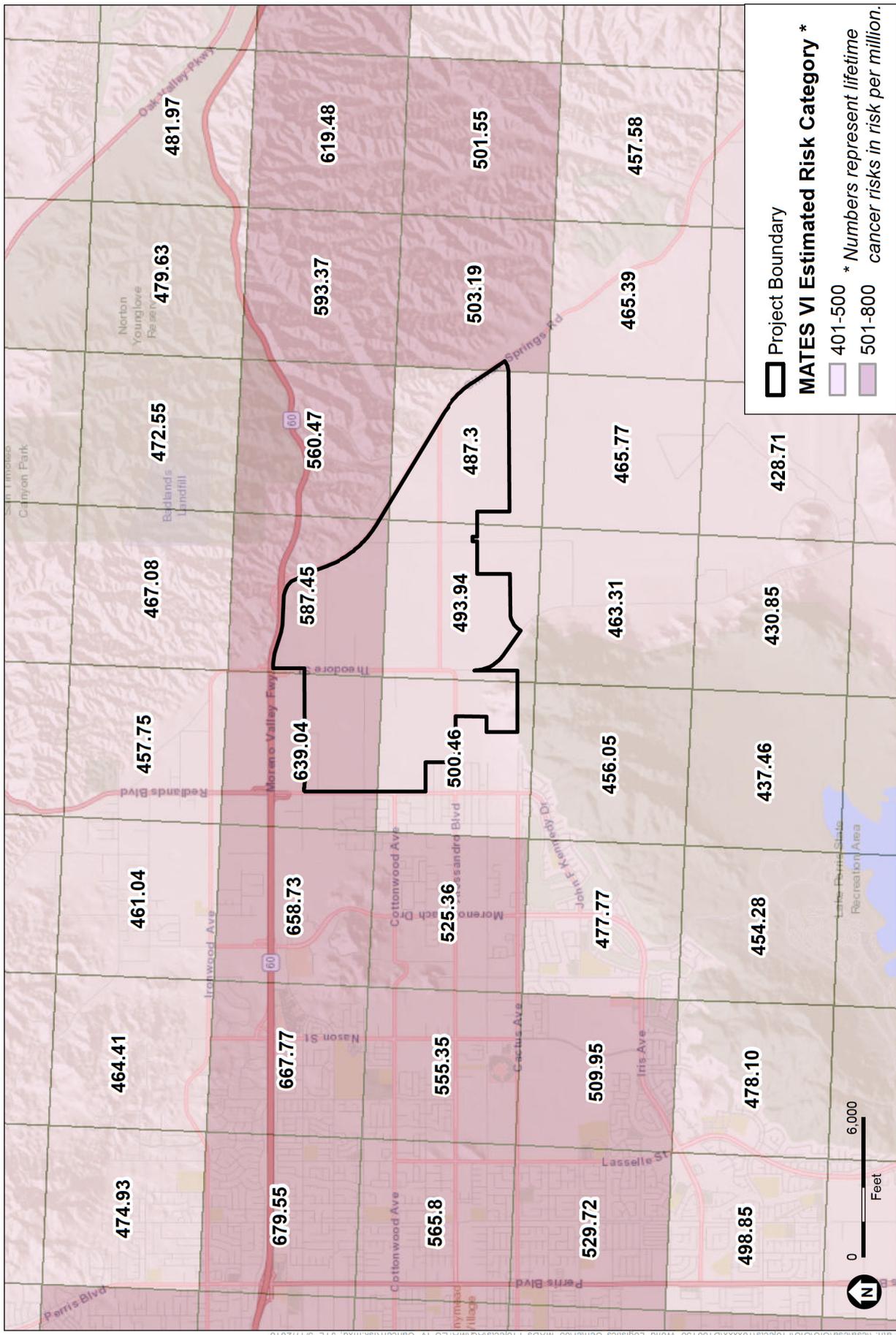
Diesel PM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM<sub>10</sub> database, ambient PM<sub>10</sub> monitoring data, and the results from several studies to estimate concentrations of diesel PM. Within the Basin, in addition to diesel PM, there are emissions of benzene, formaldehyde, acetaldehyde, naphthalene, ethylbenzene, acrolein, toluene, hexane, propylene, and xylene from a variety of sources located within the Basin that contribute to health risks.

**Figure 16**, *MATES IV Cancer Risk in Area*, shows the average cancer risk in the project area. As shown in **Figure 17**, *Change in Air Toxics Simulated Risk from 2005 to 2012*, nearly all areas of the Basin experienced decreases in cancer risk during the time period from MATES-III time

<sup>49</sup> CARB. 1998. The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines

period of 2005 to the MATES-IV time period of 2012. The project area also experienced a decrease in cancer risk of between 100 and 400 in one million from the years 2005 to 2012.

Figure 20 depicts the cancer risk estimates as a “snapshot in time.” That is, the cancer risks are derived from air dispersion models and are based on the emissions of various TACs during the years 2005 and 2012. The basic tenet used to estimate cancer risk assumes that the public will be exposed to these TAC emissions during an entire 70-year lifetime of continuous exposure. However, the SCAQMD, CARB, and the EPA have adopted numerous regulations that have



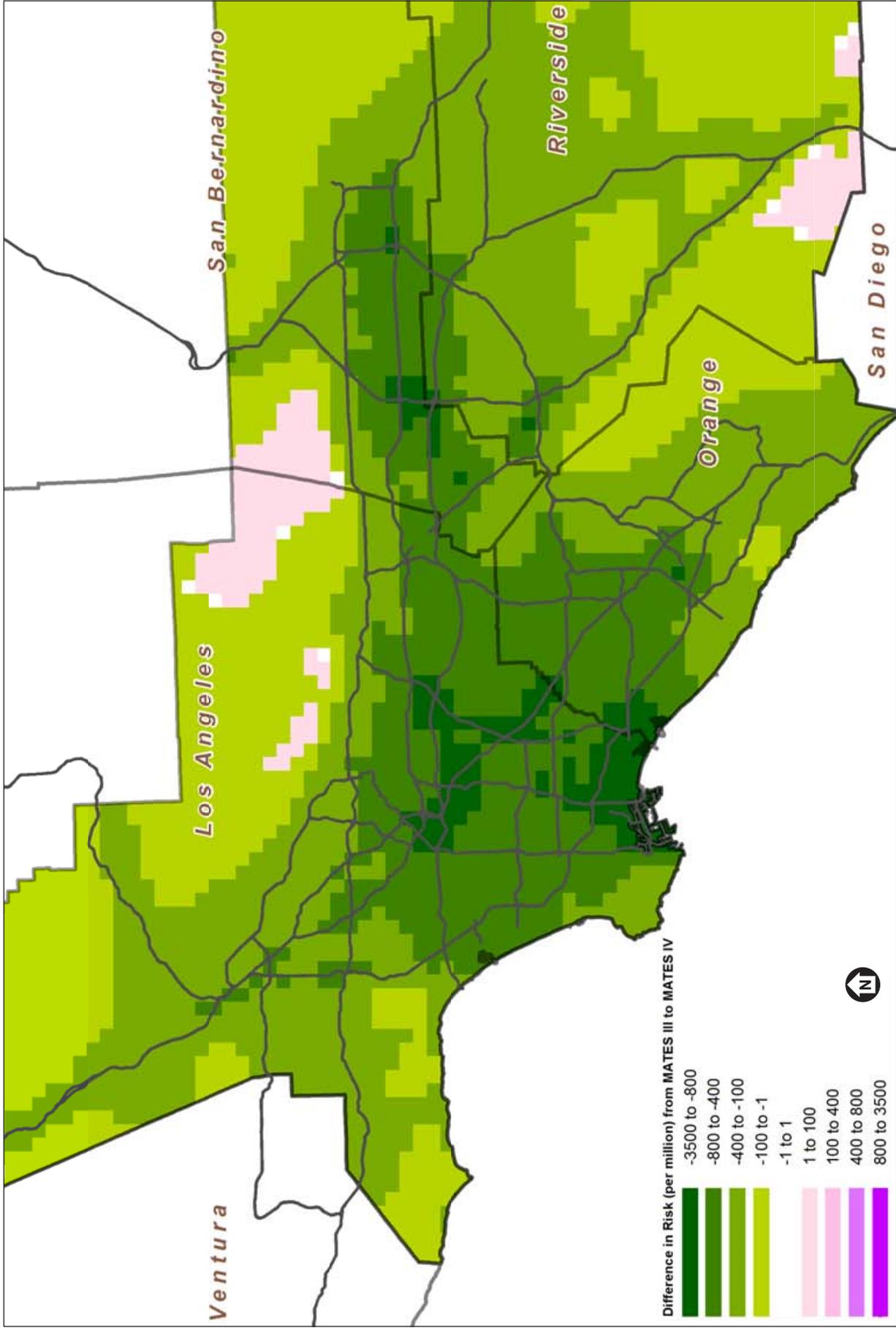
SOURCE: ESRI 2016; South Coast Air Quality Management District 2018

World Logistics Center

**Figure 16**

MATES IV Cancer Risk in Area





SOURCE: SCAQMD, MATES IV Final Report, May 2015

World Logistics Center

**Figure 17**  
Change in Air Toxics Simulated Risk from 2005 to 2012



0180130.00

resulted in significant reductions in pollutant emissions with the attendant reductions in prevailing air quality levels since 2012 as noted earlier. The benefits of substantial additional emission reductions derived from the adoption and application of SCAQMD, CARB, and EPA regulations are not reflected in the estimate of 70-year lifetime cancer risks referred to in Figure 17.

### **Conservative Nature of Health Risk Assessments**

Moreover, the current methodological protocols required by the SCAQMD and CARB when studying the health risk posed by diesel PM assume the following (from the California Air Pollution Control Officers Association 2009): (1) 24-hour constant exposure; (2) 350 days a year; (3) for a continuous period lasting 70 years. These are overly conservative assumptions that are not replicated in reality. Most people are indoors for 18–20 hours a day (at their place of employment or home) and most people do not live in the same location for a 70-year period. In fact, less than 10 percent of the population has a continuous residency at the same location of greater than 30 years (American Community Survey 2011). Thus, the health risk assessments prepared pursuant to the current protocols overestimate the risk of cancer associated with diesel PM exposure.

### **Alternative Views on Diesel PM Risk**

Some researchers, such as Dr. James E. Enstrom (2008), believe that the risk from diesel PM is exaggerated. Enstrom calls into question some of the basic research on the declaration of diesel exhaust as a toxic air contaminant. In particular, the article states the following:

*There is substantial new epidemiologic evidence relevant to the health effects of diesel exhaust that was not considered when the 1998 toxic air contaminant declaration was made. For instance, the 2007 paper by Francine Laden et al. measured death rates during 1985–2000 among 54,000 members of the unionized U.S. trucking industry. ... This cohort, which included 36,000 diesel truck drivers, had death rates from all causes and all cancer that were substantially below the rates among US males. Furthermore, unlike earlier evidence that was used in the TAC declaration, this cohort did not have a substantially elevated lung cancer death rate.*

Dr. Enstrom also indicates that the premature mortality calculation in the report, “Quantification of the Health Impacts and Economic Valuation of Air Pollution from Ports and Goods Movement in California,” is exaggerated. Dr. Enstrom’s analysis “found no relationship between PM<sub>2.5</sub> and mortality in elderly Californians during 1983–2002.”

### **Southern California Association of Governments**

Southern California Association of Governments (SCAG) Sustainable Communities Strategy (SCS) within Regional Transportation Plan (RTP) demonstrates the region’s ability to attain and exceed the GHG emission reduction targets set by the CARB. The SCS outlines the plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as evidenced by several Compass Blueprint Demonstration Projects and

various county transportation improvements. The SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network, which emphasizes system preservation, active transportation, and transportation demand management measures.

The RTP/SCS exceeds its greenhouse gas emission-reduction targets set by the CARB by achieving an 8 percent reduction by 2020, an 18 percent reduction by 2035, and a 21 percent reduction by 2040 compared to the 2005 level on a per capita basis. **Table 7, SCAG Assumptions for Moreno Valley**, shows the assumptions regarding Moreno Valley that SCAG used in its 2016 analysis.

**Table 7**  
**SCAG Assumptions for Moreno Valley**

Year	Population	Households	Employment
2012	197,600	51,800	31,400
2040	256,600	73,000	83,200

Source: Southern California Association of Governments 2016  
([http://scagrtpscsc.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscsc.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf))

The RTP also includes an appendix on Goods Movement, which provides an overview of the regional goods movement and initiatives to facilitate it. The 2016 RTP does not include a list of proposed or recommend strategies. Proposed Strategies in the 2012 RTP (that are still relevant in the 2016 RTP) that include the Local Jurisdiction as a responsible party, that could be applicable to the project, and that pertain to air quality or greenhouse gases are shown in **Table 8, Select 2012 Regional Transportation Plan Strategies**. Many of the strategies are similar to the project's mitigation measures and project design features.

**Table 8**  
**Select 2012 Regional Transportation Plan Strategies**

Strategy	Responsible Party*	Project Consistency
Encourage the use of range-limited battery electric and other alternative fueled vehicles through policies and programs, such as, but not limited to, neighborhood oriented development, complete streets, and electric (and other alternative fuel) vehicle supply equipment in public parking lots.	Local Jurisdictions, COGs, SCAG, CTCs	Consistent with <b>Mitigation Measures AIR-7</b> (non-diesel yard trucks), <b>AIR-8</b> (alternative fuel station), and <b>AIR-11</b> (electric vehicle charging stations).
Support projects, programs, and policies that support active and healthy community environments that encourage safe walking, bicycling, and physical activity by children, including, but not limited to development of complete streets, school siting policies, joint use agreements, and bicycle and pedestrian safety education.	Local Jurisdictions and CTCs	Consistent with <b>Mitigation Measure AIR-11</b> (bicycle lanes, storage lockers, and pedestrian connections/pathways).

**Table 8**  
**Select 2012 Regional Transportation Plan Strategies**

Strategy	Responsible Party*	Project Consistency
Engage in a strategic planning process to determine the critical components and implementation steps for identifying and addressing open space resources, including increasing and preserving park space, specifically in park-poor communities.	Local Jurisdictions and CTCs	The project is consistent with City's goal of conserving open space. As compared to the Moreno Highlands Specific Plan, the project would change the zoning on 910 acres from residential to open space. In addition, the project preserves the zoning of 74 acres of open space in the southwest corner of the project site for passive open space and recreation uses. Finally, a network of trails has been proposed within the project site to provide public trail access to the Lake Perris Recreational Area and the San Jacinto Wildlife Area.
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other zero emission vehicle options.	Local Jurisdictions and CTCs	Consistent with <b>Mitigation Measure AIR-11</b> (Riverside County's Rideshare Program), bicycle lanes, and pedestrian access.
Encourage transit fare discounts and local vendor product and service discounts for residents and employees of transit oriented development/high quality transit areas or for a jurisdiction's local residents in general who have fare media	Local Jurisdictions	Not applicable. This measure is for areas in transit-oriented development.
Encourage the implementation of a Complete Streets policy that meets the needs of all users of the streets, roads and highways—including bicyclists, children, persons with disabilities, motorists, neighborhood electric vehicle (NEVs) users, movers of commercial goods, pedestrians, users of public transportation and seniors—for safe and convenient travel in a manner that is suitable to the suburban and urban contexts within the region.	Local Jurisdictions, COGs, SCAG, CTCs	Although the project is not implementing what is labeled as a "Complete Streets" policy, the project would include bicycle lanes and pedestrian access ( <b>Mitigation Measure AIR-11</b> ) and would implement handicapped access pursuant to current regulations.
Support work-based programs that encourage emission reduction strategies and incentivize active transportation commuting or ride-share modes.	SCAG, Local Jurisdictions	Consistent through <b>Mitigation Measure AIR-11</b> (Riverside County's Rideshare Program; designated parking for carpool/van pools).
Develop infrastructure plans and educational programs to promote active transportation options and other alternative fueled vehicles, such as neighborhood electric vehicles, and consider collaboration with local public health departments, walking/biking coalitions, and/or Safe Routes to School initiatives, which may already have components of such educational programs in place.	Local Jurisdictions	Consistent with <b>Mitigation Measures AIR-11</b> (bicycle lanes, pedestrian access, electric vehicle charging) and <b>AIR-8</b> (alternative fueling infrastructure).
Encourage the development of telecommuting programs by employers through review and revision of policies that may discourage alternative work options.	Local Jurisdictions and CTCs	Not applicable. Tenants may choose to implement telecommuting if feasible.
Emphasize active transportation and alternative fueled vehicle projects as part of complying with the Complete Streets Act (AB 1358).	State, SCAG, Local Jurisdictions	Consistent with <b>Mitigation Measure AIR-8</b> (alternative fueling station) and <b>Mitigation Measure AIR-11</b> (electric vehicle charging stations)

\* Abbreviations:

SCAG = Southern California Association of Governments

**Table 8**  
**Select 2012 Regional Transportation Plan Strategies**

Strategy	Responsible Party*	Project Consistency
CTCs = county transportation commissions COGs = subregional councils of governments Source: Southern California Association of Governments 2012		

The Goods Movement appendix of the 2016 RTP/SCS describes a process to develop and deploy needed technologies, along with key action steps for public sector agencies to help move the region to that objective. The 2016 RTP/SCS reaffirms zero- and near zero-emission technologies as a priority, and establishes the regional path forward to such as goods movement system.

SB 375 took effect in 2009 and required regional municipal planning organizations to develop regional land use plans that demonstrate how the regions will achieve compliance with the GHG reduction goals of AB 32. Cities located within these regions are then required, in turn, to update their General Plans in accordance with the regional plans. Non-compliance with SB 375 will result in transportation funds being withheld from the regional and/or local agency. To date, the regional municipal planning organization for Riverside County (the Western Riverside Council of Governments, or WRCOG) has not adopted a regional plan that is in compliance with SB 375.

## 2.5 Local

### City of Moreno Valley

#### General Plan

Chapter 9 of the City's General Plan defines goals and policies related to air quality within the City of Moreno Valley. The specific policies of the General Plan that are relevant to the project are as follows:

- Objective 6.6** Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.
- Objective 6.7** Reduce mobile and stationary source air pollutant emissions.
- Policy 6.7.1** Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.
- Policy 6.7.2** Encourage the financing and construction of park and ride facilities.
- Policy 6.7.3** Encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange, and Los Angeles Counties.
- Policy 6.7.4** Locate heavy industrial and extraction facilities away from residential areas and sensitive receptors.

**Policy 6.7.5** Require grading activities to comply with South Coast Air Quality Management District’s Rule 403 regarding the control of fugitive dust.

**Policy 6.7.6** Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.

## **Climate Action Strategy**

The City of Moreno Valley approved the Energy Efficiency and Climate Action Strategy (Strategy) in October 2012. The Strategy identifies ways that the City can reduce energy and water consumption and greenhouse gas emissions as an organization (its employees and the operation of its facilities) and outlines the actions that the City can encourage and community members can employ to reduce their own energy and water consumption and greenhouse gas emissions. The Strategy contains the following policies to reduce greenhouse gas emissions in 2010 by 15 percent by 2020:

- R2-T1 Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.
- R2-T3 Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.
- R2-E1 New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.
- R2-E2 New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar [photovoltaic] panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources off site.
- R2-E5 New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10 percent beyond the current Title 24 standards.
- R3-E1 Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy-efficient projects.
- R3-L2 Heat Island Plan. Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.

- R2-W1 Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.
- R3-W1 Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.
- R2-S1 City Diversion Program. For solid waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.

## SECTION 3

---

# Significance Thresholds

### 3.1 State CEQA Guidelines, Appendix G

Based on Appendix G of the CEQA Guidelines, air quality impacts would occur if the project would:

- AIR-1:** Conflict with or obstruct implementation of the applicable air quality plan;
- AIR-2:** Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- AIR-3:** Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- AIR-4:** Expose sensitive receptors to substantial pollutant concentrations; and/or
- AIR-5:** Create objectionable odors affecting a substantial number of people.
- GHG-1:** Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or
- GHG-2:** Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

In addition to the Federal and State AAQS, there are daily emissions thresholds for construction and operation of a project in the Basin. The Basin is administered by the SCAQMD, and guidelines and emissions thresholds established by the SCAQMD in its CEQA Air Quality Handbook<sup>50</sup> and subsequent additions to the Handbook were used in this analysis. It should be noted that the emissions thresholds were established based on the attainment status of the air basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution related to air quality and health risks.

---

<sup>50</sup> *CEQA Air Quality Handbook*, April 1993.

## Air Quality Thresholds

### Construction Emissions

The following CEQA significance thresholds for regional construction emissions have been established by the SCAQMD for the Basin:

- 75 pounds per day of VOC, also known as reactive organic compounds (ROC).
- 100 pounds per day of NO<sub>x</sub>.
- 550 pounds per day of CO.
- 150 pounds per day of PM<sub>10</sub>.
- 150 pounds per day of SO<sub>x</sub>.
- 55 pounds per day of PM<sub>2.5</sub>.

Projects in the Basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under CEQA.

### Operational Emissions

Projects with regional operation-related emissions that exceed any of the regional emission thresholds listed below are considered significant under the SCAQMD guidelines.

- 55 pounds per day of VOC, also known as ROC.
- 55 pounds per day of NO<sub>x</sub>.
- 550 pounds per day of CO.
- 150 pounds per day of PM<sub>10</sub>.
- 150 pounds per day of SO<sub>x</sub>.
- 55 pounds per day of PM<sub>2.5</sub>.

### Carbon Monoxide Hotspots

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase one-hour CO concentrations by 1.0 ppm or more or eight-hour CO concentrations by 0.45 ppm or more. The Basin meets State and Federal attainment standards for CO; therefore, the project would have a significant CO impact if project emissions result in an exceedance of State or

Federal one-hour or eight-hour standard. The following emission concentration standards for CO, based on the SCAQMD CEQA Air Quality Handbook (1993), apply to the project:

- California State one-hour CO standard of 20.0 ppm.
- California State eight-hour CO standard of 9.0 ppm.

### Localized Significance Thresholds

The SCAQMD published its Final Localized Significance Threshold Methodology in June 2003, revised July 2008) and Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM<sub>2.5</sub> Significance Thresholds (October 2006), recommending that all air quality analyses include a localized assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. Localized Significant Thresholds (LSTs) represent the maximum emissions from a project site that are not expected to result in an exceedance of Federal or State AAQS. LSTs are based on the ambient concentrations of that pollutant within the Source Receptor Area (SRA) where a project is located and the distance to the nearest sensitive receptor. The project site is located in the northern portions of SRAs 24 (Moreno Valley) and 28 (San Jacinto).

In the case of CO and NO<sub>2</sub>, if ambient levels are below the air standards for these pollutants, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM<sub>10</sub> and PM<sub>2.5</sub>, both of which are nonattainment pollutants in the Basin. For these latter two pollutants, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403 and 1301. The Rule 403 threshold of 10.4 µg/m<sup>3</sup> applies to construction emissions (and may apply to operational emissions at aggregate handling facilities). The Rule 1301 threshold of 2.5 µg/m<sup>3</sup> applies to non-aggregate handling operational activities.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. There are currently six occupied single-family homes and associated ranch/farm buildings in various locations on the project site. These residences are existing on-site sensitive receptors. The nearest off-site existing sensitive receptors in the vicinity of the project site are the residences located along Bay Avenue, Merwin Street, and west of Redlands Boulevard, and scattered residences along Gilman Springs Road.

Following the SCAQMD LST methodology, for sites larger than 5 acres, air dispersion modeling needs to be conducted. Because the project site greatly exceeds 5 acres, the localized significance for project air pollutant emissions was determined by performing dispersion modeling to determine if the pollutant concentrations would exceed relevant significance thresholds established by the SCAQMD.

The following LSTs were applied to the construction and operation of the project:

- 0.18 ppm (State 1-hour); 0.100 ppm (Federal 1-hour); and 0.03 ppm (Annual) of NO<sub>2</sub> for construction or operations.

- 20 ppm (1-hour) and 9.0 ppm (8-hour) of CO for construction or operation.
- 10.4  $\mu\text{g}/\text{m}^3$  (24-hour) and 1  $\mu\text{g}/\text{m}^3$  of  $\text{PM}_{10}$  (Annual) for construction.
- 2.5  $\mu\text{g}/\text{m}^3$  (24-hour) and 1.0 ppm (Annual) of  $\text{PM}_{10}$  for operations.
- 10.4  $\mu\text{g}/\text{m}^3$  (24-hour) of  $\text{PM}_{2.5}$  for construction.
- 2.5  $\mu\text{g}/\text{m}^3$  (24-hour) of  $\text{PM}_{2.5}$  for operation.
- Note that when construction and operational activities occur at the same time, the SCAQMD recommends application of the significance thresholds for operation apply in determining emission significance

## Health Risk Significance Thresholds

For pollutants without defined significance standards or air contaminants not covered by the standard criteria cited above, the definition of substantial pollutant concentrations varies. For toxic air contaminants (TAC), “substantial” is taken to mean that the individual cancer risk exceeds a threshold considered to be a prudent risk management level.

The SCAQMD has defined several health risk significance thresholds that it recommends to Lead Agencies in assessing a project’s health risk impacts. The City of Moreno Valley has not adopted its own set of thresholds. Therefore, the following SCAQMD thresholds were adopted for the project.

- **Maximum Individual Cancer Risk (MICR) and Cancer Burden.** The MICR is the estimated increase in lifetime probability of the maximally exposed individual contracting cancer as a result of exposure of TACs over the applicable exposure period. Cancer burden multiplies the cancer risk by the exposed population to estimate the number of individuals that would be expected to contract cancer from the project.

A significant impact would occur for:

- A. An increased MICR greater than 10 in 1 million at any receptor location; or
- B. A cancer burden greater than 0.5.

- **Chronic Hazard Index (HI).** This is the ratio of the estimated long-term level of exposure to a TAC for a potential maximally exposed individual to its chronic reference exposure level. A reference exposure level is the exposure level below which an adverse health effect will not occur as determined by health professionals. The chronic HI calculations include multi-pathway consideration, when applicable.

A significant impact would occur if the increase in total chronic HI for any target organ system due to exposures to total TAC emissions from the project exceeds 1.0 at any receptor location.

- **Acute Hazard Index (HI).** This is the ratio of the estimated maximum one-hour concentration of a TAC for a potential maximally exposed individual to its acute reference exposure level, the exposure level below which an adverse health effect will not occur as determined by health professionals.

A significant impact would occur if the increase in total acute HI for any target organ system due to exposure to total TAC emissions from the project exceeds 1.0 at any receptor location.

## Greenhouse Gas Thresholds

On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is the lead agency (SCAQMD permit threshold). Tier 3 of the threshold is recommended by the SCAQMD for industrial projects.<sup>51</sup> The threshold consists of five tiers, as follows:

- Tier 1 consists of evaluating whether or not a project qualifies for any applicable exemption under CEQA. The project is not exempt under CEQA; therefore, go to Tier 2.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions. There is no greenhouse gas reduction plan that could be used for CEQA purposes for this project; go to Tier 3.
- Tier 3 is a screening threshold level to determine significance using a 90 percent emission capture rate approach and is 10,000 MTCO<sub>2e</sub> per year (with construction emissions amortized/averaged over 30 years and added to operational emissions). Project greenhouse gas emissions are compared with the threshold, 10,000 MTCO<sub>2e</sub> per year (see analysis below).
- Tier 4 was not approved in the interim greenhouse gas threshold.
- Tier 5 would allow the project proponent to purchase offsite mitigation to reduce greenhouse gas emissions to less than the screening level (in Tier 3).

Section 15064.4(b) of the CEQA Guideline amendments for greenhouse gas emissions state that a lead agency may take into account the following three considerations in assessing the significance of impacts from greenhouse gas emissions.

**Consideration #1:** The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.

**Consideration #2:** Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

<sup>51</sup> SCAQMD. 2015. Air Quality Significance Thresholds. Revised March 2015. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>

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

## AB 32 Capped and Uncapped Emissions

The ARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32. The program began on January 1, 2012, with an enforceable compliance obligation beginning with its 2013 greenhouse gas emissions inventory. Some of the project’s greenhouse gas emissions are subject to the requirements of the AB 32 Cap and Trade Program and will have a greenhouse gas allocation based on current emissions levels. The AB 32 Cap-and-Trade Program has divided allocations into sectors. The transportation and electricity sectors would be covered by the cap-and-trade program.

The SCAQMD has recognized that the greenhouse gas emissions associated with capped sources should not be counted for the purpose of determining what the greenhouse gas emissions are for facilities that will use electricity generated elsewhere. In September 2013, the SCAQMD adopted the following two Negative Declarations last year stating that greenhouse gas emissions subject to the ARB Cap-and-Trade Program do not count against the 10,000 MTCO<sub>2</sub>e significance threshold the SCAQMD applies when acting as a lead agency:

- Ultramar Inc. Wilmington Refinery Proposed Cogeneration Project<sup>52</sup>
- Phillips 66 Los Angeles Refinery Carson Plant - Crude Oil Storage Capacity Project<sup>53</sup>

In addition, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has recently taken this issue one step further and adopted a policy: “CEQA Determinations of Significance for Projects Subject to ARB’s GHG Cap-and-Trade Regulation”.<sup>54</sup> This policy applies when the SJVAPCD is the lead agency and when it is a responsible agency. In short, the SJVAPCD “has determined that GHG emissions increases that are covered under ARB’s Cap-and-Trade regulation cannot constitute significant increases under CEQA . . .” The SJVAPCD classifies ARB’s Cap-and- Trade Program as an approved greenhouse gas emission reduction plan or

<sup>52</sup> SCAQMD. Final Negative Declaration for: Ultramar Inc. Wilmington Refinery Cogeneration Project. October 2014. <https://planning.lacity.org/eir/CrossroadsHwd/deir/files/references/C38.pdf>

<sup>53</sup> SCAQMD. Final Negative Declaration for: Phillips 66 Los Angeles Refinery Carson Plant - Crude Oil Storage Capacity Project. December 2014. <http://www.aqmd.gov/docs/default-source/ceqa/documents/permit-projects/2014/phillips-66-fnd.pdf>

<sup>54</sup> San Joaquin Valley Air Pollution Control District (SJVAPCD). 2014. CEQA Determinations of Significance for Projects Subject to ARB’s GHG Cap-and-Trade Regulation. [https://www.valleyair.org/policies\\_per/Policies/APR-2025.pdf](https://www.valleyair.org/policies_per/Policies/APR-2025.pdf)

greenhouse gas mitigation program under CEQA Guidelines Section 15064(h) (3). Here are some other pertinent excerpts from that policy:

- Consistent with CCR §15064(h)(3), the District finds that compliance with ARB’s Cap-and-Trade regulation would avoid or substantially lessen the impact of project-specific GHG emissions on global climate change.
- The District therefore concludes that GHG emissions increases subject to ARB’s Cap-and-Trade regulation would have a less than significant individual and cumulative impact on global climate change.
- [I]t is reasonable to conclude that implementation of the Cap-and-Trade program will and must fully mitigate project-specific GHG emissions for emissions that are covered by the Cap-and-Trade regulation.
- [T]he District finds that, through compliance with the Cap-and-Trade regulation, project-specific GHG emissions that are covered by the regulation will be fully mitigated.

The policy acknowledges that “combustion of fossil fuels including transportation fuels used in California (on and off road including locomotives), not directly covered at large sources, are subject to Cap-and-Trade requirements, with compliance obligations starting in 2015.” As such, the SJVAPCD concludes that greenhouse gas emissions associated with vehicle miles traveled cannot constitute significant increases under CEQA. This regulatory conclusion is therefore directly applicable to the project because vehicle miles traveled is by far the largest source of project greenhouse gas emissions.

Therefore, only the uncapped project emissions are compared with the SCAQMD significance threshold (see Tier 3 above).

## SECTION 4

# Methodology

---

The evaluation of potential impacts to air quality and GHG emissions that may result from the construction and long-term operations of the Project is conducted as follows:

### 4.1 Construction

Construction-related emissions are expected from various activities associated with the construction of the project such as rough grading, infrastructure construction, asphalt paving, building construction, architectural coatings, and construction workers commuting. Construction emissions for construction worker vehicles traveling to and from the project site, in addition to vendor trips (construction materials delivered to the project site) and haul trips (dump trucks and concrete trucks) were also accounted for in the analysis. Localized air quality in the project area would be affected by both heavy-duty construction equipment usage on site as well as local traffic due to the equipment delivery and construction worker commuting. The SCAQMD CEQA methodology was used to analyze the criteria pollutant emissions from these activities.

The assumptions that follow in this section are for the criteria pollutant analysis and the greenhouse gas analysis. This section describes the assumptions used to estimate the emissions using the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2). The criteria pollutants estimated by CalEEMod for construction are as follows: VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. In addition, CalEEMod also estimated construction emissions for methane, nitrous oxide, carbon dioxide, and MTCO<sub>2e</sub> for use in the greenhouse gas impact assessment.

Construction was assumed to occur over 15 years. Although buildout of the project would depend on market conditions, the project could be built out and operational as early as 2035.<sup>55</sup> Therefore, to provide a conservative air quality analysis, construction was assumed to be completed over a 15-year period that provides for phase overlap and the use of older construction equipment.

The various activities during construction are described as follows:

- Mass excavation: Approximately 42 million cubic yards (cy) of cut and fill will be required to rough/mass grade the entire project site, including remedial grading and over-

---

<sup>55</sup> Full build out of the Project is expected to take 15 to 20 years, dependent on market forces. The TIA analyzes full project buildout in 2040, which is worst case for traffic analysis purposes as it accounts for greater regional growth in non-project traffic. However, for purposes of a conservative construction impact analysis, the fifteen-year buildout (construction ending in 2034 and full operations in 2035) is analyzed. An accelerated construction schedule occurring in earlier years would account for greater overlap of construction activity and the use of dirtier construction equipment (i.e. subject to less stringent emission standards).

excavation. Earthwork will balance on site within the Specific Plan, eliminating the need to import or export dirt for the project.

- **Finish grading:** This activity is to fine tune the drainage patterns on the site and achieve the finish tolerance of the grading activity.
- **Building:** This activity involves construction of the buildings on the project site. The sub-activities include bringing concrete to the site, tilting up the concrete walls, constructing the wet utilities, installing the electrical, and installing the landscaping around the buildings.
- **Concrete:** Concrete pouring would likely occur during nighttime hours due to limitations high temperatures pose for concrete work during the day. On-site equipment used during concrete pouring would involve daytime prep with actual concrete pouring occurring during the nighttime hours. On average, the total hours of operation for each piece of equipment during the concrete phase would be approximately 10 hours. Therefore, the analysis assumes a realistic average use of construction equipment by assuming that the maximum equipment would be used for five days per week occurring for 10 hours per day (including the concrete pouring phase).
- **Utilities:** Grading and trenching for electrical, natural gas, etc.
- **Interchange:** Construction related to the State Route 60 (SR-60) interchange improvements.
- **Curbing/driving approaches:** Constructing curbs and driveways.
- **Coatings:** The exterior of the buildings and the interior of the office space would be painted. CalEEMod assumes that a high quantity of painting would occur, even though the project consists of warehouses and would require minimal painting. VOC from painting is estimated outside of CalEEMod.
- **Paving:** The acreage to be paved is unknown at this time; it was assumed for worst-case purposes that one-third of each planning area would be paved. The VOC emissions from paving were estimated manually using the calculations presented in the CalEEMod User's Guide and the acreage of the planning area.
- **Landscaping:** This involves landscaping the area outside the immediate proximity of the buildings.

## Off-road Equipment

The off-road equipment refers to the equipment that would operate onsite (and in the adjacent offsite areas, for offsite improvements) to move dirt and materials around, and include equipment such as scrapers, graders, loaders, pavers, excavators, and dozers. This equipment operates during all subphases of construction of the project.

The emission levels for off-road equipment are based on the emission factors, horsepower, load factor, and activity level of the equipment. The emission factors are generally described as an emission rate per horsepower and time of operation and depend on the type of equipment, horsepower, and model year of the equipment. In general, the horsepower is the power of an engine – the greater the horsepower, the greater the power to be able to move dirt and materials around. In general, a greater horsepower also results in greater emissions. The load factor is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operated at its maximum operating capacity. The activity level is generally represented by the number of hours the equipment is in operation during a time period such as a day. An air emissions model, such as CalEEMod, combines the emission factors, horsepower, load factor, and activity level and outputs the emissions for the various pieces of equipment and air pollutants.

The onsite construction equipment assumptions, including the horsepower, load factor, and number, are included in Appendix A of this report and are used in the emission model to estimate construction emissions.

Equipment *tiers* refers to the adoption of emission standards established by the EPA and ARB that apply to diesel engines in off-road equipment. The “tier” of an engine depends on the model year and horsepower rating; generally, the newer a piece of equipment is, the greater the tier it is likely to have. Beginning in year 2011, new off-road mobile engines sold that are equal to or greater than 175 horsepower (hp) and non-emergency stationary engines less than 10 liters per cylinder and equal to or greater than 175 hp are required to meet Tier 4 Interim standards (40 Code of Federal Regulations, part 1039). Tier 4 Final for engines greater than 130 hp are required as of 2014.

CalEEMod contains a default inventory of construction equipment for various land uses that incorporates estimates of the number of equipment, their age, their hp, and equipment tier from which rates of emissions are developed. For the unmitigated emissions estimates, all equipment is assumed to be the CalEEMod defaults. For the mitigated emissions estimates, the off-road equipment (those over 50 hp) are assumed to be Tier 4.

The analysis assumes that the onsite equipment are in the on position for 10 hours per day as a project design feature. This is a conservative scenario as the CalEEMod default assumes construction equipment would be on for 6 to 8 hours per day. This is used to calculate maximum daily emissions which are required for the regional analysis, because project emissions can occur on any day of the week.

Onsite equipment used during concrete pouring, which would most likely occur during the night, was assumed to occur over 24 hours to calculate the regional emissions for a worst-case 24-hour construction day. Concrete pouring phases that would include nighttime activity would occur for a maximum of one or two days for each planning area and not throughout the entire concrete pouring phase. It is assumed that during 24-hour concrete pour days, no other construction would occur on the project site. Therefore, in order to calculate annual average emissions, it is necessary to base emissions upon a realistic work schedule. The analysis assumes a more realistic annual

average use of construction equipment by assuming that the maximum equipment would occur for five days per week occurring for 10 hours per day (including the concrete pouring phase). In this way, an annual average and daily emission inventories were estimated.

## Construction Trips

Construction trips refer to the number of trips to the project site from offsite locations and include the following groups:

- **Workers:** These are trips from construction workers from their residence to the project site. The CalEEMod default worker trip length of 14.7 miles was increased to 25 miles, to account for a potentially longer commute distance for construction workers. The CalEEMod default vehicle fleet mix was used for employee trips.
- **Vendors:** These trips include water trucks and service/support trucks bringing smaller materials to the project site. The vendor trip length was increased from the default of 6.9 miles to 25 miles, to account for any additional trips and to account for deliveries from the greater Los Angeles area. The CalEEMod default vehicle fleet was used for vendor trips.
- **Haul Trucks:** Dump truck trips, support haul trucks, concrete trucks, and material delivery trips were represented as haul trips, with a mileage of 25 miles per trip (increased from the default of 20 miles). The CalEEMod default vehicle type was used for haul trips.

CalEEMod utilizes EMFAC2014 emissions factors for on-road sources. Therefore, construction trips emissions were calculated outside of CalEEMod using updated EMFAC2017 emissions factors. Calculations are included as Appendix A of this report. The vendor and haul trips for onsite travel (assuming trip length of 0.5 miles) and idling were also calculated using EMFAC2017 emissions factors. The CalEEMod default hp and load factors for water trucks, concrete trucks, and off-highway trucks were included in the onsite construction equipment by assigning hours per day to account for onsite travel and idling. The hp and load factors were used for each equipment as specified below:

- Water trucks and service support trucks: other material handling equipment, 1 hour per day per trip
- Concrete trucks: cement and mortar mixers, 1 hour per day per trip
- Delivery trucks, dump trucks, and support haul trucks: off-highway trucks, 0.3 hours per day per trip

## Fugitive Dust Estimates

### *Off-Road Equipment*

Approximately 42 million CY of cut and fill will be required to rough/mass grade the entire project site, including remedial grading and over-excavation. Grading is required to make the

land level before the building foundations are laid. Earthwork will balance on-site within the Specific Plan, eliminating the need to import or export dirt for the project.

During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each of those activities is calculated differently in CalEEMod based on the number of acres traversed by the grading equipment.

Only some pieces of equipment generate fugitive dust within CalEEMod during grading activities. However, there could be construction emissions occurring over the entire planning area because some equipment does not generate fugitive dust. As an example, the building forklifts lifting materials up would not generate fugitive dust. In addition, there could be groups of graders and scrapers working at different ends of the planning area. The dispersion modeling assessment assumes that emissions would occur over the entire planning area.

According to CalEEMod, only several types of onsite off-road construction equipment generate fugitive dust. These include scrapers, crawler tractors, graders, and rubber tired dozers. For a conservative approach, for this assessment, it was assumed that compactors, excavators, and backhoes also generated fugitive dust. The scrapers are assumed to impact 1 acre over an 8-hour day and the other equipment mentioned above would impact ½ acre over an 8-hour day.

SCAQMD Rule 403 requires fugitive dust generating activities to follow best available control measures to reduce emissions of fugitive dust. In particular, the project would need to comply with the requirements of a “large operation,” which requires more dust suppressant methods. Rule 403 states that for large operations, during earth moving, the soil moisture content must be at least 12 percent or water to prevent visible dust emissions from exceeding 100 feet in any direction. According to the SCAQMD’s Mitigation Measure Examples: Fugitive Dust from Construction & Demolition,<sup>56</sup> maintaining a 12 percent soil moisture would reduce fugitive dust by 69 percent. Therefore, for the unmitigated and mitigated emissions estimates, dust emissions from earth moving are reduced by 69 percent. These measures from Rule 403 are accounted for in CalEEMod as “mitigation” because they reduce emissions, even though they are technically not mitigation, but requirements. Rule 403 is accounted for in CalEEMod by watering three times per day, which would result in a 61 percent reduction in fugitive dust.

### ***Unpaved Road Dust***

There could be fugitive dust generated on unpaved roads from the employee vehicles, vendor vehicles, and haul trucks during construction. The emissions estimates for this dust were estimated using assumptions consistent with CalEEMod defaults. The mean vehicle speed was reduced from 40 miles per hour to 20 miles per hour. The percent paved was changed to zero percent. Construction parking would likely be near the paved roads; therefore, the onsite distance

<sup>56</sup> SCAQMD. 2007. Fugitive Dust Mitigation Measures. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-overview.pdf>

is an average of 0.5 mile per trip on unpaved roads. The average vehicle weight was increased from the CalEEMod default of 2.4 tons to 5 tons. All other CalEEMod defaults were used.

SCAQMD Rule 403 requires dust control measures on unpaved roads. Best available control measure 15-1 requires that all off-road traffic and parking areas be stabilized (gravel/paving). Best available control measure 15-2 requires that all haul routes be stabilized gravel/paving) and measure 15-3 requires that construction traffic be directed over established haul routes. In addition, large operations must choose one of the following to reduce dust from unpaved roads:

- (4a): Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8-hour work day]; or
- (4b): Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; or
- (4c): Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.

The fugitive dust reductions from the above control measures is quantified as follows; the smallest percent reduction is used in this analysis, which is from control measure 4a (60 percent reduction):

- (4a): According to the SCAQMD mitigation measure examples for Fugitive Dust from Construction and Demolition,<sup>57</sup> applying water every three hours results in a 61 percent decrease in PM<sub>10</sub>. Applying a 50 percent moisture content for unpaved roads in CalEEMod's "mitigation" module results in a 60 percent reduction in fugitive dust.
- (4b): CalEEMod's watering twice per day would result in a 55 percent reduction in fugitive dust. A 55 percent reduction in unpaved road dust occurs when the soil moisture level is 34 percent. Applying a speed limit reduction of 15 miles per hour and watering twice per day reduces fugitive dust by 64.7 percent reduction, according to CalEEMod calculations.
- (4c): According to the SCAQMD mitigation measure examples for Fugitive Dust from Unpaved Roads,<sup>58</sup> applying chemical dust suppressants results in an 84 percent reduction.

## Water Usage

There would be water used during construction to be compliant with SCAQMD Rule 403. Approximately 30 to 50 gallons of water are needed to compact each cubic yard of soil. If there would be 42 million cy of cut and fill, a total of 6,445 acre feet (2,100 million gallons) of water

<sup>57</sup> SCAQMD. 2007. Fugitive Dust Mitigation Measures. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-overview.pdf>

<sup>58</sup> SCAQMD. 2007. Fugitive Dust Mitigation Measures. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/fugitive-dust/fugitive-dust-overview.pdf>

would be required. The greenhouse gas emissions associated with water transport are calculated using CalEEMod in its operation module.

## Construction Waste

Greenhouse gas emissions associated with construction waste were estimated using the EPA's waste Reduction Model (WARM). The quantity of waste was estimated based on one construction waste case study and the 2008 California waste characterization study.

## 4.2 Operation

Operational emissions occur once the project commences operation. For purposes of this analysis, project buildout will occur in two phases. Therefore, operational emissions are analyzed for the Phase 1 buildout year and the full buildout year. The major sources of these emissions are summarized below.

To estimate some of the emissions on a year-by-year basis, the conceptual occupancy schedule for purposes of this analysis is shown in **Table 9**, *Conceptual Operational Occupancy Schedule*, based on the best current information. This schedule assumes that the square footage being constructed within each Plot will be occupied the following year and may vary in the future based on market demand factors associated with regional goods movement.

**Table 9**  
**Conceptual Operational Occupancy Schedule**

Year	Annual Addition (Millions of Square Feet)	Cumulative Total (Millions of Square Feet)
2020	0.00	0.00
2021	4.60	4.60
2022	4.60	9.20
2023	4.60	13.80
2024	4.60	18.40
2025	4.55	22.95
2026	1.80	24.75
2027	1.80	26.55
2028	1.85	28.40
2029	1.80	30.20
2030	1.80	32.00
2031	1.80	33.80
2032	1.80	35.60
2033	1.80	37.40
2034	1.80	39.20
2035	1.40	40.60

Note: The square footage includes logistics development and light logistics square footage and does not include fueling station, fire station, and convenience store.

## Motor Vehicle Emissions

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles and delivery trucks that would travel to and from the project site each day. The following procedures were used to estimate the mobile source criteria regional operational emissions, localized onsite emissions, and greenhouse gas emissions based on emission factors from the CARB EMFAC2017 mobile source emission model and emission information from the EPA dealing with paved road dust.

To quantify mobile source operational emissions, the following information is required:

- Trip generation – the number of vehicles that are expected to move to and from the project site each day.
- Vehicle fleet mix – the mix of vehicle types (i.e., automobiles, trucks, gasoline or diesel-fueled, etc.).
- Trip lengths – the distance each vehicle travels during each trips.
- Emission factors – the amount of emissions generated as a function of vehicle type, vehicle speed, calendar year, and vehicle model year for a given amount of vehicle idling time or distance traveled.

### Trip Generation Rates

Trip generation quantifies the number of trips that a project generates each day during all facets of its operations. The trip generation is determined by multiplying an appropriate trip generation rate for a particular land use descriptive of the project by the quantity of that land use. Trip generation rates are determined for daily traffic, morning peak hour inbound and outbound traffic, and the evening peak hour inbound and outbound traffic for the proposed land use. The trip generation rates use for this project were derived from the project traffic impact analysis (TIA) prepared by WSP USA.<sup>59</sup> The trip generation rates applied in this assessment are shown in **Table 10, Trip Generation Rates**.

**Table 10**  
**Trip Generation Rates**

Land Use	Units	Daily Trip Rate
High Cube Logistics Center	KSF	1.40
Light Logistics	KSF	1.74
Existing Utilities Servicing Station	KSF	13.24
Gas Station with Convenience Store	Fuel Pumps	31.61
Convenience Store	KSF	321.87
Fire Station	Number	137

KSF = thousands of square feet

Source: WSP USA Inc. Traffic Impact Analysis Report for The World Logistics Center. June 2018

<sup>59</sup> WSP USA, Inc. Traffic Impact Analysis Report for The World Logistics Center. June 2018

Working jointly with the National Association of Industrial and Office Properties (NAIOP), the SCAQMD conducted a trip generation study for high-cube warehouses, the predominant form of land use for the project, High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016). The study replaces the earlier, smaller studies that produced conflicting results and created uncertainty regarding the amount of traffic generated by the newer, more automated type of high-cube warehouse proposed for the project. The results of the study for high-cube warehouse trip generation has been incorporated into the 10<sup>th</sup> edition of the Institute of Traffic Engineers (ITE) Trip Generation Manual. The trip generation rates included in this study for high-cube warehouse uses and trip rates from the 10<sup>th</sup> edition of the ITE Trip Generation Manual have been used for other proposed land uses.

## Vehicle Fleet Mix

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of calendar year, vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The vehicle fleet mix for the project is based on the assumptions contained in the TIA. The TIA provided a vehicle fleet mix for passenger cars, light duty trucks, medium duty trucks, and heavy duty trucks. For purposes of this assessment, the EMFAC2017 mobile source model was used to derive a complete mix of vehicles consisting of the following vehicle classes (some vehicle classes have been separated into subclasses based on vehicle weight):

- Passenger Car: light duty automobiles (LDA), and light duty trucks (LDT1 and LDT2) – identified as passenger cars in the TIA.
- Light Trucks: medium duty trucks (MDT) – identified as Light Trucks in the TIA.
- Medium Trucks: light-heavy duty trucks (LHDT1 and LHDT2) with a gross weight of between 8,501 pounds and 14,000 pounds – identified as Medium Trucks in the TIA.
- Heavy Trucks: medium-heavy duty trucks (MHDT) and heavy-heavy duty trucks (HHDT) with gross weight of 14,001 to 33,000 pound and 33,000-plus pounds, respectively – identified as Heavy Trucks in the TIA.

The EMFAC2017 model was also used to subdivide each vehicle class by electric, gasoline, diesel, and natural gas vehicles for each analysis year.

Two types of trip generation data were estimated for this assessment:

- Daily average: The daily average trip generation and VMT is representative of daily operations and is characterized by the total amount of vehicle trips and their travel distance during an operational day. The daily vehicle trips, VMT, and fleet mix were provided by the TIA and used to estimate the daily regional emissions from the operation of the project as a project's vehicles travel to and from the project site through the South Coast Air Basin. The daily vehicle trips and fleet mix were also used to estimate local daily and annual air quality impacts to the areas surrounding the project site.

- Peak hour: The peak hour vehicle fleet mix represents the number and mix of vehicles that would access the project during the peak hour of traffic. The peak hour information was provided by the TIA and used to estimate 1-hour and 8-hour local air pollutant impacts as well as for the estimation of acute non-cancer hazards.

Forecasted trip generation and vehicle miles traveled (VMT) contained in the TIA were used to estimate the project's motor vehicle emissions. The traffic model provided estimates of project traffic volumes segregated by vehicle class as passenger cars, light heavy duty trucks, medium heavy duty trucks, and heavy-heavy duty trucks. The TIA provides VMT attributable to the project based on the net effect the project has on regional travel as well as project VMT without consideration of a net effect. The net effect includes consideration that creation of a job center (the project) would redistribute existing regional travel and result in shorter employee trips. Freeway and non-freeway VMT and speed data, as provided by WSP, were utilized to determine the appropriate emission factors to apply to project trips from the EMFAC2017 model. In calculating the operational traffic emissions, the VMT per speed was based on daily speed data provided by WSP. Emissions factors vary by speed bin. Therefore, accounting for variations in speed attributable to slow downs occurring during peak hours provides a realistic representation of project mobile emissions.

For purposes of the health risk assessment, peak hour intersection turning movement volumes provided by the TIA for the project area were utilized in order to assign emissions to specific roadway and freeway segments to determine risk. The traffic model is composed of a series of traffic segments that represent the flow of traffic from one geographic point to another. The project's motor vehicle traffic volumes were estimated using the number of peak hour vehicles forecasted by the regional traffic model. The output of the traffic model is in the form of two-way traffic flows for each traffic segment. For each roadway segment, the total number of vehicles was forecasted. The number of vehicles was then broken down into several vehicle types, as described above. Motor vehicle emissions were then estimated for each roadway segment by using the traffic volumes extracted from the traffic model forecasts, the length of the roadway segment, and the emission factors from EMFAC2017.

Mobile emissions utilize EMFAC2017's projected vehicle fuel mix for Project milestone years 2025 and 2035, which are associated with Phase 1 buildout and project full occupancy, respectively. EMFAC2017 does not include population assumptions for electric trucks. The potential penetration of electric trucks and potential use in association with the project has been analyzed by ESA.<sup>60</sup> Although the State has set targets for zero-emission vehicles, it would be speculative to assume that any EV Penetration scenarios would be practicable or feasible. Therefore, as a worst-case analysis, the greenhouse gas analysis included herein does not factor in any potential emissions reductions provided by electric or natural gas-fueled trucks. For informational purposes only, emissions associated with a Medium EV Penetration Scenario has been taken into account to show further emissions reduction potential.

---

<sup>60</sup> ESA. World Logistics Center Transportation Energy Technical Study. June 2018

### ***Local Travel***

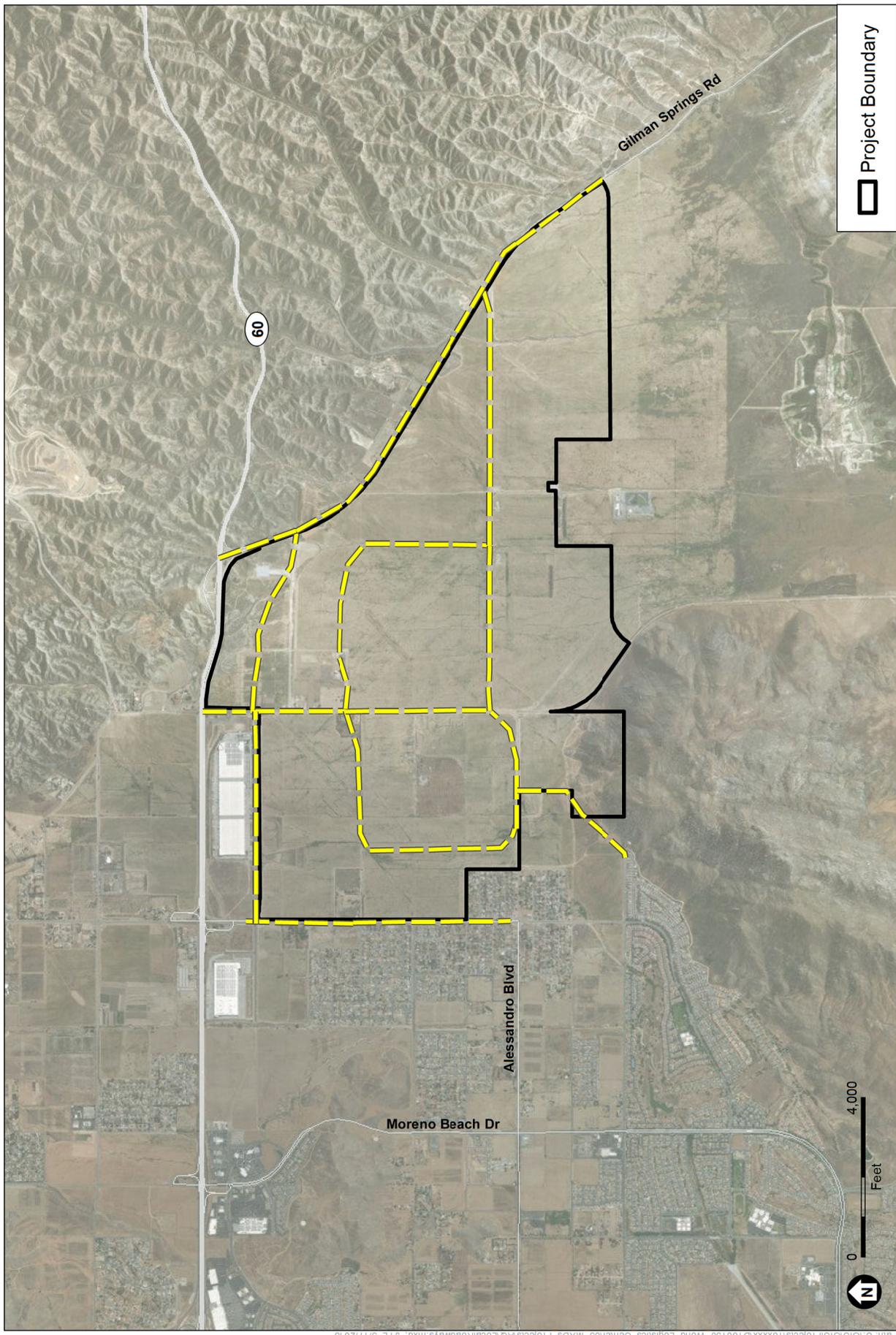
The automobile and truck traffic generated by the project would travel along several local roadways within and bordering the area of the project including Redlands Boulevard, World Logistics Center Parkway, Gilman Springs Road, Alessandro Boulevard, and Eucalyptus Avenue. As the project traffic travels along the roadway network, this traffic would generate air emissions. To examine the local air quality impacts from the project vehicles during operation along the local roadway network, a number of roadway segments were identified for analysis as described in the TIA.

The local roadway segments analyzed in this assessment are identified in Figure 18. The TIA only provided peak hour turning movement volumes along each of the roadway segments for passenger cars, and light, medium, and heavy trucks during the existing, Phase 1 interim year, and buildout year. For purposes of the health risk assessment, the average of the AM and PM peak hour volumes were multiplied by 10 to estimate daily traffic volumes along each of the studied roadway segments.

The localized air quality analysis also addressed vehicle travel and idling within the truck yards of each phase of the project site. The exact physical locations and sizes of the various buildings that would comprise the project are unknown at this time. However, average trip lengths within the truck yards for the project's two phases and individual land uses was estimated based on a review of the location of transportation analysis zones located within the project boundaries and the placement of the existing and planned local roadway network that would comprise the project. For this purpose, an average truck trip length of 1,080 feet was assigned to the high cube development truck yard areas, 574 feet for the light logistics land uses truck yards, 330 feet for the gas utility land use, and 160 feet for the fueling station/convenience store and fire station land uses.

### ***Regional Travel***

The project's motor vehicles would also travel along numerous regional roadways outside of the project boundaries including local surface street and freeways. Figure 19 shows the local surface street roadway network analyzed and Figure 20 shows the freeway segments analyzed.

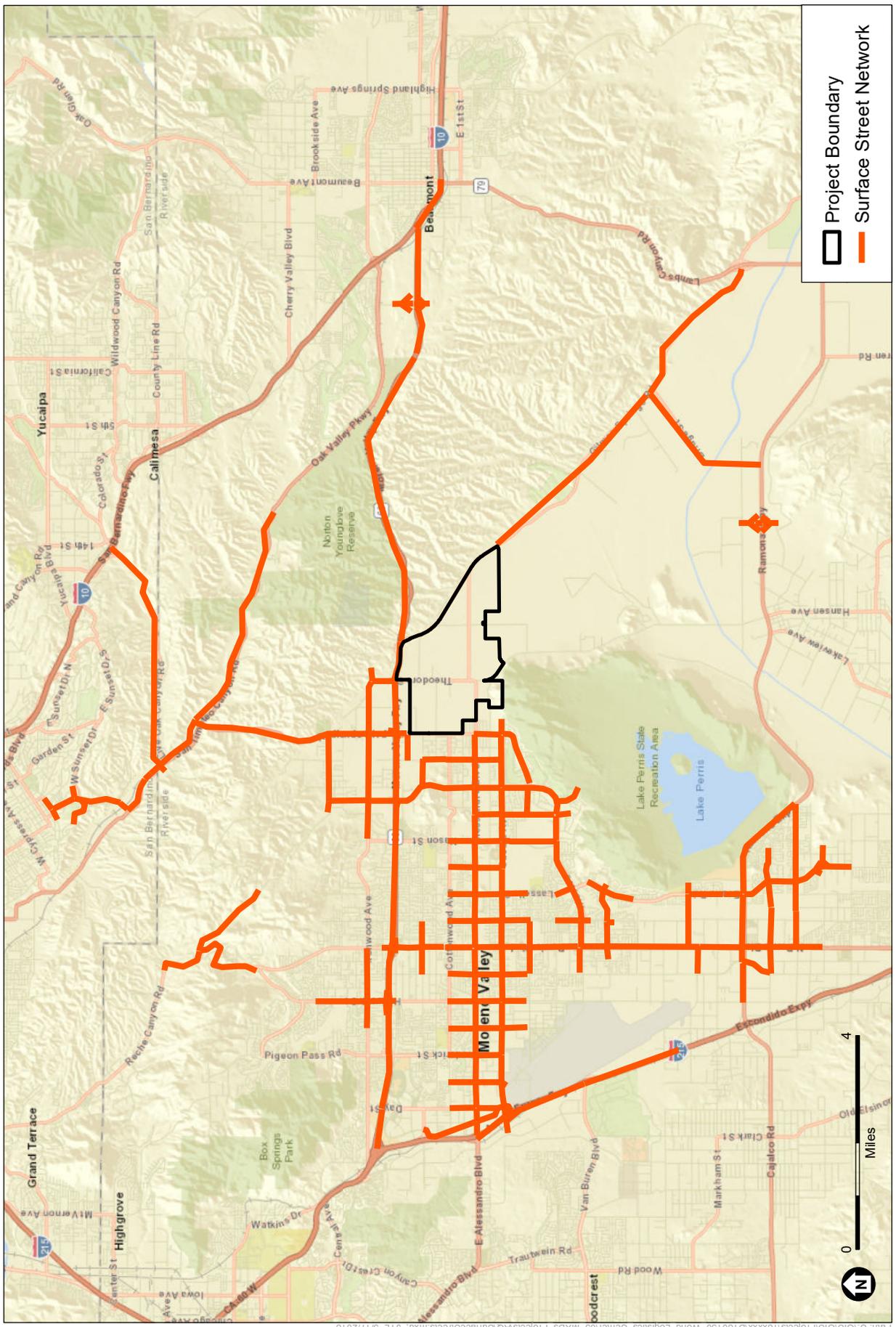


World Logistics Center  
**Figure 18**  
 Local Roadway Network Analyzed in the  
 Local Air Quality and Health Risk Assessment

SOURCE: ESRI 2016; ESA 2018



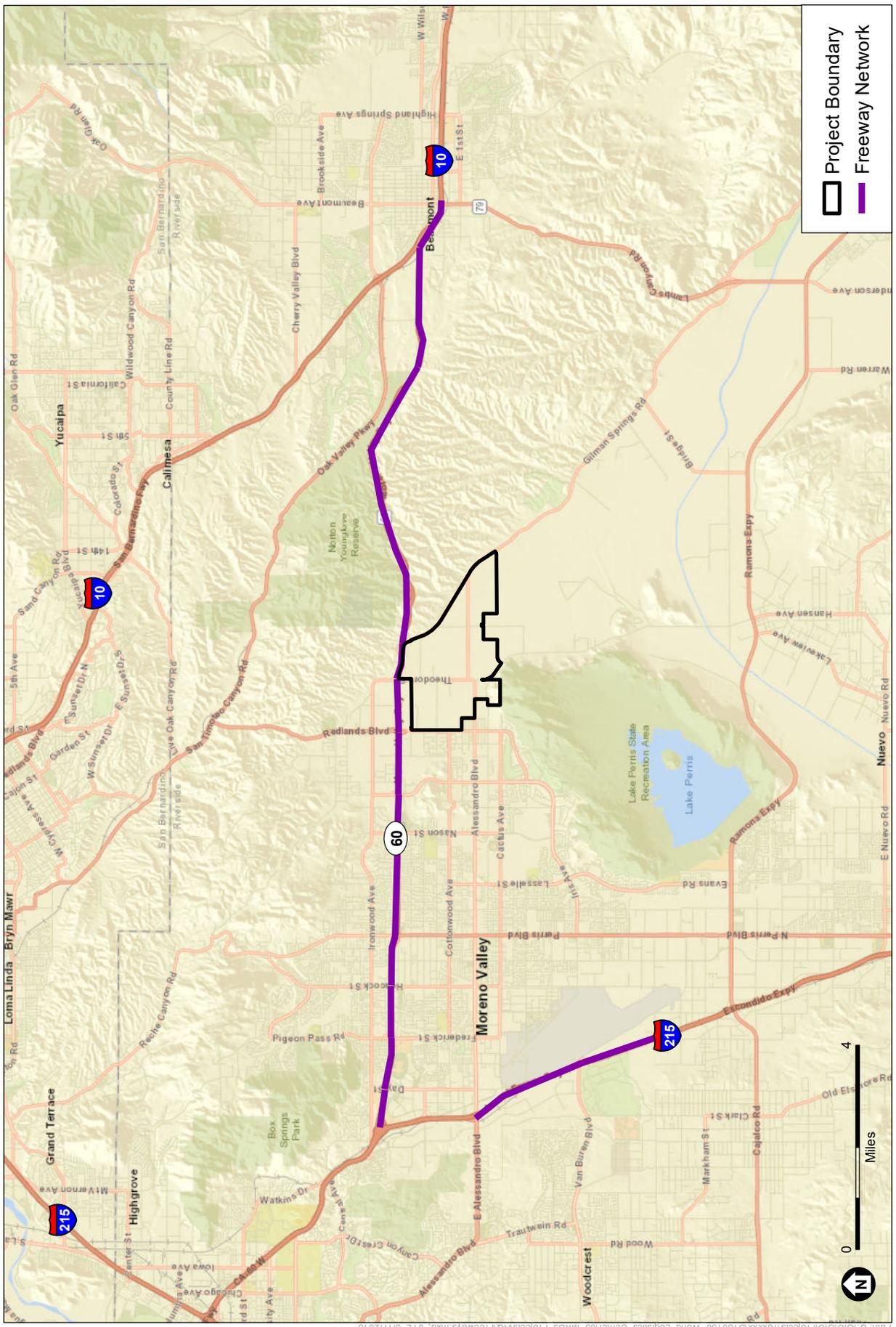
Path: U:\GIS\Projects\18xxxx\180130 World Logistics Center\03 MXDs Projects\LocalRoadways.mxd, JYL 5/17/2018



World Logistics Center  
**Figure 19**  
 Surface Street Network Analyzed in the  
 Health Risk Assessment

SOURCE: ESRI 2016; ESA 2018





World Logistics Center  
**Figure 20**  
 Freeway Network Analyzed in the  
 Health Risk Assessment

SOURCE: ESRI 2016; ESA 2018



Path: U:\GIS\Projects\118xxx\1180130 World Logistics Center\03 MXDs Projects\AO\Freeways.mxd, JYL 5/17/2018

## Emission Factors

There are emission factors available through EMFAC for VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>. There are no emission factors available for black carbon or ultrafine particles. Emissions from motor vehicles can be characterized as follows:

- **Combustion Emissions (grams/mile traveled or grams/hour for idling):** Combustion emissions (i.e., exhaust emissions) result from the combustion of fuel and are the main source of emissions for all pollutants for the project. EMFAC2017 has the capability to provide emission rates for user defined user speeds, fuel type, vehicle class, and model year.
- **Running Loss (grams/mile):** Running loss emissions are defined as evaporative hydrocarbons that are emitted from hoses, fittings or canisters, while the vehicle is in operation. This occurs either because fuel heating as caused the vapor generation rate to exceed the vehicle's capacity to control the vapors, or through permeation and leakage (VOC only).
- **Diurnal and Resting Loss (grams/vehicle):** Diurnal and resting loss emissions are evaporative hydrocarbons. Diurnal emissions result from a sitting vehicle as the ambient temperature rises. Resting loss emissions result from a sitting vehicle as the ambient temperature declines or remains constant.
- **Tire wear (grams/mile): and Brake Wear (grams/mile):** EMFAC has the capability to provide particulate emissions from tires and brakes that occur from operational wear (PM<sub>10</sub> and PM<sub>2.5</sub> only).
- **Road Dust (grams/mile)** is generated from re-suspension of loose particulate material from the surface of the road as a result of movement of vehicles and wind flow. Road dust emissions are primarily a factor of the amount of re-suspendable particulate matter available on the road surface and the traffic flow volume on the road. The estimation of road dust emissions was based on the methodology presented by the EPA in its assessment of road dust emissions from paved roads (PM<sub>10</sub> and PM<sub>2.5</sub> only).

The EMFAC2017 emission factors were developed for the South Coast Air Basin on an annual basis. To derive the basin-wide emission factors, the emission factors were developed as a weighted average of the county emission factors from the four counties that comprise the South Coast Air Basin, weighted by the vehicle miles traveled in each county.

Motor vehicle emissions for each category of emissions were estimated for vehicle travel within the project's truck yards, along adjacent and internal roadways, and truck idling within the project's truck yards.

Truck idling emissions assumed that each heavy duty truck would idle 5 minutes per day prior to mitigation, pursuant to the ARB Air Toxic Control Measure limiting the idling time for heavy duty diesel trucks and the World Logistics Center Specific Plan.

Emission factors for the year 2020 are used for the “worst-case” scenario. Phase 1 of the project used emission factors from the year 2025, and Phase 2 of the project used emission factors for the year 2035. For the mitigated version, the emission factors were modified to reflect the mitigation measure that requires the use of model year 2010 or newer trucks for all medium-heavy duty (MHDT) and heavy-heavy duty diesel (MHDT) trucks associated with the project.

Emission factors for the year 2020 were used for the “worst-case” scenario. Interim year 2025 (Phase 1 buildout) of the project used emission factors from the year 2025, and horizon year 2035 (Phase 2 buildout) of the project used emission factors for the year 2035. For years 2021 through 2024 and years 2026 through 2034, emissions factors and the Project’s net effect on VMT were interpolated and scaled using data from 2025 and 2035 in order to provide an estimate of emissions and potential overlap of construction and operational emissions. For the mitigated scenario, the emission factors were modified to reflect the mitigation measure that requires the use of model year 2010 or newer trucks for all heavy-duty diesel trucks associated with the project. Note that emissions from the existing on-site residence and fugitive dust that would be removed were not included in this analysis as a worst-case scenario.

### ***A Note About Operational Heavy-Duty Truck Emissions***

The majority of the project’s operational emissions are from on-road mobile sources, more particularly, heavy-duty trucks that contribute a disproportionate amount of emissions compared to passenger vehicles. Emissions from on-road mobile sources are regulated at the state and federal levels, and therefore, are outside of the control of local agencies such as the City and the SCAQMD. For example, the EPA is working closely with the EPA, engine, and vehicle manufacturers, and other interested parties to identify programs that will reduce emissions from heavy-duty diesel vehicles in California. In its “Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles,” the ARB presented a blueprint for achieving a 75 percent reduction in diesel particulates by 2010 and an 85 percent reduction by 2020 from the 2000 baseline.<sup>61</sup> The emission reductions would arise from a combination of measures including the use of ultra-low sulfur diesel fuel, new emission standards for large diesel engines, restrictions on diesel engine idling, addition of post-combustion filter and catalyst equipment, and retrofits for business and government diesel truck fleets. The implementation of these emission reductions will also result in reductions of other pollutants such as NO<sub>x</sub>, VOC, and CO. As these emission reduction programs are implemented and there is a turnover in the use of older vehicles with newer and cleaner vehicles, the project’s operational emissions are expected to decline significantly in the future.

Emission controls on mobile source vehicles already adopted by the ARB particularly dealing with NO<sub>x</sub> and PM<sub>10</sub> controls on heavy duty trucks will reduce truck emissions significantly over the next 10 years. Today’s vehicle fleet (assumed to be 2020) is comprised of vehicles as old as 25 years and generates substantially more emissions than the vehicles that would replace them in the future.

---

<sup>61</sup> CARB. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles. <https://www.arb.ca.gov/diesel/documents/rrpfinal.pdf>

## Greenhouse Gases

EMFAC2017 has emission factors for the greenhouse gases carbon dioxide and methane. Greenhouse gas emissions from mobile vehicles were estimated using the same procedures as shown above for carbon dioxide, nitrous oxide, and methane.<sup>62</sup> The emissions were estimated in tons per year and were converted to MTCO<sub>2</sub>e by multiplying the greenhouse gas by its global warming potential (1 for carbon dioxide and 21 for methane) and then multiplying it by 0.9072 (a conversion from tons to metric tons). The emissions factors from EMFAC2017 include reductions from the following regulations:

- Regulation – Pavley (AB 1493): Clean car standards to reduce greenhouse gas emissions from new passenger vehicles (LDA-MDV) from 2009 to 2016.
- Regulation – Low Carbon Fuel Standard (Executive Order S-01-07): The low carbon fuel standard would reduce carbon intensity in fuels. Carbon intensity is a measure of the greenhouse gas emissions associated with production and use of a fuel. Fuels like natural gas from landfills, dairy biogas, and biodiesel have lower carbon intensity than gasoline or diesel.

Black carbon emissions were estimated based on the diesel PM<sub>2.5</sub> emissions discussed below.

## Other Emission Sources

There are other emission sources besides mobile vehicles during operation of the project. VOC emissions would be emitted during the occasional repainting of buildings and from consumer products. Criteria pollutants and greenhouse gases would be emitted from landscaping, natural gas usage, onsite yard trucks, onsite forklifts, and onsite emergency generators. Greenhouse gases would be emitted from electricity, water and wastewater, refrigerants, and solid waste generation. There would also be some sequestration from the onsite trees that would be planted on the project site as a result of the project. These emission sources are discussed below.

### Architectural Coatings (Painting)

Paints release VOC emissions. The buildings in the project would be repainted on occasion. Painting emissions were estimated by CalEEMod using default assumptions for buildout and estimated for the previous years based on square footage shown in Table 9.

### Consumer Products

Consumer products are various solvents used in non-industrial applications that emit VOCs during their product use. “Consumer Product” means a chemically formulated product used by household and institutional consumers including, but not limited to, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden

<sup>62</sup> Running emissions for N<sub>2</sub>O are from EMFAC 2017 and Idling emissions are from the EPA. U.S. EPA. 2014. Emission Factors for Greenhouse Gas Inventories. [https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)

products; disinfectants; sanitizers; aerosol paints; and automotive specialty products; but does not include other paint products, furniture coatings, or architectural coatings.<sup>63</sup>

The default emission factor developed for CalEEMod is based on a statewide factor and is not applicable to the project. The entire project would not use consumer products as specified above. The warehouses may have small kitchen areas and bathrooms that would use cleaning products. The majority of the square footage for the project would be used for warehousing/distribution. Negligible quantities of personal care products, home, lawn, and garden products, disinfectants, sanitizers, polishes, cosmetics, and floor finishes would be used. In addition, the buildings in the project would be LEED certified; LEED has a variety of credits available for use of low emitting materials. Therefore, to estimate VOC emissions from the project, the emission factor is reduced to 25 percent of its original value, to 5.1E-6 pounds VOC per day per square foot.

## Landscape Equipment

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. CalEEMod estimated the landscaping equipment using the default assumptions in the model. Emissions were estimated for buildout and interpolated for the previous years based on square footage in Table 9.

## Electricity

There would be emissions from the power plants that would generate electricity to be used by the project (for lighting, etc.). Emissions were estimated using electricity generation numbers provided by WSP for 2025 and buildout and interpolated for the previous years based on square footage in Table 9.

The Moreno Valley Electric Utility (MVU) would provide electricity for the project, however Southern California Edison (SCE) annual emission factors from 2020 through 2064 were used as a proxy for calculating GHG emissions. As described in Section 4.7.2.2, SB 100 increased California's Renewables Portfolio Standard and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 60 percent of retail sales by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 also mandated interim RPS milestones of 44 percent of retail sales by December 31, 2024, and 52 percent by December 31, 2027. To achieve the RPS mandate, utilities such as MVU and SCE are expected to steadily increase their renewable resources for energy production. This assumption is appropriate because utilities have steadily increased the percentage of energy obtained from renewable resources in response to existing mandates. Therefore, all electricity consumption would decrease in GHG intensity (i.e., emissions generated per kilowatt-hour) as the RPS milestones are met.

---

<sup>63</sup> CARB. 2011. Regulation for Reducing Emissions from Consumer Products.  
<https://www.arb.ca.gov/consprod/regs/fro%20consumer%20products%20regulation.pdf>

For estimating electricity emissions for the Proposed Project through the expected life of the project, CO<sub>2</sub>e intensity factors were projected for each operational year through 2064, based on RPS compliance.

Building annual electricity for the project would consume approximately 174,423 MWh per year in 2025 and 298,084 MWh per year in 2035. EV charging annual electricity under the Medium EV Penetration scenario would consume 9,157 MWh per year in 2025 and 127,132 MWh per year in 2035.

## Natural Gas

There would be emissions from the combustion of natural gas for the project (heat and the CNG/LNG fueling station). The Project is not expected to generate demand for natural gas. The Project would mostly comprise high-cube warehouses that do not require heating from natural gas. The spaces that do require heating are ancillary office spaces. Because all heating and cooling is provided via direct evaporative cooling and heat pumps, natural gas is not required. This allows the Project to reduce on-site fossil fuel combustion that would normally be associated with service water and space heating. The Title 24 Baseline scenario assumes compliance but not exceedance of energy standards and includes annual natural gas use equating to 51,274 MMBtu in 2025 and 84,771 MMBtu at buildout. As such, the Project would result in a 100 percent decrease in consumption of natural gas from the Title 24 Baseline scenario for both Phase 1 and Full Buildout.

## Wastewater

Depending on the type of wastewater treatment plant, there could be emissions from treatment of wastewater. However, the project's wastewater would be transferred to the Eastern Municipal Water District's Moreno Valley Regional Water Reclamation Facility. The facility was upgraded with fuel cell cogeneration. A digester gas-fueled fuel cell system provides power and heat to the plant while using all available digester gas.<sup>64</sup> CalEEMod was used to determine emissions from wastewater.

## Water

There would be greenhouse gas emissions from the use of electricity to pump water to the project. The applicant conducted a water usage analysis; therefore, CalEEMod default water usage is not used. Emissions for buildout are estimated and calculated for prior years based on the square footage anticipated in those years. Emissions from years occurring after buildout are assumed to be affected by SB 100 and would gradually decrease to zero once 100 percent renewable electricity is reached in 2045.

---

<sup>64</sup> Carollo Engineers. Moreno Valley Regional Water Reclamation Facility Fuel Cell Cogeneration Design and Construction. <https://www.carollo.com/projects/moreno-valley-regional-wrf-fuel-cell-cogeneration-design-and-construction>. Accessed May 2018.

## Refrigerants

Refrigerants may be used in air conditioning for the office component of the warehouses. Refrigerants are hydrofluorocarbons and have a relatively high global warming potential around the range 1,000 to 3,000. The emissions take into account reductions from SCAQMD's Rule 1415, which require registration, refrigerant leak inspections, and refrigerant leak repairs. Procedures and assumptions for estimating the emissions are shown in Appendix F. The emissions are estimated in tons of hydrofluorocarbons and are converted to MTCO<sub>2</sub>e.

## Solid Waste: Operation

Greenhouse gas emissions would be generated from the decomposition of solid waste generated by the project. Operational waste from the project would initially be delivered to the Badlands Sanitary Landfill, which installed a landfill gas energy capture recovery system in 2011. The project is estimated to generate approximately 38,165 tons of solid waste per year. Emissions at buildout are estimated by CalEEMod and are applied to earlier years based on a percentage of the square footage assumed to be operational.

## Yard Trucks

According to a project design feature, the yard trucks could be powered by natural gas, propane, or electricity. Therefore, diesel is not assumed for the yard trucks. For the Port of Los Angeles activities, the most common fuel for yard trucks besides diesel is propane.<sup>65</sup> Therefore, emissions are based on assuming that the yard trucks are powered by propane. It is assumed for purposes of this analysis that there would be two yard trucks at each facility in the on position for seven hours per day.

## Emergency Generators

Emissions from emergency generators would result during testing and maintenance. It is assumed that there would be one generator per 1.5 million square feet based on the current equipment in operation at the adjacent Skechers warehouse north of the project. The generators were assumed to operate for a total 50 hours per year per generator for routine testing and maintenance purposes, with all generators operating for one hour on the same day to estimate the maximum daily emissions. For the unmitigated emissions, the generator is assumed to be Tier 4 diesel. For the mitigated emissions, it is assumed that the generators would be fueled by natural gas.

## Forklifts

It is assumed that there would be five natural gas forklifts per light logistics planning area, and assuming three light logistics areas, there would be a total of 15 natural gas forklifts. It is assumed that the warehouses would have electric forklifts, as they would primarily operate inside.

---

<sup>65</sup> Port of Los Angeles. 2012. Port of Los Angeles Inventory of Air Emissions – 2012. [https://www.portoflosangeles.org/pdf/2012\\_Air\\_Emissions\\_Inventory.pdf](https://www.portoflosangeles.org/pdf/2012_Air_Emissions_Inventory.pdf)

## Land Use Change

The project would change the land use from pervious surfaces to impervious (buildings, asphalt, concrete) thereby reducing potential carbon sequestration from the existing farmland. CalEEMod has default accumulation for “cropland” of 6.2 tons CO<sub>2</sub>/acre/year. However, since the project site is dry farmed and therefore would have less carbon accumulation, a different method was chosen to estimate these emissions. These emissions are included in the operational greenhouse gas emissions. The assumptions are shown in **Table 11**, *Land Use Change*.

**Table 11**  
**Land Use Change**

Vegetation Land Use Type	Vegetation Land Use Subtype	Initial Acres	Final Acres	Carbon Sequestration (MTCO <sub>2e</sub> /acre/year)
Cropland	Cropland	2,610	45	0.45

Source of acres: Project description

Source of carbon sequestration: Brown and Huggins 2010; Table 1 in the article presents a range of carbon sequestration for dryland agriculture; the highest of the range was selected (0.90 Mg C ha<sup>-1</sup> yr<sup>-1</sup>) and was converted by multiplying by 1.24 (the conversion of Mg to MTCO<sub>2e</sub>) and dividing by 2.47 (conversion of ha to acres).

## Carbon Sequestration (New Trees)

The project would plant trees and integrate landscape into the project design, thereby increasing carbon sequestration. Carbon sequestration is the process of capture and storage of carbon dioxide; trees and vegetation store carbon in their tissues and wood. There is no estimate of the number of trees to be planted in the Specific Plan. The Specific Plan indicates the following regarding trees:

- Streetscapes: The Specific Plan (Section 4.2.3) indicates that trees are required along all street frontages.
- Parking area: Specific Plan measure 5.4.3 requires that landscaping in parking areas comply with the standards contained in the Municipal Code.
- Tree size: Specific Plan measure 5.3.4 specifies that all trees are to be a minimum of 15 gallons.
- Building perimeters: Specific Plan measure 5.3.5 indicates that trees along building and site perimeters are required at a minimum average spacing of 1 tree per 30 linear feet of perimeter.

The number of trees is estimated as shown in **Table 12**, *Estimated Tree Inventory*. This inventory does not represent actual future plantings, which would be refined later during individual building plans. There would also be trees in the project entryways, the roundabouts, the open space areas, and the detention areas; however, those were not included to be conservative.

**Table 12**  
**Estimated Tree Inventory**

<b>Project Location</b>	<b>Tree Inventory Calculation Details<sup>4</sup></b>	<b>Tree Species<sup>3</sup></b>	<b>Trees</b>
Automobile parking	1 tree/6 stalls x 10,981 stalls <sup>1</sup>	Average <sup>2</sup>	1,830
Building perimeters	Assuming an average of 1,500,000 sf per building; taking the square root and multiplying by 4 yields the building perimeter (4,900 ft x 27.8 buildings – 136,220 ft); 1 tree per 60 ft	Average <sup>2</sup>	2,270
Redlands Boulevard, Bay Street	Length = 6,642 ft/40 ft (1 side of road)	Pine	55
		Blue Palo Verde	55
		Sweet Acacia	55
Gilman Springs Road	Length = 12,257 ft/40 ft (1 side only)	Afghan Pine	59
		Date Palm (25' trunk height)	59
Street A	Length = 8,656 ft/40 ft x 2 sides of street	Chilean Mesquite/ Algarrobo	216
		Mexican Fan Palm (30' trunk height)	216
Eucalyptus Street	Length = 5,350 feet/ 40 ft (1 side of road)	Brisbane Box	45
		Afghan Pine	45
		Date Palm (30' trunk height)	45
Street B	Length = 4,418 ft / 40 ft x 3 (two sides of street and median)	Brisbane Box	330
Streets C, D, E, F, G, H	Length = 38,363 ft/ 40 ft x 2 sides of street	Chilean Mesquite/ Algarrobo	1,918
<b>Total</b>			<b>7,504</b>

## Notes:

- 1 Table 9.11.040C-12 in Moreno Valley Code states that warehouse and distribution uses are required to have 1/1000 sf of gross floor area for the first 20,000 sf; 1/2000 sf of gross floor area for the second 20,000 sf; 1/4000 sf of gross floor area for areas in excess of the initial 40,000 sf. Assuming 27.8 buildings each 1,500,000 sf in size yields 10,981 stalls.
- 2 The tree types are not specified in the Specific Plan; therefore, the carbon sequestration rate for the average was used.
- 3 If more than one species is listed for a project location, the species are distributed evenly.
- 4 Calculations assume one tree per 40 feet of distances listed, as an average.

Source: World Logistics Center Specific Plan

Although CalEEMod does have calculations to estimate carbon sequestration from new trees, the carbon sequestration rates from the Center for Urban Forest Research (CUFR) Tree Carbon Calculator provide specific species information. As a comparison, CalEEMod has a sequestration rate of 0.0354 metric tons per miscellaneous tree per year. **Table 13, Tree Carbon Sequestration Rates (Age of Tree)**, displays the carbon dioxide sequestration rates per tree from the CUFR Tree Carbon Calculator for tree species at 5 years and 10 years old. As shown in the table, generally, the older the tree is, the higher the sequestration rate. Therefore, for purposes of this analysis, the rate at five years is used because it assumes less carbon sequestration.

**Table 13**  
**Tree Carbon Sequestration Rates (Age of Tree)**

Tree Species	Code	CO <sub>2</sub> Sequestration (lb/tree/year)	
		5 years	10 years
Afghan pine	PIBR2	47.3	161.0
Blue palo verde	CEFL	14.6	53.3
Brisbane box	TRCO	40.1	36.8
Chilean mesquite/ Algarrobo	PRCH	36.1	100.3
Crape myrtle sp.	LAIN	2.0	3.6
Desert willow	CHLI	4.9	15.1
Sweet acacia	ACFA	17.0	38.0
Sycamore	PLRA	41.7	109.5
Average	--	24.0	55.4

Note:

The rate at 5 years is used in this analysis; 10 years is shown for informational purposes, to demonstrate that the tree will increase sequestration rates overtime. The Codes for the trees are listed in the event that the reader wants to duplicate the modeling; the code makes it easier to conduct the modeling.

Source: CUFR Tree Carbon Calculator (2012) – the model does not provide model output

**Table 14**, *Tree Carbon Sequestration Rates (Height of Tree)*, displays the carbon sequestration rates for the height of the tree, which is used as surrogate for two tree types that do not have data for the age of the tree. The lower tree height (25 feet) is used in this analysis.

**Table 14**  
**Tree Carbon Sequestration Rates (Height of Tree)**

Tree Species	Code	CO <sub>2</sub> Sequestration (lb/tree/year)	
		5 years	10 years
Date Palm	PHDA4	14.8	15.0
Mexican Fan Palm	WARO	26.9	26.4

Source: CUFR Tree Carbon Calculator (2012) – the model does not provide model output

**Table 15**, *Tree Carbon Sequestration Estimates*, displays the carbon sequestration estimates for the new trees that would be planted on the project site. As shown in the table, the trees would absorb 111 tons per year.

**Table 15**  
**Tree Carbon Sequestration Estimates**

Type of Tree	Trees	CO <sub>2</sub> Sequestration (lb/tree/year)	CO <sub>2</sub> Sequestration (tons/year)
Average	4,100	24.0	49
Afghan pine	465	47.3	11
Blue Palo Verde	55	14.6	<1
Sweet Acacia	55	17.0	<1
Date Palm	104	14.8	1
Chilean Mesquite/ Algarrobo	2,134	36.1	39
Mexican Fan Palm (30' trunk height)	216	26.4	3
Brisbane Box	375	40.1	8
<b>Total</b>	<b>7,504</b>	<b>--</b>	<b>111</b>

Source: Calculated using the data in prior tables.

## Black Carbon

As discussed above, there is substantial uncertainty in estimating greenhouse gas impacts from black carbon emissions at this time. In addition, black carbon is not considered a “greenhouse gas” according to AB32. Nevertheless, black carbon emissions from construction and operation are estimated.

### Emissions Methodology

The methodology used in estimating black carbon emissions is from EPA’s Report to Congress on Black Carbon (EPA 2012). Essentially, PM<sub>2.5</sub> emissions are converted to black carbon emissions by application of speciation factors. The equation:

$$\text{PM}_{2.5} \text{ Emissions (in tons)} \times \text{fraction of PM}_{2.5} \text{ that is black carbon} = \text{black carbon emissions}$$

The speciation factors of black carbon as a percentage of PM<sub>2.5</sub> are from Table A1-5 and associated text in the EPA’s Report to Congress on Black Carbon (EPA 2012). The only sources in this greenhouse gas analysis that assume a portion of black carbon emissions are as follows:

- **Construction.** 77 percent of the PM<sub>2.5</sub> exhaust emitted during construction is assumed to be black carbon.<sup>66</sup> PM<sub>2.5</sub> exhaust was estimated using CalEEMod, which is converted to black carbon emissions.
- **Operational mobile – heavy duty.** The EPA’s report identifies diesel heavy-heavy duty trucks (HHDT) may have 77 percent black carbon out of the PM<sub>2.5</sub> exhaust emissions. Therefore, this percentage is applied to the following vehicle classes: diesel light-heavy duty trucks (LHDT1 and LHDT2), diesel medium-heavy duty trucks (MHDT), and HHDT. The black carbon emissions are estimated in the PM<sub>2.5</sub> spreadsheets in Appendix B.
- **Operational mobile – light duty.** The EPA report indicates that 64 percent of PM<sub>2.5</sub> exhaust emissions for light duty diesel vehicles may be black carbon.<sup>67</sup> Therefore, this percentage is applied to the following vehicle classes: diesel light duty trucks (LDT1 and LDT2) and medium duty trucks (MDT).
- **Natural gas.** 38 percent of the PM<sub>2.5</sub> emissions from natural gas usage is assumed to be black carbon.

This is a conservative estimate of black carbon, as discussed in the following excerpt from the EPA’s report:

<sup>66</sup> For construction equipment equipped with diesel particulate matter filters, the BC component is 10 percent of PM<sub>2.5</sub>; however, this percentage is not applied. The construction equipment will be Tier 3 or higher; however, the BC component of Tier 3 equipment is currently not available so a worst-case assessment is provided.

<sup>67</sup> The percentage of BC for the light duty diesel vehicle group varies from 31% to 64%; therefore, the worst-case scenario is used in this analysis.

*For the 2007 vehicle (engine) model year, stringent [EPA] emission standards of 0.01 g/BHP-hr (grams per break horsepower/hour – a standard unit for emissions from heavy-duty mobile source engines) became effective for heavy-duty diesel engines, which represents over 99% control [or reduction] from a pre-control diesel engine in the 1970 time frame. As a result of these standards, BC [black carbon] emissions have been dramatically or even preferentially reduced as the major PM constituent. To meet these stringent PM standards, virtually all new on-highway diesel trucks in the United States, beginning with the 2007 model year, have been equipped with diesel particulate filters (DPFs). DPFs typically eliminate more than 90% of diesel PM and can reduce BC by as much as 99%.<sup>68</sup>*

## Global Warming Potential

In the EPA’s “Report to Congress on Black Carbon,” black carbon emissions are estimated for the United States and globally but are not converted to a metric (such as MTCO<sub>2</sub>e) using a global warming potential. The report discusses the global warming potential of BC:

*[Black carbon] BC influences the climate differently than the warming effects of GHGs. These differences have important implications for identifying appropriate metrics to compare climate impacts (and reductions thereof) ... While a GWP can be calculated for BC, there are reasons that GWPs may be less applicable for this purpose due to the different nature of BC compared to GHGs, in terms of various physical properties and the fact that unlike GHGs, BC is not well mixed in the atmosphere. However, because GWPs are the most commonly used, and only official, metric in climate policy discussions, many studies have calculated GWPs for BC. One-hundred-year GWPs for BC in the literature range from 330- to 2,240. That is to say, 330 to 2,240 tons of CO<sub>2</sub> would be required to produce the same integrated radiative effect over 100 years as one ton of BC. Some of the factors that account for the range in these estimates include the use of different and uncertain indirect and snow/ice albedo effects<sup>69</sup> estimates, use of a different CO<sub>2</sub> lifetime for the baseline, and recognition of the dependence of a GWP for BC on emissions location...*

*... There is currently no single metric widely accepted by the research and policy community for comparing BC and long-lived GHGs. In fact, some question whether and when such comparisons are useful. For example, there are concerns that some such comparisons may not capture the different weights placed on near-term and long-term climate change.<sup>70</sup>*

## 4.3 Localized Significance Threshold Analysis

### Localized Analysis Methodology

SCAQMD has developed the Localized Significance Threshold (also known as “LST”) methodology and recommends that this methodology be used in determining whether a project

<sup>68</sup> U.S. EPA. 2012. Report to Congress on Black Carbon, March 2012.

<sup>69</sup> The albedo is the reflecting power of a surface.

<sup>70</sup> U.S. EPA. 2012. Report to Congress on Black Carbon, March 2012.

may generate significant adverse localized air quality impacts and substantially affect sensitive receptors. The evaluation of localized air quality impacts determines the potential of the project to violate any air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

According to the SCAQMD LST assessment methodology, the assessment of localized impacts addresses only those emissions that are generated “onsite,” that is for the purposes of this project, emissions generated from within or along the boundaries of the project. Therefore, for this localized analysis, only the onsite emissions are examined. Freeway trips as well as trips along the surface street network away from the project were only included in the health risk assessment prepared for this project.

To evaluate localized impacts for construction and operation, an air dispersion model (EPA model, AERMOD) was used to simulate the movement of project related air pollutants through the air and output air concentrations of those pollutants at numerous receptor locations surrounding the project. The estimated concentrations provide conservative estimates (in terms of likely over-predictions) and may not represent actual occurrences. The methodology follows SCAQMD modeling guidance for AERMOD, where applicable.<sup>71</sup>

**Table 16, *General Air Dispersion Modeling Assumptions – Localized Air Quality Assessment***, lists the general model assumptions used in the localized significance threshold assessment.

---

<sup>71</sup> SCAQMD. AB 2588 & Rule 1402 Supplement Guidelines, 2016. Available at <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-supplemental-guidelines.pdf?sfvrsn=9>

**Table 16**  
**General Air Dispersion Modeling Assumptions – Localized Air Quality Assessment**

<b>Feature</b>	<b>Assumption</b>
Terrain processing	Complex terrain; elevations were obtained for the project site using the EPA AERMAP terrain data pre-processor
Emission source configuration	See Table 17 and 18
Land Use	Urban: County of Riverside population provided by the SCAQMD
Coordinate System	Universal Transverse Mercator
Meteorological Data	SCAQMD Riverside Meteorological Data for 2012-2016
NO <sub>2</sub> Assessment Methodology	Ozone Limiting using ozone data from the SCAQMD Riverside-Rubidoux air monitoring station for 2012-2016
Receptor Height	0 meters, as recommended by SCAQMD LST methodology
Receptor Location	Receptor locations were defined both within and outside of the project boundaries.

Each of the emission sources that are included in the AERMOD air dispersion model consist of a particular emission source representation. The following definitions are used in defining the emission source representations referred to in **Table 17**, *Project Localized Analysis Construction Emission Source Assumptions*, and **Table 18**, *Project Localized Analysis Operational Emission Source Assumptions*.

- Point source: a single identifiable local source of emissions; it is approximated in the AERMOD air dispersion model as a mathematical point in the modeling region with a location and emission characteristics such as height of release, temperature, etc. (example: a stack from a standby generator or a stack from a motor vehicle such as a truck);
- Volume source: a three dimensional source of pollutants release (example: exhaust emissions from construction equipment);
- Line source: a series of volume sources along a path (example: vehicular traffic along a street or freeway); and
- Area source: a large area where emissions are assumed to be uniformly distributed in the horizontal and vertical directions (example: parking lot).

### **Construction Modeling Assumptions – Local Air Quality Assessment**

Table 17 summarizes the emission source characteristics during construction. For the unmitigated scenario, it is assumed that construction equipment would be in the on position for 10 hours per day for all construction activities. In addition, during building construction, additional hours from midnight to 6 AM were also included to account for the concrete pouring of the tilt-up building walls that would most likely take place at night. The construction was assumed to take place five days per week.

**Table 17**  
**Project Localized Analysis Construction Emission Source Assumptions**

Emission Source Type	Air Dispersion Model Emission Source Description	Relevant Assumptions
Onsite: Off-road Construction Equipment	Volume Source	<ul style="list-style-type: none"> <li>Stack release height: 16.4 feet</li> <li>Emissions derived from the CalEEMod land use emission model</li> <li>Volume sources were used to characterize the construction equipment with a volume source dimension of 270 meters on a side to cover the construction area; the number of volume sources used is dependent on the size of the construction area.</li> </ul>
Onsite: Fugitive Dust	Area Source	<ul style="list-style-type: none"> <li>Release height: 0.0 feet in accordance with LST guidance</li> <li>Emissions derived from the CalEEMod land use emission model</li> <li>Area sources were used to characterize the fugitive dust generated from the construction equipment.</li> </ul>

## Operational Model Assumptions – Local Air Quality Assessment

The characterization of the project's operational emission sources as required by AERMOD air dispersion model is provided in Table 18. It is assumed for this analysis that facility operations would occur for 24 hours per day, 7 days per week, 365 days per year.

A graphical representation of the AERMOD air dispersion model local operational sources is shown in **Figure 21**. The AERMOD model also requires the placement of a network of receptors which represent the geographic locations where the impacts from the project's emissions are calculated.

**Figure 22** shows the receptor network used in the localized significance threshold analysis. Receptors were located within and outside of the project's boundaries. A dense receptor grid was used in order to adequately characterize the project's offsite impacts. Of particular importance is the location of receptors in the residential areas adjacent and to the west of the project across Redlands Boulevard and scattered residences across Gilman Springs Road as well as locations of other sensitive receptors such as schools.

**Table 18**  
**Project Localized Analysis Operational Emission Source Assumptions**

<b>Emission Source Type</b>	<b>Air Dispersion Model Emission Source Description</b>	<b>Relevant Assumptions</b>
Onsite vehicle traffic within the truck yards	Area Source	<ul style="list-style-type: none"> <li>• Stack release height: 6 feet for all vehicles</li> <li>• Vehicle speed: 15 mph</li> <li>• Vehicle trip length based on a review of the layout of the project development phases in relation to the local roadway network. <ul style="list-style-type: none"> <li>- High cube warehouse: 1,080 feet</li> <li>- Light logistics: 570 feet</li> <li>- Gas compressor utility: 330 feet</li> <li>- All other land uses: 160 feet</li> </ul> </li> <li>• Vehicle types: passenger cars and heavy duty delivery trucks</li> <li>• Emission factor: ARB EMFAC2017 model</li> </ul>
Onsite diesel truck idling within the truck yards	Area source	<ul style="list-style-type: none"> <li>• State release height: 6 feet</li> <li>• Idle time: 5 minutes per truck per day (unmitigated)</li> <li>• Vehicle type: heavy duty delivery trucks</li> <li>• Emission factor: ARB EMFAC2017 model</li> </ul>
Local Roadway Vehicle Travel	Line sources	<ul style="list-style-type: none"> <li>• Line source width equal to the width of the roadway plus 3 meters on both sides.</li> <li>• Vehicle speeds: <ul style="list-style-type: none"> <li>- Heavy duty trucks: 25 mph on local roadways</li> <li>- All other vehicles: 35 mph on local roadways</li> </ul> </li> </ul>
Standby Diesel Electric Generators	Point sources	<ul style="list-style-type: none"> <li>• The project was assumed to contain 27 emergency standby diesel generators distributed within the project boundary at full build out (1 generator per 1.5 million square feet of space)</li> <li>• Rated at 315 kilowatts electrical output</li> <li>• Projected testing and maintenance assumed to be 1 hour per day and 50 hours per year</li> <li>• Height of emission release assumed to be 9 feet based on estimates of the generator's temperature, gas flow rate, and influence of building downwash on plume rise</li> <li>• Emissions based on EPA Tier 3 emission standards for diesel generators</li> </ul>
Support Equipment	Area sources	<ul style="list-style-type: none"> <li>• Forklifts using natural gas as fuel</li> <li>• Yard trucks using liquid petroleum gas as fuel</li> </ul>

## Localized Significance Threshold Analysis

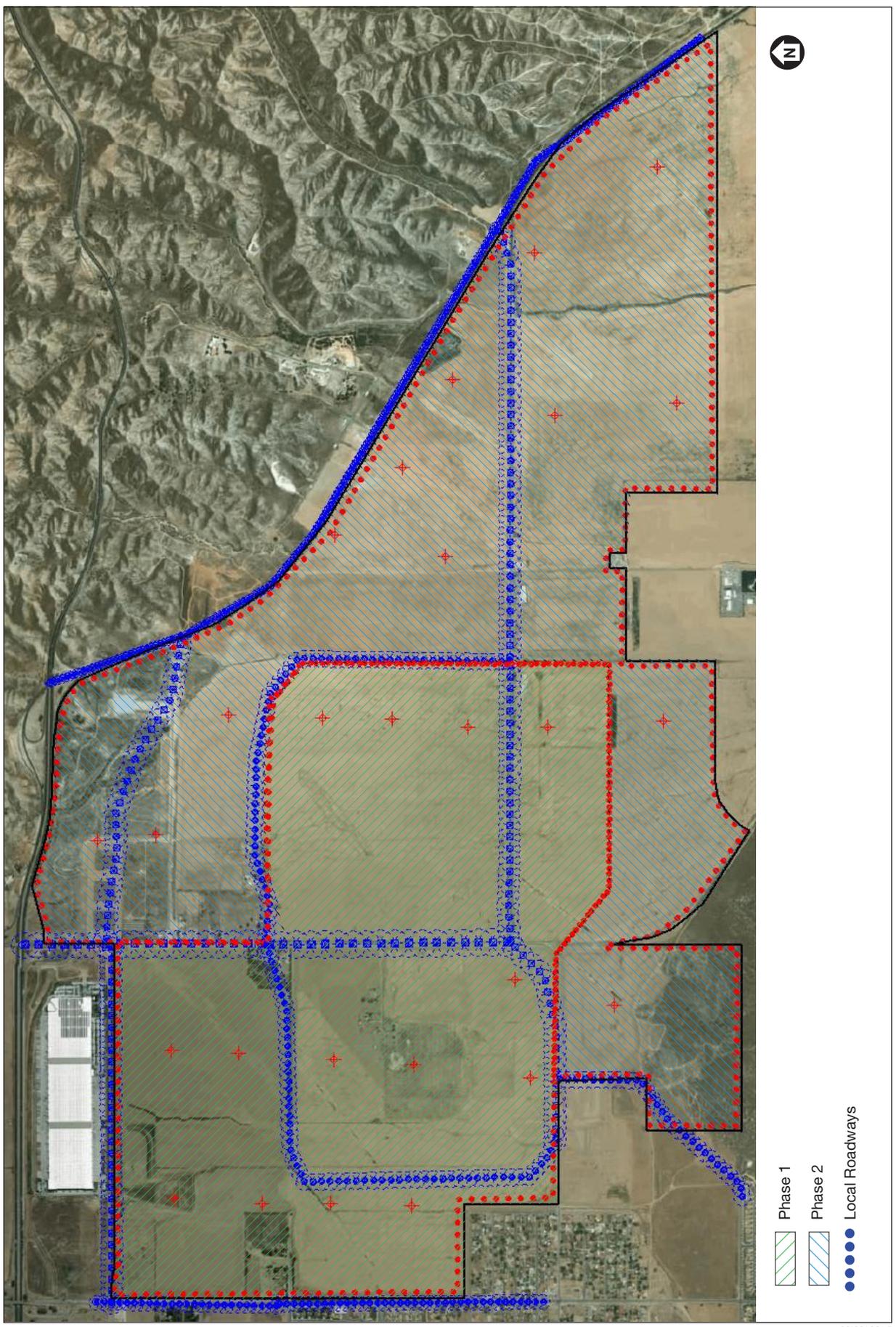
The localized significance threshold analysis evaluated four conditions:

- **Project Build Out (2020):** this condition assumes that Phase 1 and Phase 2 of the project are fully built out in 2020 as a worst-case scenario.
- **2022,** the year when the project emissions from both project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur near the existing residences west of the project boundary along Merwin Street;
- **2025,** the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the project adjacent to Alessandro Boulevard and east of the existing residential areas along

Merwin Street, and when all of Phase I operations would occur (approximately 57 percent of entire project floor space); and

- 2035 when Phase 1 and Phase 2 of the project are fully operational.

Project Full Build Out 2020 represents a worst-case scenario since the project could not be physically built out in its entirety in a single year and does not reflect the fact that the project would be developed over a time period of 15 years depending on market demands for warehouse space. This assumption also does not account for the fact that emissions from mobile sources, prior to mitigation, particularly from heavy duty diesel trucks are expected to decline significantly over time as emissions control technologies continue to improve. This assessment also provided consistency with the TIA and noise reports which examines Project Build Out under existing conditions. The project impact results were added to the existing background concentrations and then compared to the localized threshold for the appropriate pollutant. Background concentration data was obtained from the SCAQMD's Rubidoux monitoring station for years 2016-2018, the most recent data available. Background concentrations of CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average. The 2022, 2025, and 2035 conditions represent the project development including the localized impacts during construction and operation over the time period of 2020 to 2035.



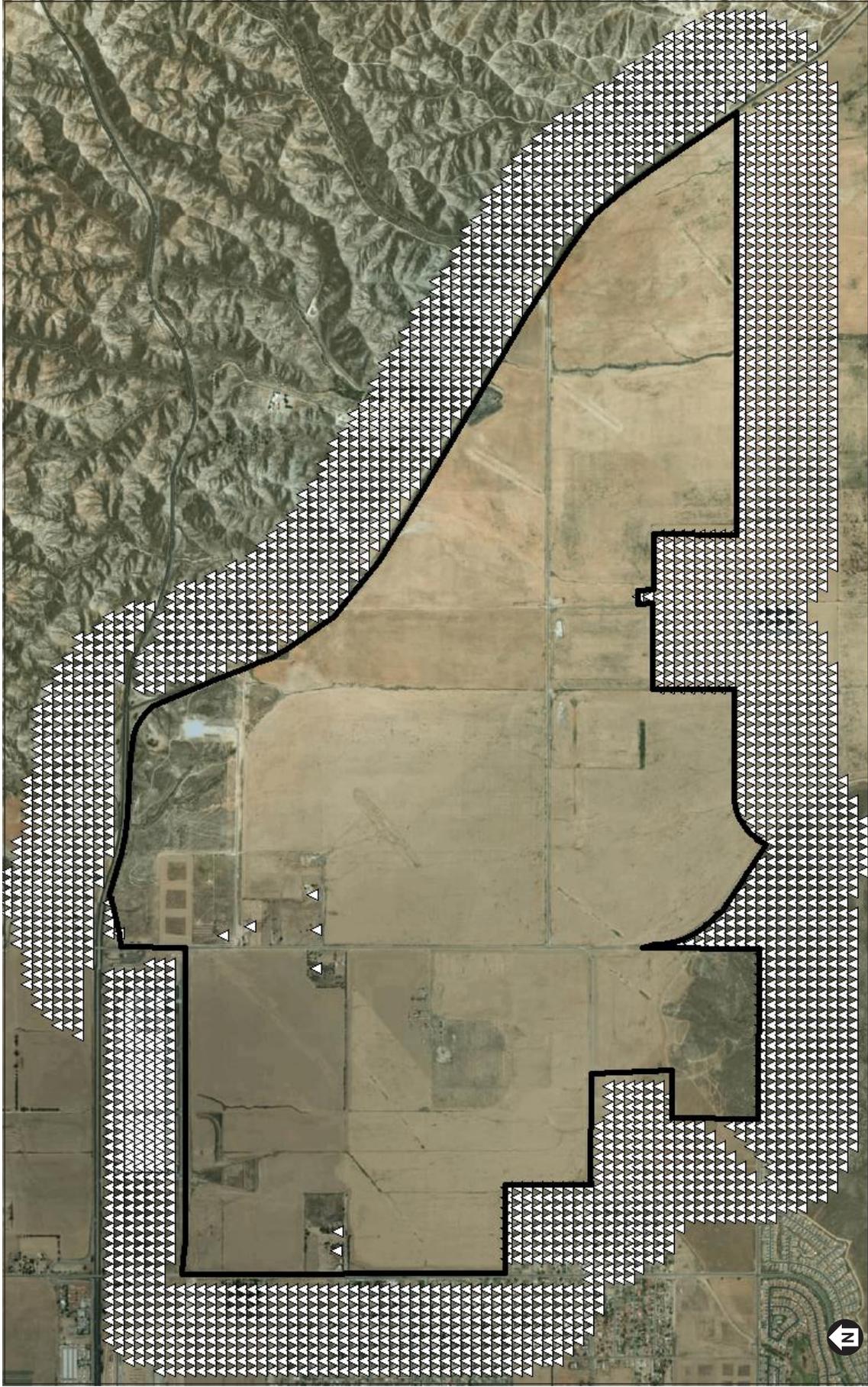
SOURCE: ESA

World Logistics Center

**Figure 21**  
Localized Analysis Operational Emission Sources



D:\180130\00



D180130.00

SOURCE: ESA



World Logistics Center

**Figure 22**  
Air Dispersion Model Receptors for the Localized Analysis

## 4.4 Health Risk Assessment

### About Health Risk Assessments

A Health Risk Assessment (HRA) is a guide that helps to determine whether current or future exposures to a chemical or substance in the environment could affect the health of a population. In general, risk depends on the following factors:

- How much of a chemical is present in an environmental medium (e.g., air);
- How much contact (exposure) a person has with the contaminated environmental medium; and
- The inherent toxicity of the chemical.

This HRA builds and expands upon the methodology described above in the localized air quality assessment by examining the regional effects of the project's potential health risk impacts. The HRA methodology applies a risk characterization model to the results from the air dispersion model to estimate potential health risks at each sensitive receptor location. However, unlike the localized assessment of the criteria pollutants (e.g., carbon monoxide, oxides of nitrogen, and particulate matter), which looks at impacts from exposure times of one hour to a year within a specific year, the HRA examines the impacts over an exposure time period from one hour to an extended exposure time period of many years.

### Health Risk Impacts Assessed

The health risk assessment estimated the incremental health impacts attributable to the project's construction and operations for the following condition:

- Proposed Project Development condition which examines the effect of project-related construction and operational traffic emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the final full build out in 2035. This condition forms the basis for quantifying the incremental impacts from the project.

A multi-pollutant health risk assessment was conducted for the Proposed Project. The health risk assessment evaluated toxic emissions from a variety of sources. These included exhaust emissions of particulate matter (PM) and total organic gases (TOG) from diesel and gasoline combustion, as well as toxics associated with fugitive PM from tire wear and brake wear of mobile sources. Annual average emissions and impacts were calculated for each year starting from 2020 when construction of the Project would commence. Specifically, annual average concentrations of toxics were estimated from the construction emissions for each year of construction from 2020 to 2034 according to the construction schedule and equipment usage projected for each year of construction. Proposed Project Development examines project impacts resulting from the proposed construction and operation of the project from the commencement of construction in 2020 for a 30-year duration for sensitive/residential receptors, 25-year for worker

receptors, and 9-year exposure time periods for school-site student receptors. Annual average emissions and impacts during operation were estimated for the Phase 1 build out year and the final full build out year, years for which detailed traffic information was available from the TIA. The annual average operational emissions were then scaled among operational years between 2021 and 2035 based on the Phase 1 build out year and final full build out year's emissions, using scaling factors that reflecting changes in EMFAC-based emission factors from 2025 or 2035 and the project occupancy schedule for each specific year. See Appendix B.9 for detail on the scaling factor development and how the in-between years' emissions were calculated.

During years when both construction and operations occur simultaneously (2021 to 2034), the annual concentrations at the sensitive receptors from construction were added to the annual concentrations from operations to provide a total impact assessment of all emissions from the project during each year. The resulting total annual average concentrations calculated each year for the exposure time period (individual annual averages) multiplied by the requisite daily breathing rates, age sensitivity factors, and time-at-home factors for each year of exposure. The HRA studied two scenarios for the 30-year exposure cancer risk calculation for sensitive/residential receptors. Scenario 1 assumes that a fetus in the 3rd trimester (within the mother's womb) commences its 30-year exposure starting in year 2020 (construction start year), covering the entire 15 years of construction and progressive project occupancy (operations are not assumed to commence until the year 2021, the first year of operational occupancy) between 2020 and 2035 and another 15 years after project full buildout between 2035 and 2050 (construction + operation scenario); Scenario 2 assumes that a fetus in the 3rd trimester commences its 30-year exposure starting in the 1st year of full buildout in 2035 and last until 2064 (full operation scenario).

The mitigation conditions require all construction equipment that are greater than 50 horsepower to be Tier 4, all medium-heavy-duty and heavy-heavy-duty diesel trucks accessing the project during operation be model year 2010 or newer and that all on-site equipment be Tier 4.

## Risk Assessment Methodology

The HRA process involves four main steps: hazard identification, dose-response assessment, exposure assessment, and risk characterization.

### Hazard Identification

Hazard identification is the process by which contaminants of concern are selected for investigation in the risk assessment, and includes a review of the chemicals that are potentially released to the atmosphere from the equipment of concern. This assessment is responsive to the emissions of various toxic air contaminants from the construction and operation of the project. The main toxic air contaminants associated with the project include PM and (TOG)<sup>72</sup> from diesel and gasoline combustion, as well as toxics associated with fugitive PM from tire wear and brake

<sup>72</sup> Total Organic Gases (TOG) means compounds of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid; metallic carbides or carbonates, and ammonium carbonate; also includes all organic gas compounds emitted to the atmosphere including low reactivity or exempt compounds such as methane, ethane, etc.

wear of mobile sources. An abbreviated list of common toxicity values for chemicals evaluated in this analysis and target organs<sup>73</sup> that each contaminant affects in a toxic exposure are summarized in **Table 19, Toxicity Values**. Please refer to Appendix E for a more detailed list of the TACs analyzed in this study.

The ARB has simplified the process for estimating cancer and chronic non-cancer impacts of air toxics by specifying cancer potency values and reference exposure levels (RELs). For diesel PM, which is a surrogate for the combined health effects associated with exposure to diesel exhaust emissions (ARB 2005b) and provides a hazard level that is greater than would occur when estimating the cancer and chronic non-cancer risk by specifying the individual TOG compounds. However, no acute non-cancer REL has been defined for diesel PM, therefore emissions of the speciated toxic air contaminants in diesel exhaust were evaluated in estimating acute non-cancer hazards.

No such surrogate values exist for gasoline, tire wear or brake wear emissions, so the speciated toxic air contaminants were determined as well as their corresponding cancer potency values and RELs.

**Table 19**  
**Toxicity Values**

Toxic Air Contaminant	CAS Number	Inhalation Cancer Potency Factor [mg/kg-day] <sup>-1</sup>	Chronic Reference Exposure Level <sup>3</sup> µg/m	Target Organ for Chronic Exposure	Acute Reference Exposure Level <sup>3</sup> µg/m	Target Organ for Acute Exposure
Diesel PM*	9901	1.1	5	I	ND	ND
Acetaldehyde	75070	*	*	*	470	D,I
Acrolein	107028	*	*	*	2.5	D,I
Benzene	71432	*	*	*	27	C,E,F
Formaldehyde	50000	*	*	*	55	D
Methanol	67561	*	*	*	28,000	G
MEK	78933	*	*	*	13,000	D,I
Styrene	100425	*	*	*	21,000	H,D,I
Toluene	108883	*	*	*	37,000	D,G,H,I
M-Xylene	108383	*	*	*	22,000	D,G,I
O-Xylene	95476	*	*	*	22,000	D,G,I
P-Xylene	106423	*	*	*	22,000	D,G,I
1-3 Butadiene	106990	*	*	*	660	H
Copper	7440508	*	*	*	100	I
Chlorine	7782505	*	*	*	210	D,I
Nickel	7440020	*	*	*	0.2	F
Sulfates	9960	*	*	*	120	I
Arsenic	7440382	*	*	*	0.2	I,G
Vanadium (fume or dust)	7440622	*	*	*	30	D,I

Notes:

\* Only diesel PM emissions were evaluated for cancer risk and chronic hazard indices because diesel PM is a surrogate for the combined health effects associated with exposure to diesel exhaust emissions (ARB 2005b). For the acute hazard indices, diesel PM was not evaluated since no acute non-cancer REL has been defined for diesel PM; rather, emissions of the other toxic air contaminants were evaluated for all emission sources in

<sup>73</sup> A target organ is an organ or bodily system that is most affected by exposure to a specific toxic air contaminant.

---

estimating acute non-cancer hazards.

Key to non-cancer and chronic exposure target organs:

C. Cardiovascular; D. Eye; E. Hematologic System; F. Immune System; G. Nervous System

H. Reproductive System; I. Respiratory System

ND = not defined as the California Office of Environmental Health Hazard Assessments has not defined an acute reference exposure level for diesel PM.

Source: California Air Resources Board 2015

---

## Dose-Response

The dose-response assessment develops relationships between exposures to a given chemical and the corresponding potential health effects associated with exposure to that chemical. In general, data are limited regarding adverse effects associated with direct exposure to humans to a particular chemical. Therefore, animal experiments have often been performed to assess a chemical's toxicity. These experiments are conducted to determine the organs that are adversely affected by a toxic chemical and the amount of the chemical needed to produce an adverse effect on the organ.

Two types of adverse health effects are generally considered in health risk assessments: carcinogenic and non-carcinogenic. Carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. Chemicals that potentially produce carcinogenic effects have been shown or are suspected to produce tumors in animals or humans.

Non-carcinogenic effects, such as liver or kidney damage, may be either reversible or permanent. In these situations, it is assumed that there is a level of exposure at which these chemicals produce no adverse effects in the human body. In other words, exposure to these chemicals in amounts less than a threshold level will result in no adverse health effects. The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure.

## Exposure Assessment

Exposure assessment identifies potential exposure pathways, estimates chemical concentrations at potential exposure points, and calculates expected doses of emitted substances. An exposure pathway is defined as the means by which an individual or a population is exposed to contaminants that originate from a source. Each pathway represents a different mechanism for exposure.

Four elements must be present in order for a potential human exposure pathway to exist;

1. A source and mechanism of substance release to the environment;
2. An environmental transport medium (e.g., air, water, soil);
3. An exposure point, or point of potential contact with the contaminated medium; and

4. A receiver (i.e., human) with a route of entry (e.g., inhaling air, drinking water) at the point of contact.

The current risk assessment only considers toxic air contaminants that are released into the air and inhaled. The levels of atmospheric contaminants resulting from emissions of toxic air contaminants are calculated using mathematical air dispersion models, which use emission rates and exposure duration, design features specific to the emissions sources, and meteorological data. The air modeling results include annual average and maximum hourly ambient air concentrations of the modeled substances at various receptor locations. In order to evaluate human exposure, a human receiver with a route of exposure to the affected medium is required, such as a person inhaling air in a potentially affected area. Therefore, potential health risks are only evaluated for developed areas where humans typically are present. A quantitative estimate of potential human exposure is developed for the inhalation pathway in this study.

The cancer risk and chronic non-cancer hazard indices are based on concentrations from sources of exhaust PM and TOG, and fugitive PM. These sources include off-road construction equipment, heavy duty trucks, gasoline vehicles, onsite equipment and emergency generators. A majority of the toxic emissions are related to diesel exhaust. Diesel exhaust, a complex mixture that includes hundreds of individual constituents, is identified by the State of California as a known carcinogen. Under California regulatory guidelines,<sup>74</sup> diesel PM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. The California Environmental Protection Agency and other proponents of using the surrogate approach to quantifying cancer risks associated with the diesel mixture indicate that this method is preferable to use of a component-based approach. A component-based approach involves estimating risks for each of the individual components of a mixture. Critics of the component-based approach believe it will underestimate the risks associated with diesel as a whole mixture because the identity of all chemicals in the mixture may not be known, and/or exposure and health effect information for all chemicals identified within the mixture may not be available.

Gasoline combustion can also release chemicals that are carcinogenic, and are included in this study. A preliminary comparison of the relative toxicity of gasoline-borne toxics compared to diesel PM concluded that the potential cancer risks associated with the TACs from gasoline combustion emissions from the project's gasoline vehicles are substantially less than the potential cancer risks from the project's diesel PM emissions. Less than 2 percent of the total cancer risk from the project's vehicles can be attributed to the gasoline TACs with the remaining 98 percent attributable to toxics from diesel PM. Furthermore, toxics associated with fugitive PM from tire wear and brake wear contribute substantially less than the potential cancer risks from the project's diesel PM emissions.

---

<sup>74</sup> CARB. 2005. HARP User Guide, Appendix K, Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Engines. <https://www.arb.ca.gov/toxics/harp/docs/userguide/appendixK.pdf>

The acute non-cancer indices are based on toxic concentrations from both diesel and gasoline vehicles. To estimate acute non-cancer hazard indices, specific chemical concentrations that comprise the PM and TOG emissions must be calculated in a process called speciation.<sup>75</sup>

## Risk Characterization

Risk characterization is the process of combining dose-response information with the estimates of human exposure in order to derive a quantitative estimate of the likelihood that humans will experience any adverse health effects for the given exposure assumptions. Two general types of health effects are generally considered: potential carcinogenic risks after chronic (long-term) exposure and potential non-carcinogenic health impacts following chronic (long-term) and acute (short-term) exposure. Each of these health effects was evaluated in this report.

### *Estimation of Cancer Risks*

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 1 in a million implies a likelihood that up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time. This risk would be an excess cancer risk that is in addition to any cancer risk borne by a person not exposed to these air toxics.

As noted above, diesel PM is used as a surrogate measure of carcinogenic exposure for the mixture of chemicals that make up diesel exhaust as a whole. Cancer risks were estimated in accordance with the “Current OEHHA Guidance”.<sup>76</sup> The “Current OEHHA Guidance” assumes a lifetime exposure of 30 years with the inclusion of early-in-life sensitivity factors for sensitive receptors, a 25-year exposure for worker receptors, and a 9-year exposure duration for school-site student receptors.

The cancer risk from toxics is calculated by multiplying an average toxics concentration calculated using the AERMOD air dispersion model and an inhalation exposure factor as shown in Equation 1 below.

$$\text{Cancer Risk} = \text{Inhalation cancer potency factor (CPF)} \times \text{Dose-inhalation} \quad (\text{EQ-1})$$

Where:

<sup>75</sup> Total organic compounds are comprised of many types of individual chemical compounds. Speciation is the process of breaking a total organic compound into its individual compounds. From this information, speciation profiles are devised for many emission sources to provide the makeup of that sources total organic emissions. Speciation profiles are used to estimate emissions of the individual compounds from the emission source which, in turn, are used to estimate the health effects of the emission sources and their total organic compound emissions.

<sup>76</sup> Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, February 2015.  
[http://www.oehha.ca.gov/air/hot\\_spots/2015/2015GuidanceManual.pdf](http://www.oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf)

Cancer Risk = Total individual lifetime excess cancer risk defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular facility; this risk is defined as an excess risk because it is the risk above and beyond the background cancer risk to the population contributed by causes not related to the project; cancer risk is expressed in terms of risk per million exposed individuals.

Inhalation cancer potency factor (CPF) = 1.1 (milligrams per kilogram per day)<sup>-1</sup> for diesel PM;

$$\text{Dose-inhalation} = C_{\text{air}} \times (\text{EF} \times \text{ED} \times 10^{-6} \div \text{AT} \times \text{AAF}) \quad (\text{EQ-2})$$

Where:

$C_{\text{air}}$  is the average diesel PM concentrations calculated from the AERMOD model in  $\mu\text{g}/\text{m}^3$ ;

EF is the exposure frequency (days per week);

ED is the exposure duration (years); and

AT is the time period over which the exposure is calculated (days)

AAF are a set of age-specific adjustment factors that include age sensitivity factors (ASF), daily breathing rates (DBR), and time at home factors (TAH).

### Cancer Risk Exposure Assumptions

The principal focus of this HRA is on the potential health impacts to sensitive/residential receptors located within and surrounding the project site. Sensitive receptors include hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Residences are also considered sensitive receptors. An important parameter necessary to estimate cancer risk is the duration of exposure of an individual to toxic air contaminants. An assessment of population mobility can assist in determining the length of time a residential receptor is exposed in a particular location. For example, the duration of exposure to a source of toxic air contaminants will be directly related to the period of time residents live near the source of the emissions.

**Table 20, *Exposure Assumptions for Cancer Risk***, summarizes the primary exposure assumptions used in this HRA to calculate individual cancer risk by receptor type, which is based on the SCAQMD HRA Guidance and the “Current OEHHA Guidance”.

**Table 20**  
**Exposure Assumptions for Cancer Risk**

Type of Guidance	Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate (L/kg-day)
		Hours/day	Days/year				
Current OEHHA Guidance	Sensitive/Residential:						
	3 <sup>rd</sup> Trimester	24	350	0.25	10	100	361
	0-2 years	24	350	2	10	100	1090
	2-16 years	24	350	14	3	100	572
	Older than 16 years	24	350	13.75	1	73	261
	Student	8	180	9	3	NA	640
	Worker	8	250	25	1	NA	230

**Table 20**  
**Exposure Assumptions for Cancer Risk**

Type of Guidance	Receptor Type	Exposure Frequency		Exposure Duration (years)	Age Sensitivity Factors	Time at Home Factor (%)	Daily Breathing Rate (L/kg-day)
		Hours/day	Days/year				

Time at home factor is 1 if there is a school receptor within the 1 in a million (or greater) cancer risk isopleth, which was the case for this project's unmitigated scenario for the Construction + Operation HRA.

(L/kg-day) = liters per kilogram body weight per day; NA = not applicable.

The daily breathing rates shown are RMP using the Derived Method for residential as recommended by the SCAQMD and the 95th percentile rate for other receptors as recommended by the OEHHA.

Source: OEHHA 2015; SCAQMD, 2016

The underlying factors used in the analysis exemplify the conservative nature of utilizing the exposure scenarios and the underlying assumptions:

- The residential cancer risk calculation assumes that each resident will be exposed to particulate matter and organic gases for 24 hours a day for 350 days a year at the location of his or her home throughout the entire 30-year residential exposure period.
- The worker and student cancer risk calculations assume that workers or students are exposed to diesel PM for 8 hours a day, next to, but outside of the buildings in which they work or study.
- The atmospheric dispersion model and traffic model that are used to estimate risks generally provide impact estimates that are over-estimated based on the use of conservative model assumptions.

### ***Other Factors that Influence Health Risk Estimates: Conservative Trip Estimates***

It should also be noted that the TIA used a conservative estimate of the number of truck trips after the project begins operation. The number of truck trips is important because diesel PM emissions are directly related to both the number of trucks and the vehicle miles traveled.

As mentioned above, the TIA uses the traffic generation rate for high-cube warehouses from the 10<sup>th</sup> edition of the Institute of Traffic Engineers Trip Generation Manual which is based on the High-Cube Warehouse Vehicle Trip Generation Analysis prepared jointly by SCAQMD and National Association of Industrial and Office Properties (NAOIP).

### ***Cancer Burden***

Whereas cancer risk represents the probability that an individual will develop cancer, cancer burden multiplies the cancer risk by the exposed population to estimate the number of individuals that would be expected to contract cancer from the project. The exposed population is defined as the number of persons within a facility's zone of impact, which is typically the area exposed to an incremental cancer risk of one in a million from the project. Consistent with this definition,

cancer burden was calculated by first identifying all population census tracts<sup>77</sup> located within the project's zone of impact, multiplying the estimated incremental project cancer risk impact in the census tract by the population of the census tract and then summing all of products of population times estimated cancer risk in the zone of impact. Note that each census tract contributes to the cancer burden in proportion to its population and risk. For example, if a census tract has a relatively high estimated cancer risk, but no people living there, it will not contribute to the estimation of the cancer burden. As provided in the "Current OEHHA Guidance", the cancer burden is calculated assuming a 70-year exposure duration along with the appropriate exposure frequency, daily breathing rates, age sensitivity factors, and time at home factors appropriate to each age group.<sup>78</sup> A cancer burden greater than 0.5 is considered a significant cancer burden.

### **Non-cancer Hazards**

An evaluation of the potential non-cancer effects of chronic (long-term) and acute (short-term) chemical exposures was also conducted. For chemicals that cause non-cancer health effects, risks are typically characterized using a measure called the hazard index (HI). Adverse non-cancer health effects are evaluated by comparing the concentration of each TAC with the reference concentration level below which an adverse health effect will not occur as determined by health professionals. This reference concentration level is referred to as the Reference Exposure Level (REL). The State of California has published a database of RELs for numerous toxic air contaminants. Toxic air contaminants may have a unique chronic and/or acute REL. A significant risk is defined by the SCAQMD as an HI of 1 or greater, and indicates that the source of TAC emissions has a potential to cause adverse non-cancer health effects.

### **Chronic Non-cancer Impacts**

Exposures to TACs such as diesel PM can cause chronic non-cancer illnesses such as reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system, birth defects, or other adverse environmental effects. Risk characterization for chronic non-cancer health risks from diesel PM is expressed as a HI. The HI is a ratio of the predicted concentration of a project's emissions to its REL.

When evaluating chronic non-cancer effects due to TAC exposures, a hazard quotient (HQ) is established for each individual TAC as follows and for each target organ<sup>31</sup> affected by the individual TAC:

$$HQ_i = C_{air}/REL_i \quad (EQ-3)$$

Where:

<sup>77</sup> A census tract is a geographic region defined for the purpose of taking a census. Usually these regions coincide with the limits of cities, towns, or other administrative areas. Each tract has a unique numeric code and averages about 4,000 inhabitants. The census tract centroid is the geographic center of the tract based on a weighted distribution of the population within the tract using the census blocks that comprise the tract. A census block is the smallest geographic unit used to tabulate population and each tract can be comprised of several blocks.

<sup>78</sup> Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, February 2015, Section 8.1. [http://www.oehha.ca.gov/air/hot\\_spots/2015/2015GuidanceManual.pdf](http://www.oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf)

HQ<sub>i</sub> = chronic hazard quotient for each TAC, i

C<sub>air</sub> = Annual average concentration of each TAC, i (< g/m<sup>3</sup>)

REL<sub>i</sub> = Chronic Reference Exposure Level for TAC, i (< g/m<sup>3</sup>)

i = toxic air contaminant of interest

To evaluate the potential for adverse non-cancer health effects from simultaneous exposure to multiple TACs, the HQs for all TACs that affect the same target organ are summed yielding a HI as follows:

$$HI_{to} = \sum HQ_{tac} \quad (EQ-4)$$

Where:

HI<sub>to</sub> = sum of the hazard quotients for all TACs affecting the same target organ

HQ<sub>tac</sub> = hazard quotient for TAC and target organ

Chronic health effects were calculated based on maximum annual average of toxic concentrations from the construction and operation of the project.

### Acute Non-cancer Impacts

The OEHHA has not defined an acute non-cancer REL for diesel PM. This HRA calculated the potential acute non-cancer hazards associated with the various toxic air contaminant components of PM and organic gas exhaust emissions from diesel and gasoline vehicles that have been found to cause acute non-cancer hazards.

The ARB maintains and updates estimates of the chemical composition and hazard levels of TOGs for a variety of emission source categories. These estimates are contained in what are referred to as speciation profiles. Speciation profiles provide estimates of the toxic air contaminant composition of TOG emissions, and are used in the development of emission inventories and air quality models.

Speciation profiles based on those developed by the ARB were used in this study<sup>79</sup> to derive estimates of the pollutant levels of the PM and TOG components and their acute non-cancer hazards from both gasoline exhaust and diesel exhaust.

**Table 21**, *Speciation Profiles for Diesel and Gas Fuel Combustion Sources*, presents the speciation profiles that were used to convert PM and organic gas emissions into individual TAC emissions. Only chemicals that have a defined acute non-cancer reference exposure level (RELs) were included. The estimated total PM and organic gas emissions are multiplied by the profile percentage for a particular TAC to obtain the emissions of that particular TAC.

<sup>79</sup> CARB. 2013. Speciation Profiles Used in ARB Modeling. <https://www.arb.ca.gov/ei/speciate/speciate.htm>

**Table 21**  
**Speciation Profiles for Diesel and Gas Fuel Combustion Sources**

<b>Sources</b>	<b>Emission Type</b>	<b>TAC Speciation Profile</b>
Off-road diesel construction equipment	Exhaust TOG	ARB TOG profile #818
	Exhaust PM	ARB PM Profile #425
	Evaporative TOG	Assume negligible
	Brake/Tire PM	N/A
On-road diesel vehicles	Exhaust TOG	ARB TOG profile #818
	Exhaust PM	ARB PM profile #425
	Evaporative TOG	Assume negligible
	Brake PM	ARB PM profile #472
	Tire PM	ARB PM profile #473
On-road gasoline vehicles	Exhaust TOG	ARB TOG profile #2118
	Exhaust PM	ARB PM profile #400
	Evaporative TOG	ARB TOG profile #660
	Brake PM	ARB PM profile #472
	Tire PM	ARB PM profile #473
Off-road natural gas-fired internal combustion engine	Exhaust TOG	ARB TOG Profile #719

## Notes:

- (1) TOG speciation profile 2108 is from the ARB SPECIATE database; this profile is used to characterize TOG emissions from gasoline-fueled vehicles
- (2) TOG speciation profile 818 is from the ARB SPECIATE database; this profile was used to characterize TOG emissions from diesel-fueled vehicles Source: California Air Resources Board 2013.

The methodology used to estimate acute non-cancer hazards follows a similar basic methodology used to estimate chronic non-cancer hazards with two important differences: the toxic air contaminant concentration,  $C_{air}$  in Equation 3 is based on the predicted maximum one-hour concentration of the toxic air contaminant, and the REL used is specific to the acute impacts from the contaminant.

## Geographic Scope of the Health Risk Assessment

The HRA is characterized by two important differences from the localized significance threshold assessment for criteria pollutants. According to the SCAQMD localized significance threshold assessment methodology, the assessment of localized impacts addresses only those emissions that are generated “onsite”, that is for the purposes of this project, emissions generated from within or along the boundaries of the Specific Plan. However, for the HRA, both the universe of the project’s emission sources and air dispersion model receptors were expanded to assess the off-site impact of the project’s emissions of toxics. Besides onsite emission sources and receptors, the

HRA also included a receptor grid that extends from the project boundary to 5 kilometers (km) away and roadway network that ends 10 km from the project boundary (e.g., including approximately 18 miles of SR-60, surface roadway networks that are extending from the project boundary to 7.6 miles west and 6.9 miles east). The study area reasonably captures the most extensive emissions from project-generated vehicles on the roadway network since all trips to and from the project would travel on the roadway segments and freeway segments (SR-60) nearest the project site regardless of origin or destination. Since project activity is highest on-site, the project's emissions and associated health impact decreases with distance from the project site. Thus, the selected study area is capable of capturing the project's maximum impact. If the maximum risk from the study area is less than significant, project health risk impacts will be less than significant for receptors further away.

The generation of emissions from traffic traveling along the various arterial and freeway mainline roadway segments requires information on traffic volumes, length of segment, and emission factors. The emission factors, in turn, depend on vehicle type, speed, calendar year, and fuel type. Estimates of peak hour vehicle volumes and types (passenger cars, light heavy duty trucks, medium heavy duty trucks, and heavy-heavy duty trucks) were provided by the traffic consultant for each roadway segment analyzed. The TIA provided peak hourly volumes of cars and trucks traveling on freeways. Based on the distribution of traffic of cars and trucks, an hourly emissions profile for cars and trucks was applied to the mobile source segments in the HRA dispersion modeling to best represent daily traffic conditions. The TIA also provided daily vehicle volumes for freeway segments, but not for non-freeway segments. For use in the cancer risk and chronic non-cancer hazard calculations, the daily vehicle volumes for non-freeway segments were assumed to be 10 times that of the peak hour vehicle volumes. The physical length and width of each roadway segment were estimated using the segment location as provided by the traffic consultant and aerial photographs available from Google Earth. Vehicle speeds for each roadway segment and vehicle type were based on the speed groups provided by the traffic consultant. Vehicles traveling on freeways were assumed to be traveling 55 miles per hour.

## SECTION 5

---

### Environmental Impacts

#### 5.1 Compliance with Air Quality Plan

Conflict with or obstruct the implementation of the applicable air quality plan (AIR-1)

According to the 1993 SCAQMD Handbook, there are two key indicators of consistency with the AQMP:

1. Indicator: Whether the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
2. Indicator: A project would conflict with the AQMP if it would exceed the assumptions in the AQMP in 2012 or increments based on the year of project buildout and phase. The Handbook indicates that key assumptions to use in this analysis are population number and location and a regional housing needs assessment. The parcel-based land use and growth assumptions and inputs used in the Regional Transportation Model run by the Southern California Association of Governments that generated the mobile inventory used by the SCAQMD for AQMP are not available and assumed not to include the project; therefore, the SCAQMD's significance thresholds are used to determine if the project exceeds the assumptions in the AQMP.

Considering the recommended criteria in the SCAQMD's 1993 Handbook, this analysis utilizes the following criteria to address this potential impact:

#### **Project's Contribution to Air Quality Violations and Assumptions in AQMP**

According to the SCAQMD, the project is consistent with the AQMP if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.<sup>80</sup> As shown in analyses in Impact AIR-2, the project could violate an air quality standard and therefore could contribute substantially to an existing or projected air quality violation.

---

<sup>80</sup> SCAQMD. 1993. South Coast Air Quality Management District. CEQA Air Quality Handbook, 1993.

If a project's emissions exceed the SCAQMD regional thresholds for NO<sub>x</sub>, VOC, PM<sub>10</sub>, or PM<sub>2.5</sub>, it follows that the emissions could cumulatively contribute to an exceedance of a pollutant for which the Basin is in nonattainment (ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>) at a monitoring station in the Basin.

The thresholds are criteria for determining environmental significance and are discussed in the SCAQMD's 1993 Handbook for Air Quality Analysis and are updated in the SCAQMD's most recent thresholds published online in 2012. An exceedance of a nonattainment pollutant at a monitoring station would not be consistent with the goals of the AQMP to achieve attainment of pollutants.

As discussed in the analyses below (AIR-2), the project would exceed the regional emission significance thresholds for VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and/or PM<sub>2.5</sub> prior to the application of mitigation. (Refer specifically to Table 22 for construction emissions and Table 25 for operational emissions.) This means that project emissions could combine with other sources and could result in an ozone, PM<sub>10</sub>, or PM<sub>2.5</sub> exceedance at a nearby monitoring station. The Basin in which the project is located is in nonattainment for these pollutants; therefore, according to this criterion, the project would not be consistent with the AQMP. The regional emissions assume a zero baseline for existing emissions on the project site and therefore assumes that the AQMP had no emissions for the project site. The regional significance thresholds can be interpreted to mean that if project emissions exceed the thresholds, then the project would also not be consistent with the assumptions in the AQMP. Therefore, based on this criterion, the project could contribute to air quality violations and would not be consistent with the AQMP.

## **Compliance with Emission Control Measures**

The second indicator of whether the project could conflict with or obstruct implementation of the AQMP is by assessing the project's compliance with the control measures in the AQMPs and the State Implementation Plan (SIP).

### **2012 AQMP**

The project would comply with all applicable rules and regulations enacted as part of the AQMP. In addition, the AQMP relies upon the SCAG regional transportation strategy, which is in its adopted 2012–2035 RTP/SCS and 2011 FTIP. Included in the RTP/SCS are transportation control measures including active transportation (non-motorized transportation, e.g., biking and walking); transportation demand management; transportation system management; transit; passenger and high-speed rail; goods movement; aviation and airport ground access; highways; arterials; and operations and maintenance.

### **2016 AQMP**

As stated previously, the SCAQMD recently approved on March 3, 2017 the Final 2016 AQMP. Currently, the 2016 AQMP is being reviewed by the U.S. EPA and CARB. Until the approval of the EPA and CARB, the current regional air quality plan is the Final 2012 AQMP adopted by the SCAQMD on December 7, 2012. Therefore, consistency analysis with the 2016 AQMP has not been included. Nonetheless, the project would comply with all applicable rules and regulations

enacted as part of the 2016 AQMP, including transportation control measures from the 2016 RTC/SCS.

## State Implementation Plans

Geographical areas in the State that exceed the Federal air quality standards are called nonattainment areas. The project area is in nonattainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. SIPs show how each area will attain the Federal standards. To do this, the SIPs identify the amount of pollutant emissions that must be reduced in each area to meet the standard and the emission controls needed to reduce the necessary emissions. On September 27, 2007, the CARB adopted its State Strategy for the 2007 SIP. In 2009, the SIP was revised to account for emissions reductions from regulations adopted in 2007 and 2008 and clarifies CARB's legal commitment. Additional recent revisions to the SIP are as follows:

- In 2008, the EPA revised the lead<sup>81</sup> national ambient air quality standard by reducing it to 0.15 µg/m<sup>3</sup>. On December 31, 2010, the Los Angeles County portion of the Basin was designated as nonattainment for the 2008 lead national standard as a result of exceedances measured near a large lead-acid battery recycling facility. The 2012 Lead SIP for Los Angeles County was prepared by the SCAQMD and addresses the recent revision to the lead national standard, and outlines the strategy and pollution control activities that demonstrate attainment of the lead national standard before December 31, 2015. The 2012 Lead SIP was approved May 4, 2012.
- A SIP revision for the federal nitrogen dioxide standard was prepared in 2012, to address the new 1-hour federal ambient air quality standard for nitrogen dioxide.
- The proposed California Infrastructure SIP revision was considered by the CARB on January 23, 2014. The proposed Infrastructure SIP revision is administrative in nature and covers the National Ambient Air Quality Standards (federal standards) for ozone (1997 and 2008), fine particulate matter (PM<sub>2.5</sub>; 1997, 2006, and 2012), lead (2008), nitrogen dioxide (2010), and sulfur dioxide (2010). The proposed revision describes the infrastructure (authorities, resources, and programs) California has in place to implement, maintain, and enforce these federal standards. It does not contain any proposals for emission control measures.

The SIP takes into account CARB rules and regulations. The project will comply with applicable rules and regulations as identified in the AQMPs and SIPs and therefore, complies with this criterion.

## Summary

Although the project would be consistent with the policies, rules, and regulations in the AQMP and SIPs, the project must meet all the criteria listed above to be consistent with the AQMP. The project could impede AQMP attainment because its construction and operation emissions exceed

<sup>81</sup> Lead referred to here is a chemical element; a heavy metal.

the SCAQMD regional significance thresholds, so the project is considered to be inconsistent with the AQMP.

## 5.2 Regional Emissions

Violate any air quality standard or contribute substantially to an existing or projected air quality violation (AIR-2)

### Regional Construction Emissions

Grading and other construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions during these construction activities will vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Activity during peak grading days typically generates a greater amount of air pollutants than other project construction activities.

While the actual details of the future construction schedule are not known, it is expected that project construction would occur in two phases with the construction of Phase 1 occurring over five years and the construction of Phase 2 occurring over ten years. Appendix A includes details of the emission factors and other assumptions.

**Table 22, *Short-Term Regional Construction Emissions – Without Mitigation***, identifies projected emissions resulting from grading and construction activities for the project and shows the estimated maximum daily construction emissions over the course of project construction prior to the application of mitigation.

The construction emissions estimates summarized in Table 22 are based on an assumed construction scenario. Using emission factors from the CalEEMod model for off-road sources and EMFAC2017 emission factors for on-road sources, Table 22 indicates that construction emissions of criteria pollutants would exceed the SCAQMD daily emission thresholds for all criteria pollutants (VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>), with the exception of SO<sub>x</sub>.<sup>82</sup> This is a significant impact requiring mitigation.

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially by project, depending on the level of activity, the specific operations and equipment, local soils, and weather conditions at the time of construction. The project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust. There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM<sub>10</sub> emissions from construction.

<sup>82</sup> The project would emit SO<sub>x</sub> from construction equipment exhaust; however, the maximum emissions (2 pounds per day) are less than significant as they are far below the threshold of 150 pounds per day.

As identified in Table 22, fugitive dust and exhaust emissions during the anticipated peak construction day for the project would exceed SCAQMD daily construction thresholds. The percentage of dust and exhaust varies by year but for PM<sub>10</sub> is an average of 85 percent dust and 15 percent exhaust. PM<sub>2.5</sub> has an average of 54 percent dust and 46 percent exhaust.

**Table 22**  
**Short-Term Regional Construction Emissions–Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	319	989	701	2	127	42	168	27	38	66
2021	333	1124	832	2	126	47	172	26	43	69
2022	333	1103	865	2	154	45	199	37	41	78
2023	328	1010	858	2	170	41	211	40	37	77
2024	312	811	771	2	151	32	184	31	30	61
2025	285	529	576	1	124	20	144	27	19	46
2026	270	405	401	1	91	16	107	18	14	33
2027	267	380	376	1	40	15	55	10	14	24
2028	272	423	400	1	172	16	188	24	14	39
2029	268	390	378	1	114	15	129	18	14	32
2030	272	206	324	1	114	6	120	18	6	24
2031	263	163	292	1	108	5	113	15	5	20
2032	261	151	267	1	103	4	107	14	4	19
2033	251	110	226	1	81	3	84	11	3	14
2034	250	111	221	1	99	3	102	13	3	15
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>	<b>NA</b>	<b>NA</b>	<b>Yes</b>

## Notes:

- The emissions assume all construction activities (mass grading, fine grading, building, utilities, curbing, landscaping, painting, paving, and/or interchange) occur on the same day, depending on the year in which the activity occurs.

- Emissions assume compliance with SCAQMD Rule 403.

\* PM totals may not add up due to rounding.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter; NA = not applicable as there is no separate threshold for dust/exhaust

Concrete pouring would likely occur during nighttime hours due to limitations high temperatures pose for concrete work during the day. On-site equipment used during concrete pouring would involve daytime prep with actual concrete pouring occurring during the nighttime hours. On average, the total hours of operation for each piece of equipment during the concrete phase would be approximately 10 hours. Therefore, maximum daily emissions presented in Table 22 represent the maximum daily emissions including the average concrete pour day. However, under rare occurrences, extended concrete pour days may be required. **Table 23, Short-Term Regional 24-Hour Concrete Pour Emissions – Without Mitigation** summarizes daily maximum emissions for

each year of construction associated with 24-hour operation of on-site building concrete equipment. As shown in Table 23, maximum 24-hour concrete pour days would exceed SCAQMD thresholds for NO<sub>x</sub>. However, all maximum daily emissions are less than those for the worst-case construction day as summarized in Table 22. Therefore, rare 24-hour concrete pour days would be within the estimated worst-case construction day assumptions. No further analysis of 24-hour concrete pour days is required.

**Table 23**  
**Short-Term Regional 24-Hour Concrete Pour Emissions–Without Mitigation**

Year	Maximum Daily Pollutant Emissions (lbs/day)									
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub> dust	PM <sub>10</sub> exhaust	PM <sub>10</sub> Total	PM <sub>2.5</sub> dust	PM <sub>2.5</sub> exhaust	PM <sub>2.5</sub> Total
2020	18	155	165	0	12	9	20	1	8	9
2021	17	144	164	0	12	8	19	1	7	8
2022	15	131	163	0	12	7	18	1	6	7
2023	15	123	163	0	12	6	17	1	6	7
2024	14	117	163	0	12	5	17	1	5	6
2025	13	110	163	0	12	4	16	1	4	5
2026	13	110	163	0	12	4	16	1	4	5
2027	13	110	163	0	12	4	16	1	4	5
2028	13	110	163	0	12	4	16	1	4	5
2029	13	110	163	0	12	4	16	1	4	5
2030	14	87	167	0	12	2	14	1	2	3
2031	14	87	167	0	12	2	14	1	2	3
2032	14	87	167	0	12	2	14	1	2	3
2033	14	87	167	0	12	2	14	1	2	3
2034	14	87	167	0	12	2	14	1	2	3
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>150</b>	<b>NA</b>	<b>NA</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

\* PM totals may not add up due to rounding.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

NA = not applicable as there is no separate threshold for dust/exhaust

Similar to extended concrete pouring days, other phases of construction such as utility installation and building construction may require an occasional extended construction day based on the task at hand and schedule goals. Occasional extended construction hours would occur for specific tasks within specific planning areas as needed (determined on a day-to-day basis) and would not occur site-wide throughout the 15-year construction period. Therefore, it is anticipated that estimated yearly maximum construction day emissions, as summarized in Table 22, represent the realistic worst-case regional construction emissions for the 15-year construction duration. Therefore, no further analysis of potential extended construction days is required.

The project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires implementation of dust-suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM<sub>10</sub> component). Compliance with these rules would reduce impacts on nearby sensitive receptors. The applicable Rule 403 measures are as follows:

- All clearing, grading, earthmoving, or excavation activities shall cease when winds exceed 25 miles per hour per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the project are watered at least three times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meter (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicular Code Section 23114.
- The contractor shall ensure that traffic speeds on unpaved roads and project site areas are 15 miles per hour or less to reduce fugitive dust haul road emissions.

As previously discussed, SCAQMD Rule 1113 regulates the sale and application of architectural coatings. Rule 1113 is applicable to any person who applies or solicits the application of any architectural coating within the Basin. Rule 1113 sets limits on the amount of ROG or VOC emissions allowed for all types of architectural coatings. Compliance with Rule 1113 means that architectural coatings used during construction would have ROG or VOC emissions that comply with these limits.

## Operational Emissions

Long-term air pollutant emission impacts that would result from the project are those associated with stationary sources (generators, forklifts, etc.), area sources (landscaping and maintenance activities), and mobile sources (e.g., emissions from the use of motor vehicles by project-generated traffic).

As discussed above in Section 4, the TIA provides VMT attributable to the project based on the net effect the project would have on regional travel as well as project VMT without consideration of a net effect. The emissions from the net effect on VMT, in conjunction with the proposed stationary and area sources, are shown in **Table 24**, *Operational Regional Air Pollutant Emissions (Worst-Case Scenario)*, **Table 25**, *Operational Regional Air Pollutant Emissions (Detail, Unmitigated)*, **Table 26**, *Operational Regional Air Pollutant Emissions (Year by Year,*

*Pounds per Day, Unmitigated*), and **Table 27, Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, Pounds per Day, Unmitigated)**, below for determination of significance. For informational purposes only **Table 28, Operational Regional Air Pollutant Emissions (Detail, Unmitigated) – No Net Effect (For Informational Purposes Only)** includes operational mobile emissions without consideration of a net effect in regional traffic volumes.

### **Worst-case Scenario**

Projected emissions resulting from operational activities of the project under the worst-case scenario are identified in Table 24.

There may be minor emissions of VOC from the fueling station, depending on what type of fuel is used. However, details regarding the fueling station are currently unknown so the emission source is not estimated. This is a worst-case analysis because it assumes that the entire project would be built-out in 2020. The motor vehicle and truck emission factors are from 2020, which assumes a “dirtier” fleet than would be the case in later years. In addition, no reductions are taken for mitigation measures.

As identified in Table 24, operational emissions for the project would exceed SCAQMD daily operational thresholds for all criteria pollutants with the exception of SO<sub>x</sub> for the “worst-case” 2020 scenario.

**Table 24  
Operational Regional Air Pollutant Emissions (Worst-Case Scenario)**

Scenario	Source	Emissions (pounds per day)					
		VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Buildout 2020 emission factors	Mobile	<u>161</u>	<u>3,500</u>	<u>1,377</u>	<u>14</u>	<u>260</u>	<u>131</u>
	Area	<u>311</u>	<u>&lt;1</u>	<u>4</u>	<u>0</u>	<u>&lt;1</u>	<u>&lt;1</u>
	Onsite equipment	<u>9</u>	<u>245</u>	<u>89</u>	<u>0</u>	<u>2</u>	<u>2</u>
	<b>Total</b>	<b>481</b>	<b>3,745</b>	<b>1,470</b>	<b>14</b>	<b>263</b>	<b>134</b>
Significance Threshold		55	55	550	150	150	55
Significant Impact?		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>

Notes: VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide  
PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter <1 = less than one

### **Operational Regional Emissions**

Table 25 shows the detailed operational emission sources generated both on site and off site for Phase 1 and buildout. The table shows particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) divided into dust (roadway and tire and brake wear) and exhaust sources. As shown in the table, emissions of VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> are significant after completion of Phase 1 and after full buildout.

Table 26 shows the operational emissions year by year using emission factors interpolated from 2025 and 2035 emission factors. The VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions would be over the SCAQMD’s significance thresholds for most years. The emissions demonstrate that although the number of vehicles and trucks would increase year by year, the emissions do not increase

dramatically because the per-vehicle emission factors decrease over time as cleaner vehicles enter the fleet over time.

### ***Combined Construction and Operation***

There would be overlapping of construction and operational emissions with project implementation. The maximum daily operational emissions as shown in Table 26 were added to the maximum daily construction emissions and are shown in Table 27, which shows all pollutants for all years exceed the SCAQMD thresholds, with the exception of SO<sub>x</sub> emissions.

As identified in the preceding tables, project-related air quality impacts for all criteria pollutants, with the exception of SO<sub>x</sub>, would be significant and mitigation measures are required.

**Table 25  
Operational Regional Air Pollutant Emissions (Detail, Unmitigated)**

Phase	Source	Emissions (pounds/day)											PM <sub>2.5</sub> Total
		VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub> Dust	PM <sub>10</sub> Exh.	PM <sub>10</sub> Total	PM <sub>2.5</sub> Dust	PM <sub>2.5</sub> Exh.	PM <sub>2.5</sub> Total		
Phase 1	Mobile	24	849	277	5	129	13	141	40	7	47		
	Area	203	0	3	0	0	0	0	0	0	0		
	On-site Equipment	5	138	51	0	0	1	1	0	1	1		
	<b>Total</b>	<b>232</b>	<b>988</b>	<b>331</b>	<b>5</b>	<b>129</b>	<b>14</b>	<b>143</b>	<b>40</b>	<b>9</b>	<b>48</b>		
Buildout	Mobile	45	1,361	867	10	375	13	388	113	12	125		
	Area	311	0	4	0	0	0	0	0	0	0		
	On-site Equipment	9	245	89	0	0	2	2	0	2	2		
	<b>Total</b>	<b>364</b>	<b>1,606</b>	<b>961</b>	<b>10</b>	<b>375</b>	<b>15</b>	<b>390</b>	<b>113</b>	<b>15</b>	<b>127</b>		
Significance Threshold		<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>None</b>	<b>None</b>	<b>150</b>	<b>None</b>	<b>None</b>	<b>55</b>		
Significant Impact?		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>--</b>	<b>--</b>	<b>Yes</b>	<b>--</b>	<b>--</b>	<b>Yes</b>		

Notes: VOC = volatile organic compounds      NO<sub>x</sub> = nitrogen oxides      CO = carbon monoxide      PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter      Exh. = exhaust  
 <1 = less than 1  
 On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.

**Table 26  
Operational Regional Air Pollutant Emissions (Year by Year, pounds per day, unmitigated)**

Year	VOC	NOx	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2020	0	0	0	0	0	0
2021	51	338	111	1	34	14
2022	97	608	200	2	67	27
2023	138	808	269	3	97	37
2024	174	941	315	4	125	45
2025	205	988	330	5	138	48
2026	221	1,033	417	6	169	57
2027	238	1,109	494	6	195	65
2028	255	1,184	570	7	220	73
2029	272	1,255	639	7	245	81
2030	289	1,323	705	8	271	89
2031	305	1,388	766	8	296	97
2032	321	1,451	825	9	321	105
2033	337	1,511	879	9	346	113
2034	353	1,568	930	9	371	121
2035	364	1,606	961	10	390	127
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

• Emissions are from local vehicles, trucks, natural gas, emergency generators, forklifts, yard trucks, painting, and consumer products. There is no reduction from existing onsite emissions.

• Operational emissions are assumed to be zero in 2020 when project construction commences.

• PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.

• Landscaping emissions are negligible.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; SO<sub>2</sub> = sulfur dioxide; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

**Table 27  
Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, Pounds per Day, Unmitigated)**

Year	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2020 (construction only)	319	989	701	2	168	66
2021	384	1,463	943	3	207	83
2022	429	1,710	1,066	4	266	105
2023	465	1,818	1,127	5	308	114
2024	486	1,751	1,086	6	309	106
2025	490	1,517	906	7	282	94
2026	491	1,438	817	7	276	90
2027	505	1,489	870	7	250	89
2028	528	1,607	970	8	408	112
2029	540	1,645	1,017	8	374	113
2030	560	1,529	1,029	9	391	114
2031	568	1,551	1,058	9	408	117
2032	582	1,602	1,092	9	428	124
2033	588	1,620	1,105	10	429	127
2034	603	1,679	1,150	10	473	137
2035	364	1,606	961	10	390	127
<b>Max Daily Emissions</b>	<b>603</b>	<b>1,818</b>	<b>1,150</b>	<b>10</b>	<b>473</b>	<b>137</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

- Year 2020 contains construction emissions only; buildout contains operational emissions only
  - Sulfur oxide (SOx) emissions are substantially under the threshold of 150 pounds per day
  - Reduction from existing onsite emissions are not included.
- VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

**Table 28**  
**Operational Regional Air Pollutant Emissions (Detail, Unmitigated) – No Net Effect (For Informational Purposes Only)**

Phase	Source	Emissions (pounds/day)										
		VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	Fugitive PM <sub>10</sub>	Exhaust PM <sub>10</sub>	Total PM <sub>10</sub>	Fugitive PM <sub>2.5</sub>	Exhaust PM <sub>2.5</sub>	Total PM <sub>2.5</sub>	
Phase 1	Mobile	80	1,353	1,211	11	435	19	454	128	12	140	
	Area	203	0	3	0	-	0	0	-	0	0	
	On-site Equipment	5	138	51	-	-	1	1	-	1	1	
	<b>Total</b>	<b>288</b>	<b>1,491</b>	<b>1,265</b>	<b>11</b>	<b>435</b>	<b>20</b>	<b>455</b>	<b>128</b>	<b>14</b>	<b>141</b>	
Buildout	Mobile	106	1,994	1,711	16	852	19	872	246	18	264	
	Area	311	0	4	0	-	0	0	-	0	0	
	On-site Equipment	9	245	89	-	-	2	2	-	2	2	
	<b>Total</b>	<b>426</b>	<b>2,239</b>	<b>1,804</b>	<b>16</b>	<b>852</b>	<b>21</b>	<b>874</b>	<b>246</b>	<b>21</b>	<b>266</b>	

Notes: VOC = volatile organic compounds      NO<sub>x</sub> = nitrogen oxides      CO = carbon monoxide      PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter      Exh. = exhaust  
 less than 1      <1 =

### 5.3 Cumulatively Considerable Air Quality Impacts

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) (AIR-3)

The project would result in the emission criteria pollutants for which the project area is in non-attainment during both construction and operation. A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. The Basin is currently in non-attainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>.

#### Construction Emissions

The emissions from construction of the project would exceed applicable SCAQMD regional and local impact thresholds. Therefore, the project would result in a cumulatively considerable net increase for non-attainment pollutants or ozone precursors.

#### Operational Emissions

Future operations would exceed applicable SCAQMD regional thresholds. Therefore, the project would result in a cumulative considerable net increase for non-attainment of criteria pollutants or ozone precursors.

### 5.4 Substantial Pollutant Concentrations

Expose Sensitive Receptors to Substantial Pollutant Concentrations (AIR-4)

#### Localized Construction and Operational Emissions

The localized significance threshold analysis evaluated four conditions:

1. Project Build Out (2020), which assumes that Phase 1 and Phase 2 of the Project are fully built out in 2020 as a worst-case scenario;
2. 2022, the year when the Project emissions from both Project construction and operation are at their highest combined levels for several pollutants; and when construction activities would occur near the existing residences west of the Project boundary along Merwin Street;
3. 2025, the earliest year Phase 1 is assumed to be fully operational. When the projected construction schedule would result in construction activities in the southern portion of the Project adjacent to Alessandro Boulevard and east of the existing residential areas along Merwin Street, and when all of Phase 1 operations would occur (approximately 57 percent of entire project floor space); and

4. 2035, when Phase 1 and Phase 2 of the Project are fully operational.

Project Full Build Out under 2020 conditions represents hypothetical worst-case conditions in that the project physically could not be built-out in 2020 or, in fact, in any single year due to the size of the project. These conditions have been included in this assessment to correspond to the analysis scenarios examined in the project TIA. These conditions also do not account for the fact that vehicle emissions are expected to decline over time as vehicle emission control technologies improve. Thus, consideration of these conditions will significantly overestimate the project's potential air quality impacts. The 2022, 2025, and 2035 conditions represent the logical and realistic development of the project over a period of 15 years as represented by the project applicant. The LST analysis is presented for each condition below.

Pursuant to the SCAQMD's LST methodology, only emissions generated from emission sources located within and along the project boundaries are included in the LST assessment. These emission sources include vehicle travel on the roadway network within and along the borders of the project and emissions from support equipment including forklifts, yard/hostler trucks, and emergency standby electric generators.

### **Project Full Build Out (2020) LST Assessment**

The localized assessment results for the Project Phase 1 and Phase 2 Full Build Out (2020) condition are provided in **Table 29**, *Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Within the Project Boundaries (Without Mitigation)*, for receptors located within the project boundaries and in **Table 30**, *Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Outside the Project Boundaries (Without Mitigation)*, for receptors located outside the project's boundaries along with a comparison to the SCAQMD's localized significance thresholds. The significance thresholds for CO and nitrogen dioxide are derived from the measured ambient air quality data from the SCAQMD Riverside air monitoring station and serve as the measure of existing air quality.

**Table 29**  
**Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Within the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.05	2.2	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.019	0.092	0.180	No
	National 1 hour, ppm	0.058	0.018	0.076	0.100	No
	Annual, ppm	0.015	0.004	0.019	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	7.2	7.2	2.5	Yes

**Table 29**  
**Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Within the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
PM <sub>2.5</sub>	Annual, µg/m <sup>3</sup>	NA	4.0	4.0	1.0	Yes
	24 hour, µg/m <sup>3</sup>	NA	2.0	2.0	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences within the project boundaries.

**Table 30**  
**Localized Assessment of Project Phase 1 and Phase 2 Full Build Out (2018) Emissions Maximum Impacts Outside the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.03	2.2	20.0	No
	8 hour, ppm	2.0	0.02	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.015	0.088	0.180	No
	National 1 hour, ppm	0.058	0.015	0.073	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.9	2.9	2.5	No
	Annual, µg/m <sup>3</sup>	NA	1.8	1.8	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.8	0.8	2.5	No

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts generally occur at the existing residences along Gilman Springs Road to the east of the project.

As noted from Table 29, the project would exceed the SCAQMD's significance thresholds for the annual PM<sub>10</sub> threshold for receptors located within the project's boundaries. As shown in table 30, the significance thresholds would not be exceeded at any sensitive receptor located outside of the project boundaries.

It is important to note the Project Phase 1 and Phase 2 Full Build Out (2020) conditions assumes that the project's emissions are at the levels that would occur in 2020. The majority of the project's operational emissions are from on-road mobile sources, more particularly, heavy-duty trucks that contribute a disproportionate amount of emissions compared to passenger vehicles. Emissions from on-road mobile sources are regulated at the State and Federal levels and, therefore, are outside of the control of local agencies such as the City and the SCAQMD. For example, the CARB is working closely with the USEPA, engine and vehicle manufacturers, and other interested parties to identify programs that will reduce emissions from heavy-duty diesel vehicles in California. Emission reductions arise from a combination of measures including the use of ultra-low sulfur diesel fuel, new emission standards for large diesel engines, restrictions on diesel engine idling, addition of post-combustion filter and catalyst equipment, and retrofits for business and government diesel truck fleets. The implementation of these emission reductions will also result in reductions of other pollutants such as NO<sub>x</sub>, VOC, and CO. As these emission reduction programs are implemented and there is a turnover in the use of older vehicles with newer and cleaner vehicles, the project's operational emissions are expected to decline significantly in the future. Emission controls on mobile source vehicles already adopted by the CARB particularly dealing with NO<sub>x</sub> and PM<sub>10</sub> controls on heavy duty trucks will reduce truck emissions significantly over time. Thus, two Project (2020) conditions represent highly conservative estimates, in terms of overestimating of the project's operational impacts.

### ***Proposed Project Development Schedule LST Assessment***

The final localized threshold assessment condition examined potential local project impacts considering the proposed construction and build out schedule of the project over a time period of 15 years from the commencement of construction in 2020 to the final build out and operation in 2035. This condition examined three specific time periods:

- The project's onsite maximum daily and annual construction emissions were estimated using the CalEEMod land use emission model and the construction equipment inventory and activities provided by the applicant. The project's onsite operational emissions, principally from the project's mobile sources, were derived from detailed traffic volume data provided by the project's TIA that reflects a completely operational Phase 1. The TIA applied a comprehensive regional transportation model to develop daily and peak hour traffic volumes for 2025 and buildout from the project's mobile sources. Peak hour and daily project traffic volumes were developed for each year from 2020 to buildout for roadway segments within and along the boundaries of the project using the following assumptions:
  - Project operational traffic volumes were assumed to be zero in 2020, the year that project construction would commence.
  - Traffic volumes for the years 2021 to 2024 (the completion year for Phase 1 operations) were interpolated from 2025 volumes provided in the TIA by applying the annual project occupancy schedule to the 2025 traffic volumes.
  - Traffic volumes for the years 2026 to 2034 were interpolated from the provided traffic volumes at buildout by applying the annual project occupancy schedule.

## Year 2025

The localized impacts for the short-term construction and operational activities were analyzed using an air dispersion model (EPA AERMOD Model) to simulate the transport and dispersion of project-related emissions through the air. These impacts were then compared to the applicable SCAQMD localized concentration thresholds.

The estimated maximum localized air quality impacts from the construction and operation of the project at Phase 1 buildout are summarized in **Table 31, Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts within the Project Boundaries (Without Mitigation)**, for locations within the project’s boundaries. These maximum impacts were found at the locations of the existing residences within the project boundaries. **Table 32, Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (Without Mitigation)**, summarizes the highest air quality impacts for sensitive receptors located outside of the project boundaries. These maximum impacts were found at the locations of the existing residences outside of the project boundary located west of the project boundary along Merwin Street. As noted from these two tables, project impacts would exceed the significance thresholds for PM<sub>10</sub> for locations within the project boundaries, and thus represents a significant impact without mitigation.

**Table 31**  
**Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Within the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.09	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.030	0.104	0.180	No
	National 1 hour, ppm	0.058	0.021	0.079	0.100	No
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.7	5.7	2.5 <sup>2</sup>	<b>Yes</b>
	Annual, µg/m <sup>3</sup>	NA	2.6	2.6	1.0	<b>Yes</b>
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.5	1.5	2.5 <sup>2</sup>	No

Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

**Table 32**  
**Localized Assessment – Construction and Operation, Year 2025 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.037	0.110	0.180	No
	National 1 hour, ppm	0.058	0.024	0.082	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.4	5.4	2.5 <sup>2</sup>	<b>Yes</b>
	Annual, µg/m <sup>3</sup>	NA	0.6	0.6	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.3	1.3	2.5 <sup>2</sup>	No

## Notes:

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit), ppm = parts per million (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

## Year 2022

The year 2022 was selected for the LST Analysis for two principal reasons: 1) the year 2022 corresponds to the year with the highest combined total onsite construction and operational emissions for NO<sub>x</sub> and PM<sub>2.5</sub>, the second highest onsite emissions for CO, and the fourth highest onsite emissions of PM<sub>10</sub>; and 2) the location of the building construction in 2022 places the construction emissions nearest to the existing residences located west of the project boundary along Merwin Street.

The project's maximum combined impacts from construction and operations during 2022 are shown in **Table 33**, *Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Within the Project Boundaries (Without Mitigation)*, for the existing sensitive receptors located within the project boundaries along with the SCAQMD-recommended significance thresholds. **Table 34**, *Localized Assessment – Construction and Operation, Year 2022 Maximum Impacts Outside the Project Boundaries (Without Mitigation)*, shows the maximum combined impacts for sensitive receptors located outside of the project boundaries. Maximum impacts outside of the project boundary were found within the residential areas located to the west of the project boundary. As shown in these tables, the project would exceed the SCAQMD's significance thresholds for PM<sub>10</sub> at locations within the project boundary and outside of the project boundary and NO<sub>x</sub> within the project boundary.

**Table 33**  
**Localized Assessment – Construction and Operation, Year 2032 Maximum Impacts Within the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.13	2.3	20.0	No
	8 hour, ppm	2.0	0.04	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.056	0.129	0.180	No
	National 1 hour, ppm	0.058	0.048	0.106	0.100	<b>Yes</b>
	Annual, ppm	0.015	0.002	0.017	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	5.2	5.2	2.5 <sup>3</sup>	<b>Yes</b>
	Annual, µg/m <sup>3</sup>	NA	1.4	1.4	1.0	<b>Yes</b>
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.6	1.6	2.5 <sup>3</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3 year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the west of the project.

<sup>3</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

**Table 34**  
**Localized Assessment – Construction and Operation, Year 2032 Maximum Impacts Outside the Project Boundaries (without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration <sup>2</sup>		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.11	2.3	20.0	No
	8 hour, ppm	2.0	0.03	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.041	0.115	0.180	No
	National 1 hour, ppm	0.058	0.036	0.094	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	4.0	4.0	2.5 <sup>3</sup>	<b>Yes</b>
	Annual, µg/m <sup>3</sup>	NA	0.8	0.8	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	1.3	1.3	2.5 <sup>3</sup>	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and nitrogen dioxide derived as the highest air quality measured data over a 3-year rolling average from 2014-2017.

<sup>2</sup> Highest impacts at any receptor located outside of the boundaries of the project generally occur in the residential areas to the east of the project across Gilman Springs Road

<sup>3</sup> During periods when both construction and operation overlap the SCAQMD recommends the operational significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> as opposed to the construction thresholds which are 10.4 µg/m<sup>3</sup> for PM<sub>10</sub> and PM<sub>2.5</sub>. This provides a very conservative threshold for determining the significance of project impacts.

## Year 2035

The year 2035 represents a long-term planning year when both phases of the project would be fully in operation. Operational emissions during 2035 were estimated based on the project's trip generation and project-related travel along the local roadway network within and along the project boundaries. **Table 35, Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (Without Mitigation)**, shows the maximum localized air quality impacts for 2035 relative to the background air quality levels at the existing sensitive receptors located within the project boundaries. **Table 36, Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (Without Mitigation)**, identifies the highest localized impacts for sensitive receptors located outside of the project boundaries. As shown in Table 35 and Table 36, the project would exceed PM<sub>10</sub> LSTs for receptors within and outside the project boundary and would, therefore, represent a significant impact without mitigation.

**Table 35**  
**Localized Assessment – Project Operation Full Build Out, Year 2035 Maximum Impacts Within the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.04	2.2	20	No
	8 hour, ppm	2.0	0.02	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.018	0.091	0.180	No
	National 1 hour, ppm	0.058	0.016	0.074	0.100	No
	Annual, ppm	0.015	0.003	0.018	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	8.3	8.3	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	4.6	4.6	1.0	Yes
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	2.1	2.1	2.5	No

<sup>(1)</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit)

NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

**Table 36**  
**Localized Assessment – Project Operation, Year 2035 Maximum Impacts Outside of the Project Boundaries (Without Mitigation)**

Pollutant	Averaging Time, Units	Existing Background <sup>1</sup>	Air Concentration		Standard/Threshold	Total Impact Exceeds Threshold?
			Project Local Increase	Total (Background + Project)		
Carbon Monoxide	1 hour, ppm	2.2	0.03	2.2	20	No
	8 hour, ppm	2.0	0.01	2.0	9.0	No
Nitrogen Dioxide	State 1 hour, ppm	0.073	0.013	0.086	0.180	No
	National 1 hour, ppm	0.058	0.012	0.070	0.100	No
	Annual, ppm	0.015	0.001	0.016	0.030	No
PM <sub>10</sub>	24 hour, µg/m <sup>3</sup>	NA	2.50	2.50	2.5	Yes
	Annual, µg/m <sup>3</sup>	NA	0.95	0.95	1.0	No
PM <sub>2.5</sub>	24 hour, µg/m <sup>3</sup>	NA	0.66	0.66	2.5	No

µg/m<sup>3</sup> = micrograms per cubic meter (a concentration unit); NA = Not Applicable, the SCAQMD threshold methodology does not require a background for PM<sub>10</sub> or PM<sub>2.5</sub>

<sup>1</sup> Background data for CO and NO<sub>2</sub> for State standards were derived as the highest air quality measured data over the most recent 3 years of meteorological data 2016-2018. Background concentrations for the National 1-hour NO<sub>2</sub> is the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average.

## Summary

The localized significance analysis demonstrates that without mitigation, the project would exceed the localized significance thresholds for NO<sub>x</sub> and PM<sub>10</sub> for one or more of the LST assessment years (2022, 2025, or 2035) analyzed. Therefore, according to this criterion, the air pollutant emissions would result in a significant impact and could exceed or contribute to an exceedance of the national 1-hour NO<sub>2</sub> annual, as well as the 24-hour and annual PM<sub>10</sub> ambient air quality standards.

## Toxic Air Contaminants

### ***Acute and Chronic Health Risk Impacts***

Acute and chronic health risk impact analyses examine the increased risk for non-cancer health outcomes associated with project-related air pollutant emissions. Since these are non-cancer health impacts, as described below, the impacts are analyzed separately from increased cancer risk associated with air pollution.

The construction and operation of the project would not emit any toxic chemicals in any significant quantity other than vehicle exhaust. While there may be other toxic substances in use on site, risk would be negligible due to intermittent use (i.e., chemicals from periodic maintenance), dispersion of chemicals throughout the project site, and compliance with State and Federal handling regulations.

Exposure to diesel exhaust can have immediate (acute) health effects, such as irritation of the eyes, nose, throat, and lungs, and can cause coughs, headaches, light headedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. However, according to the rulemaking on Identifying Particulate Emissions from Diesel-Fueled Engines as a Toxic Air Contaminant<sup>83</sup>, the available data from studies of humans exposed to diesel exhaust are not sufficient for deriving an acute non-cancer REL.

The analysis, however, does derive an estimate of acute non-cancer risks by examining the acute health effects of the various toxic components that comprise diesel and gasoline emissions. There is specific guidance for estimating the acute non-cancer hazards from these toxic components based on chemical profiles established by the CARB which was used in the analysis to determine the project's acute non-cancer hazards.

To determine the project's *chronic* non-cancer hazard impact, the highest emissions concentrations was determined covering the years 2020 (the commencement of project construction) to 2035 (the full build out of the project). In this regard, the highest annual average concentrations prior to mitigation determined through air dispersion modeling occurred at an existing residence located within the project boundaries. This concentration was due to the impacts of emissions from the off-road construction equipment and operation equipment. This level of impact results in a chronic

<sup>83</sup> CARB. 1998. The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines. <https://www.arb.ca.gov/toxics/dieseltac/factsht1.pdf>

non-cancer HI of 0.04. This HI is less than the SCAQMD's significance level of 1.0, and is, therefore, less than significant.

The estimation of the acute non-cancer HI requires the estimation of the maximum 1-hour impacts of toxic air contaminant (TAC) components in organic gases and PM emissions. For project construction, estimates of the maximum 1-hour ROG and PM exhaust emissions were derived from the project's peak daily construction equipment emissions; for project operation, estimates of the project's maximum 1-hour TOG and PM emissions were derived from the project's peak hour traffic data along the nearly 230 roadway segments contained within the study area and then speciated or broken down into the various TAC components by fuel type, gasoline and diesel, and emission type (i.e., exhaust, evaporative, brake wear and tire wear). The acute non-cancer HI was determined for a worst-case condition that assumed the project would be constructed between 2020 and 2034 and full operation starts in 2035. Based on this information, the maximum acute non-cancer HI found at any receptor within the model domain prior to mitigation was 0.07 during any year of project construction and operation, which is less than the SCAQMD's non-cancer HI of 1.0, and, therefore, is less than significant without mitigation.

Therefore, the potential for short-term acute and chronic exposure from TAC emissions are considered to be less than significant and no mitigation is required.

### **Cancer Risks**

As noted in Section 4, Methodology, the project health risk assessment examined the following condition for impacts to both sensitive/residential and worker receptors:

- Proposed Project Development condition which evaluates the impacts of project-related construction and operational traffic diesel PM emissions as if the project were built out in accordance with its proposed phased construction and operational buildout schedule commencing with the construction of Phase 1 in 2020 and the full build out in 2035.

The mitigation conditions require that all diesel-fueled haul trucks during construction be 2010 or newer, diesel trucks accessing the project during operation be model year 2010 or newer, and that all on-site equipment be Tier 4.

To be conservative, the HRA relied on EMFAC2017 to determine the breakdown of vehicle types and fuel types and did not consider the potential reductions in TACs emissions and health risks from increased penetration of zero emission vehicles (ZEVs). The increased penetration of ZEVs is speculative, but likely given rapid technology advancement and more stringent legislation. For example, this HRA assumed that the 2035 heavy duty truck fleet would be made up of 89 percent diesel, 9 percent gasoline, 3 percent natural gas, and 0 percent electric. According to the WLC Transportation Energy Technical Report (ESA, 2019), a High EV Penetration scenario projects that the heavy duty truck fleet would consist 30 percent electric by 2035. Therefore, accounting for the High EV Penetration scenario would result in a greatly reduced health risk impact than what has been calculated in this analysis.

## Localized Risk

**Cancer Risk for Sensitive/Residential Receptors.** For reference, a risk level of 1 in a million implies a likelihood that up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration of TAC emissions over the duration of the exposure. This risk would be an excess cancer risk that is in addition to any cancer risk borne by a person not exposed to these air toxics.<sup>84</sup>

**Table 37**, *Estimated Cancer Risks, 30-Year Exposure for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation*, presents the estimated cancer risks for the 30-year exposure scenario that starts from the beginning of project construction (Construction + Operation HRA), which uses updated construction and operational emissions values. The results are provided separately for project construction emissions, operational emissions, and the total project emissions prior to the application of emission mitigation. **Table 38**, *Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation*, shows the estimated cancer risk for the 30-year exposure scenario that starts from the beginning of project full operation in 2035 (Operational HRA), which used the 2035 emission levels to represent the emissions for 2035 to 2064.

On the basis of the results shown in Table 37, the project would exceed the SCAQMD's cancer risk significance threshold of 10 in a million prior to the application of mitigation and would represent a significant impact. Table 38 shows that during full project operation, the estimated maximum cancer risk would exceed the 10 in a million threshold within and outside of the Project boundary and would represent a significant impact. Overall, without mitigation, the Project is expected to have a significant impact mainly due to diesel PM emissions from construction and heavy-duty diesel truck activities.

**Figure 23**, *Incremental Project Cancer Risk – No Mitigation (Construction and Operation)*, and **Figure 24**, *Incremental Project Cancer Risk – No Mitigation (30 Years of Full Operation)*, show the incremental cancer risks for the project location. The figures show the results prior to the application of mitigation.

**Estimates of Cancer Risk for School Site Receptors.** Cancer risk estimates at school sites in the area were prepared assuming a 9-year exposure during construction and operation as well as operation at full buildout. Prior to the application of the mitigation, the maximum cancer risk is at Ridgecrest Elementary School for the construction + operational scenario and would be approximately 12.6 in a million. Similarly, the maximum cancer risk for the full operational scenario is 3.54 in one million is at Bear Valley Elementary School. Therefore, maximum impacts at schools are greater than the 10 in one million significance threshold prior to mitigation and are potentially significant without mitigation.

**Estimates of Cancer Risk for Worker Receptors.** Estimates of worker exposures were prepared based on the assumption of a 25-year exposure duration for 250 days per year and 8 hours per day

<sup>84</sup> Definition of a 1 in a million cancer risk from the US EPA, Technology Transfer Network Air Toxics, Glossary of Key Terms, Website: [www.epa.gov/ttn/atw/natamain/gloss1.html](http://www.epa.gov/ttn/atw/natamain/gloss1.html).

as described in the methodology section above. Note that the OEHHA early-in-life age factors do not apply to worker receptors. The highest worker cancer risk estimates prior to the application of mitigation is approximately 10.9 in one million for the construction + operational scenario and 3.8 in one million for the full operational scenario, both at one onsite location. Therefore, cancer risk for worker receptors anywhere in the revised HRA's study area is greater than the 10 in one million significance threshold. Projected impacts are potentially significant without mitigation.

**Estimates of Cancer Burden.** The cancer burden calculation provides an estimate of the increased number of cancer cases as a result of exposures to TAC emissions. The total cancer burden is the product of the number of persons in a population area (such as a census tract) and the estimated individual risk from TACs in that population area and then summed over all of the population areas. The SCAQMD indicates that the burden calculation includes those population units having an incremental cancer risk of 1 in a million or greater.

Cancer risks were estimated at the geographical center (centroid) of census tracts that are within the study area of the HRA. For the 30-year exposure duration in accordance with "Current OEHHA Guidance", the cancer burden is estimated to be 0.64 out of a population of about 176,824 individuals that were estimated to have a cancer risk of 1 in a million or more prior to mitigation. The SCAQMD has established a threshold for cancer burden of 0.5. Therefore, the project would potentially exceed the SCAQMD's cancer burden significance threshold prior to the application of mitigation.

These analyses are based on the assumption that new technology diesel exhaust cause cancer, contrary to what was found by the HEI study and discussed in more detail below.

**Table 37**  
**Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), Without Mitigation**

Receptor Location	Incremental Increase in Cancer Risk During Project Construction (risk/million)	Incremental Increase in Cancer Risk During Project Operation (risk/million)	Total Incremental Increase in Cancer Risk <sup>(1)</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>(2)</sup>	49.5	17.3	66.8	10	Yes
Maximum risk within the project boundaries <sup>(3)</sup>	49.5	17.3	66.8	10	Yes
Maximum risk at any area outside of the project boundaries <sup>(4)</sup>	46.46	8.76	55.22	10	Yes

Notes:

- 1 Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the updated construction emission estimate, TIA, EMFAC2017 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks.
- 2 Location is at the existing residences within the boundaries of the project, located at the 13241 World Logistic Parkway (formerly Theodore Street).
- 3 Location is at the existing residences within the boundaries of the project, located at the 13241 World Logistic Parkway (formerly Theodore Street).
- 4 Location is adjacent to the southwestern boundary of the project.

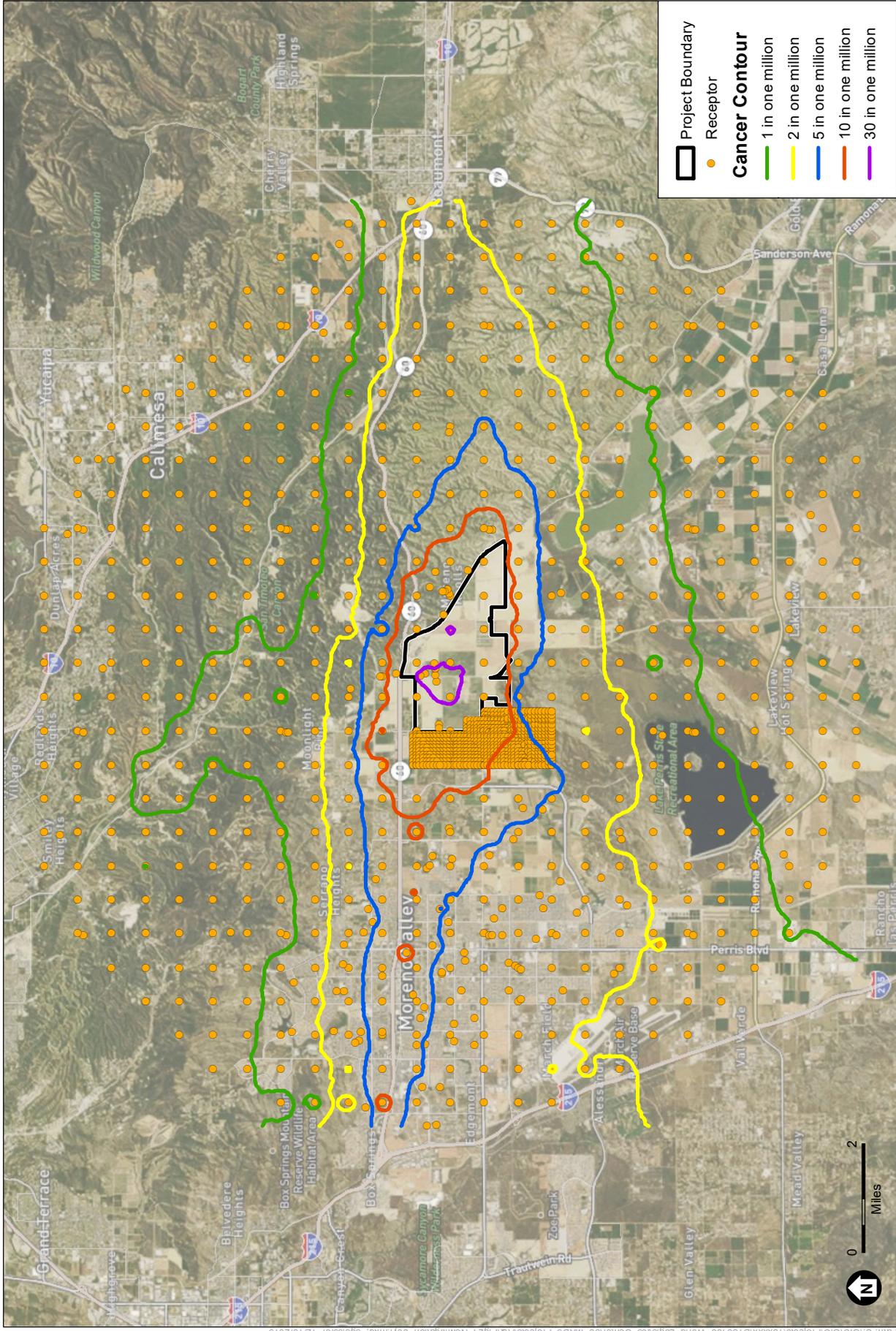
**Table 38  
Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, Without Mitigation**

<b>Receptor Location</b>	<b>Total Incremental Increase in Cancer Risk<sup>(1)</sup> (risk/million)</b>	<b>SCAQMD Cancer Risk Significance Threshold (risk/million)</b>	<b>Exceeds Threshold?</b>
Maximum risk anywhere in the modeling domain <sup>(2)</sup>	34.0	10	Yes
Maximum risk within the project boundaries <sup>(3)</sup>	34.0	10	Yes
Maximum risk at any area outside of the project boundaries <sup>(4)</sup>	29.9	10	Yes
Maximum risk along SR 60 freeway <sup>(5)</sup>	34.0	10	No

Notes:

- 1 Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2035 to 2064 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2017 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks.
- 2 Location is at the existing residence immediately to the north of the project boundary at 13241 World Logistics Center Parkway (formerly Theodore Avenue).
- 3 Location is at the existing residence located at 30220 Dracaea Avenue.
- 4 Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.
- 5 Location is south of SR 60 freeway, same as the location in footnote (2).





World Logistics Center

**Figure 24**  
Incremental Project Cancer Risk – No Mitigation  
(30 Years of Full Operation)

SOURCE: ESRI 2019; ESA 2019.



## Regional Freeway Network Risk

As mentioned in the methodology section, the HRA study area was focused on the most extensive emissions from project related activities. Because project activity is highest on-site and surrounding the Project boundary, the Project's emissions and associated health impact decreases with an increase in distance from the project site. This is demonstrated by the cancer risk contours in Figures 23 and 24. The HRA study area includes approximately 18 miles of freeway segments along SR-60 that extend from north of the project boundary 8.6 miles toward the west (toward Port of Long Beach) and 9 miles toward east (toward Palm Springs), and the HRA receptor grids include receptors along the SR-60 freeway. Based on the results shown in Figure 23 for the construction plus operation scenario, without mitigation, a segment surrounding the project boundary will potentially have an incremental cancer risk exceeding the SCAQMD 10 in one million threshold; at an approximate distance of 2.5 miles away from the project boundary. Based on results shown in Figure 24 for 30 years of the full project operation, without mitigation, a similar section surrounding the Project boundary out to an approximate distance of 2.5 miles will potentially have an incremental cancer risk exceeding 10 in one million. Some receptors near the SR-60 could also exceed the 10 in one million cancer risk threshold.

The Project's mitigation conditions require that all construction equipment over 50 horsepower would be Tier 4, all diesel trucks accessing the project during operation be model year 2010 or newer, that all on-site equipment be Tier 4. Also, air filtration system meeting ASHRAE Standard 52.2 MERV-13 standards will be offered to the owners of the houses located at 13100 World Logistics Center Parkway (formerly Theodore Street) and 12400 World Logistics Center Parkway (formerly Theodore Street).

Because Project-generated vehicle trips and associated impacts decrease with an increase in distance from the project site, the project impact along the regional freeway network outside the HRA's study area will be less than those presented in Figures 23 and 24. Therefore, the project's impact to the regional freeway network will be the greatest during Project full operation, as shown in Tables 54 and 55, and will be less than significant with mitigation.

Of note, results in Figure 23 is based on project construction overlapping with project operations (partial project operation since project is not built out yet) while Figure 24 is based on full project operation. The difference between the two sets of results indicate that the incremental cancer risk in Figure 23 is mainly driven by the DPM emissions from onsite construction equipment. Therefore, the impact would be localized near the project site and will disappear once construction completes.

## Carbon Monoxide Hotspots

Vehicular trips associated with the development of the project could contribute to congestion at intersections and along roadway segments in the project vicinity resulting in potential local CO "hotspot" impacts. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle travel speeds and idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthy levels affecting local

sensitive receptors (residents, school children, etc.). High CO concentrations are typically associated with roadways or intersections operating at unacceptable levels of service or with very high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

Carbon monoxide (CO) "hotspot" thresholds ensure that emissions of CO associated with traffic impacts from a project in combination with CO emissions from existing and forecast regional traffic do not exceed State or Federal standards for CO at any traffic intersection affected by the project. Project concentrations may be considered significant if a CO hot spot intersection analysis determines that project-generated CO concentrations cause a localized violation of the State CO 1-hour standard of 20 ppm, State CO 8-hour standard of 9 ppm, Federal CO 1-hour standard of 35 ppm, or Federal CO 8-hour standard of 9 ppm.

A CO hotspot is a localized concentration of CO that is above the State or Federal 1-hour or 8-hour CO ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at project-impacted intersections where the concentrations would be the greatest.

This analysis follows guidelines recommended by the CO Protocol<sup>85</sup> and the SCAQMD. According to the CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis. The LOS for intersections is determined in the TIA. The SCAQMD recommends that a local CO hot spot analysis be conducted if the intersection meets one of the following criteria: (1) the intersection is at LOS D or worse and where the project increases the volume to capacity ratio by 2 percent, or (2) the project decreases LOS at an intersection from C to D. A decrease in LOS, i.e., from C to D, means that there is more traffic and more delay at the intersection.

For this project analysis, the intersections with the highest traffic volumes and the LOS E or F before mitigation were identified for 2025 using information from the table in the TIA "Intersection LOS under 2025 Plus Phase 1 Conditions." The intersections with the greatest LOS before mitigation were also identified for buildout using information from the table in the TIA "Intersection LOS under 2040 Plus Build-out Conditions."

The CO concentrations were estimated using the CALINE4 model using 2025 and 2035 emission factors. The emission factors are for "all" vehicle classes and are not adjusted for a project-specific fleet to provide a worst-case scenario. In addition, the emission factors do not take into account the project mitigation reductions from requiring that all diesel trucks are model year 2010 or newer. Results of the CO hotspot modeling are provided in Appendix C.

**Table 39**, *Carbon Monoxide Concentrations at Intersections, 2025*, shows estimated CO concentrations at year 2025 plus project traffic conditions. The estimated CO concentrations at year buildout are shown in **Table 40**, *Carbon Monoxide Concentrations at Intersections, 2035*.

<sup>85</sup> University of California, Davis. 1997. Prepared for California Department of Transportation. 1996. Transportation Project-Level Carbon Monoxide Protocol. <http://www.dot.ca.gov/env/air/co-protocol.html>

As shown in the tables, the estimated 1-hour and 8-hour average CO concentrations from project-generated and cumulative traffic plus the background concentrations are below the State and Federal standards. No CO hotspots are anticipated because of traffic-generated emissions by the project in combination with other anticipated development in the area. Therefore, the mobile emissions of CO from the project are not anticipated to contribute substantially to an existing or projected air quality violation of CO. Therefore, according to this criterion, air pollutant emissions during operation would result in a less than significant impact. No mitigation is required.

**Table 39**  
**Carbon Monoxide Concentrations at Intersections, 2025**

Intersection	Peak Hour	CO Concentration (ppm)		Significant Impact?
		1 Hour	8 Hour	
Alessandro Boulevard and Chicago Avenue	PM	2.0	1.3	No
Alessandro Boulevard and Canyon Crest Drive	PM	1.6	1.1	No
Alessandro Boulevard and Mission Grove Parkway	PM	1.4	0.9	No
Arlington Avenue and Victoria Avenue	PM	1.1	0.7	No
Alessandro Boulevard and Sycamore Canyon Boulevard	AM	1.1	0.7	No

- ppm = parts per million
- A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

**Table 40**  
**Carbon Monoxide Concentrations at Intersections, 2035**

Intersection	Peak Hour	CO Concentration (ppm)		Significant Impact?
		1 Hour	8 Hour	
Alessandro Boulevard and Chicago Avenue	PM	1.9	1.3	No
Alessandro Boulevard and Canyon Crest Drive	PM	1.8	1.2	No
Alessandro Boulevard and Sycamore Canyon Boulevard	PM	1.6	1.1	No
Ramona Expressway and Sanderson Avenue	PM	2.2	1.5	No
Alessandro Boulevard and Mission Grove Parkway	PM	1.5	1.0	No

- ppm = parts per million
- A significant impact would occur if the estimated CO concentration is over the 1-hour State standard of 20 ppm or the 8-hour State/Federal standard of 9 ppm.

## 5.5 Odors

Create objectionable odors affecting a substantial number of people (AIR-5)

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined

under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Land uses typically considered associated with odors include wastewater treatment facilities, waste-disposal facilities, or agricultural operations. The project does not contain land uses typically associated with emitting objectionable odors.

SCAQMD Rule 402 dictates that air pollutants discharged from any source shall not cause injury, nuisance, or annoyance to the health, safety, or comfort of the public. With the exception of short-term construction-related odors (e.g., equipment exhaust, paint, and asphalt odors), the proposed uses that would be developed on the proposed site do not include uses that are generally considered to generate offensive odors (e.g., agricultural uses, wastewater treatment plants, or landfills). While the application of architectural coatings and installation of asphalt may generate odors, these odors are temporary and not likely to be noticeable beyond the project boundaries. SCAQMD Rules 1108 and 1113 identify standards regarding the application of asphalt and architectural coatings, respectively.

SCAQMD Rule 1108 sets limitations on ROG (reactive organic gases), which are similar to and for the purposes of this EIR equivalent to and therefore interchangeable with volatile organic compounds (VOC) content in asphalt. This rule is applicable to any person who supplies, sells, offers for sale, or manufactures any asphalt materials for use in the Basin. Rule 1113 of the SCAQMD deals with the selling and application of architectural coatings. Rule 1113 is applicable to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use in the Basin that is intended to be applied to buildings, pavements, or curbs. This rule is also applicable to any person who applies or solicits the application of any architectural coating within the Basin. Rule 1113 sets limits on the amount of VOC emissions allowed for all types of architectural coatings, along with a time table for tightening the emissions standards in the future. Compliance with Rule 1113 means that architectural coatings used during construction would have VOC emissions that comply with these limits.

The SCAQMD indicates that the number of overall complaints has been declining. Between 2003 and 2007, odor complaints made up 50 to 55 percent of the total nuisance complaints. Over the past decade, odor complaints from paint and coating operations have decreased from 27 to 7 percent and odor complaints from refuse collection stations have increased from 9 to 34 percent.

Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Diesel exhaust would also be emitted during operation of the project from the long-haul trucks that would visit the project site. However, the concentrations would not be at a level to result in a negative odor response at nearby sensitive or worker receptors. In addition, modern emission control systems on diesel vehicles since 2007 virtually eliminate diesel's characteristic odor.

During blow-down maintenance activities, natural gas odors will be present around the SDG&E Compressor Plant located on the project site. When this portion of the WLC Specific Plan is developed, these odors will occasionally be detectable from the industrial warehouse properties

adjacent to the SDG&E facility. These odors will be infrequent and odorized natural gas will not be present in high concentrations. Therefore, potential odor impacts from on-site natural gas operations are considered to be less than significant and do not require mitigation.

Adherence to applicable provisions of these rules is standard for all development within the Basin. In addition, conditions for the design of waste storage areas on the proposed site would be established through the permit process to ensure enclosures are appropriately designed and maintained to prevent the proliferation of odors. Solid waste generated by the proposed on-site uses will be collected by a contracted waste hauler, ensuring that any odors resulting from on-site uses would be adequately managed. Therefore, impacts associated with this issue would be less than significant and no mitigation is required.

## 5.6 Greenhouse Gas Emissions

Generate GHG Emissions, either directly or indirectly, that may have a significant impact on the environment (GHG-1)

Future development that could occur within the project site could generate GHG emissions during both construction and operation activities. The following activities are associated with the project and could directly or indirectly contribute to the generation of GHG emissions:

- **Removal of Vegetation (Land Use Change) and Sequestration:** Carbon sequestration is the process of capture and storage of carbon dioxide; trees, vegetation, and soil store carbon in their tissues and wood. The net removal of vegetation for construction from land use change results in a loss of the carbon sequestration in plants. However, planting additional vegetation (sequestration) would result in additional carbon sequestration and would lower the carbon footprint of the project.
- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Leaks from installation of refrigeration equipment for air conditioning may occur.
- **Gas, Electric, and Water Use:** Natural gas use results in the emissions of CH<sub>4</sub> (the major component of natural gas) and CO<sub>2</sub> from the combustion of natural gas. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. Conveying water to the project and treating wastewater also uses electricity.
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH<sub>4</sub> from the anaerobic decomposition of organic materials. CH<sub>4</sub> is approximately 21 times more potent than CO<sub>2</sub>. Landfill CH<sub>4</sub> can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

- **Motor Vehicle Use:** Transportation associated with the project would result in GHG emissions from the combustion of fossil fuels and the use of electricity in daily automobile and truck trips.
- **On-site Equipment:** During operation of the project, there would be on-site equipment operating, including yard trucks, emergency generators, and forklifts.

## Construction Emissions

The project would emit GHGs mainly from direct sources such as combustion of fuels from worker vehicles and construction equipment, as shown in **Table 41**, *Construction Greenhouse Gas Emissions (Without Mitigation)*. The GHG emissions are from all phases of construction. The SCAQMD recommends that construction emissions be averaged over a 30-year period.

**Table 41**  
**Construction Greenhouse Gas Emissions (Without Mitigation)**

Year	Annual Emissions (mt CO <sub>2</sub> e)
2020	18,770
2021	22,198
2022	23,363
2023	23,511
2024	22,113
2025	16,408
2026	12,424
2027	11,692
2028	12,000
2029	11,452
2030	12,311
2031	10,610
2032	9,993
2033	7,451
2034	7,430
<b>Total</b>	<b>221,727</b>
<b>Averaged over 30 years</b>	<b>7,391</b>

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents.

Note: The SCAQMD recommends that construction emissions be averaged over a 30-year period.

Sources include onsite construction equipment, worker trips, haul trips, vendor trips, refrigerant installation for the air conditioning in the offices, construction waste, and water use. Values presented in the table may not equal the sum due to rounding.

## Operational Emissions

### **Total Emissions, Worst-case Scenario**

Operational or long-term emissions occur over the life of the project. Operational emissions for a worst-case buildout condition are shown in **Table 42**, *Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout)*. This is a worst-case analysis because it assumes that the entire project would be build-out in 2020. The emissions are presented by greenhouse gas (in tons per year), which was also converted to metric tons of carbon dioxide equivalents (mt CO<sub>2</sub>e). The

vehicle emissions in the table represent travel within the South Coast Air Basin. The emissions do not take into account mitigation measures to reduce emissions, such as the use of model year 2010 and later diesel trucks on the project site. As shown in the table, the project's uncapped emissions are over the SCAQMD's significance threshold of 10,000 mt CO<sub>2e</sub> per year. Therefore, emissions are potentially significant.

The analysis presented in Table 42, also represents a worst-case analysis because the emission factors do not take into account implementation of California's Mobile Source Strategy and the full reductions expected from newer trucks and cars as a result of the Pavley regulations, the Low Carbon Fuel Standard, and California's Advanced Clean Car program. The emissions are estimated using emission factors from EMFAC2017, CARB's emission factor model, for the year 2020.

**Table 42**  
**Project Operational GHG Emissions (Worst-Case 2020 Analysis at Buildout)**

Source	Emissions (metric tons per year)					GHG Emissions (mt CO <sub>2e</sub> ) <sup>1</sup>
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b>Capped Emissions</b>						
Construction	7,382	0.00	0.00	0.00	0.01	7,391
Net Mobile	245,516	6.84	31.06	0.00	8.10	261,099
Yard trucks	7,172	0.00	0.00	0.00	0.00	7,172
Generator	242	0.01	0.00	0.00	0.03	267
Forklifts	250	0.00	0.00	0.00	0.01	257
Electricity <sup>2</sup>	34,147	-	-	-	-	34,147
Water	2,548	-	-	-	-	2,548
Natural gas <sup>2</sup>	4,483	2.15	24.49	-	0.00	4,689
<b>Total Capped</b>	<b>300,931</b>	<b>44.13</b>	<b>144.66</b>	<b>0.00</b>	<b>8.16</b>	<b>317,570</b>
<b>Uncapped Emissions</b>						
Construction Refrigerants and Waste	104	0.00	0.00	0.05	0.00	166
Waste	7,747	457.83	0.00	-	-	19,193
Refrigerants	0	0.00	0.00	1.71	0.00	2,572
Land use change	1,154	0.00	0.00	0.00	0.00	1,154
Sequestration	-111	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>8,894</b>	<b>457.83</b>	<b>0.00</b>	<b>1.77</b>	<b>0.00</b>	<b>22,974</b>
Threshold	--	--	--	--	--	10,000
Significant impact?	--	--	--	--	--	Yes

<sup>1</sup> mt CO<sub>2e</sub> is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072. <0.01 = less than 0.01.

<sup>2</sup> – Electricity and natural gas emissions estimates are based on minimum compliance with 2019 Title 24 building standards and compliance with RPS.

### Total Project Emissions

**Table 43, Project GHG Emissions at Buildout by GHG (Unmitigated)**, shows the unmitigated capped and uncapped project emissions at buildout, including estimates of the project's mobile emissions estimates for future years based on EMFAC2017 emission factors for the actual year assessed, which take into account the Pavley regulations, the LCFS, and California's Advanced Clean Car Program. Emissions are shown by individual GHG (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, and black carbon) and totaled using the common unit of metric tons CO<sub>2</sub>e based on the globalwarming potential of each gas. Emissions estimates for electricity and natural gas do not account for Project Design Features that improve building energy efficiency and maximize the use of on-site renewable energy.

**Table 43  
Project GHG Emissions at Buildout by GHG (Unmitigated)**

Source	Emissions (metric tons per year)					GHG Emissions (mt CO <sub>2</sub> e) <sup>1</sup>
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs	Black Carbon	
<b>Capped Emissions</b>						
Construction	7,382	0.00	0.00	0.00	0.02	7,391
Net Mobile	172,164	7.23	19.61	0.00	1.53	179,355
Yard trucks	7,172	0.00	0.00	0.00	0.00	7,172
Generator	242	0.01	0.00	0.00	0.03	267
Forklifts	250	0.00	0.00	0.00	0.01	257
Electricity <sup>2</sup>	34,147	-	-	-	-	34,147
Water	2,548	-	-	-	-	2,548
Natural gas <sup>2</sup>	4,483	2.15	24.49	-	0.00	4,689
<b>Total Capped</b>	<b>227,579</b>	<b>44.53</b>	<b>133.21</b>	<b>0.00</b>	<b>9.64</b>	<b>235,826</b>
<b>Uncapped Emissions</b>						
Construction Refrigerants and Waste	104	0.00	0.00	0.05	0.00	166
Waste	7,747	457.83	0.00	-	-	19,193
Refrigerants	0	0.00	0.00	1.71	0.00	2,572
Land use change	1,154	0.00	0.00	0.00	0.00	1,154
Sequestration	-111	0.00	0.00	0.00	0.00	-111
<b>Total Uncapped</b>	<b>8,894</b>	<b>457.83</b>	<b>0.00</b>	<b>1.77</b>	<b>0.00</b>	<b>22,974</b>
Threshold	--	--	--	--	--	10,000
Significant impact?	--	--	--	--	--	Yes

<sup>1</sup> mt CO<sub>2</sub>e is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons [HFC] – 1500, black carbon 760)

<sup>2</sup> – Electricity and natural gas emissions estimates are based on minimum compliance with 2019 Title 24 building standards and compliance with RPS.

The total emissions estimate for the project, summarized in **Table 44, *Project GHG Emissions (Year by Year Without Mitigation)***, include both construction and operations emissions, and do not account for Project Design Features that improve building energy efficiency and maximize the use of on-site renewable energy; nor do they account for the project's mitigation measures.

Table 44 shows a summary of project emissions (unmitigated) for each year between 2020 and 2064. The analysis assumes the gradual phasing in of structures until buildout (2035) and the gradual phasing out of structures as they reach their presumed lifetime of 30 years. Therefore, the lifetime of the Project extends until 2064 when the final structures are presumed to have reached their 30-year lifetime. As shown in the table, the annual uncapped emissions are over the SCAQMD's significance threshold of 10,000 mt CO<sub>2</sub>e per year for a majority of the years presented. Therefore, emissions are potentially significant, and mitigation is required.

**Table 44a  
Project GHG Emissions (Year by Year without Mitigation)**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Net Mobile	0	22,089	42,984	62,716	81,169	97,097	103,414	113,746	123,988	133,464	142,515	151,159	159,397	167,226	174,639
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	30	61	91	121	151	163	175	187	199	211	222	234	246	258
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	6,097	11,672	18,583	24,799	36,149	40,666	41,689	41,168	40,436	40,169	39,884	39,257	38,288	36,329
Water	0	133	267	445	623	953	1,283	1,458	1,562	1,667	1,817	1,986	2,156	2,326	2,437
Natural gas	0	0	545	1,089	1,634	2,723	3,080	3,259	3,438	3,617	3,795	3,974	4,153	4,331	4,510
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>18,770</b>	<b>51,390</b>	<b>80,574</b>	<b>108,959</b>	<b>133,825</b>	<b>157,680</b>	<b>165,558</b>	<b>176,875</b>	<b>187,539</b>	<b>196,360</b>	<b>206,672</b>	<b>214,020</b>	<b>221,703</b>	<b>226,711</b>	<b>232,775</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	209	209	209	209	206	102	141	144	141	141	141	141	141	141	118
Waste	0	2,175	4,349	6,524	8,698	10,847	11,698	12,549	13,423	14,274	15,125	15,976	16,827	17,678	18,529
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>209</b>	<b>2,793</b>	<b>5,377</b>	<b>7,961</b>	<b>10,543</b>	<b>12,992</b>	<b>14,043</b>	<b>15,057</b>	<b>16,093</b>	<b>17,104</b>	<b>18,116</b>	<b>19,127</b>	<b>20,138</b>	<b>21,149</b>	<b>22,137</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	No	No	No	No	Yes										

**Table 44b  
Project GHG Emissions (Year by Year without Mitigation)**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Mobile	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355	179,355
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	34,147	29,379	26,115	22,850	19,586	16,322	13,057	9,793	6,529	3,264	0	0	0	0	0
Water	2,548	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	2,580	0	0	0	0	0
Natural gas	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>228,435</b>	<b>223,699</b>	<b>220,435</b>	<b>217,170</b>	<b>213,906</b>	<b>210,642</b>	<b>207,377</b>	<b>204,113</b>	<b>200,849</b>	<b>197,584</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>	<b>191,740</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	166	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193	19,193
Refrigerants	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Land use change	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Sequestration	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111
<b>Total Uncapped</b>	<b>22,974</b>	<b>22,808</b>													
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 44c  
Project GHG Emissions (Year by Year without Mitigation)**

Source	GHG Unmitigated Emissions (mt CO <sub>2</sub> e/year)														Total (2020-2064)		
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063		2064	
	Capped Emissions																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Net Mobile	154,246	132,651	107,890	87,750	57,330	45,453	40,481	37,820	35,334	32,020	28,614	25,570	22,850	21,257	19,775	19,775	5,114,971
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	791	204,561
Generator	230	198	161	131	85	68	60	56	53	48	43	38	34	32	29	29	7,620
Forklifts	221	190	155	126	82	65	58	54	51	46	41	37	33	30	28	28	7,340
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	636,226
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44,876
Natural gas	4,032	3,468	2,820	2,294	1,499	1,188	1,058	989	924	837	748	668	597	556	517	517	132,674
Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capped</b>	<b>164,897</b>	<b>141,811</b>	<b>115,340</b>	<b>93,810</b>	<b>61,289</b>	<b>48,592</b>	<b>43,277</b>	<b>40,432</b>	<b>37,774</b>	<b>34,231</b>	<b>30,590</b>	<b>27,336</b>	<b>24,428</b>	<b>22,725</b>	<b>21,141</b>	<b>21,141</b>	<b>6,369,995</b>
	Uncapped Emissions																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,559
Refrigerants and Waste	16,506	14,195	11,545	9,390	6,135	4,864	4,332	4,047	3,781	3,426	3,062	2,736	2,445	2,275	2,116	2,116	547,418
Refrigerants	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	284	73,356
Land use change	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	127	32,922
Sequestration	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-12	-3,159
<b>Total Uncapped</b>	<b>19,615</b>	<b>16,869</b>	<b>13,720</b>	<b>11,159</b>	<b>7,291</b>	<b>5,780</b>	<b>5,148</b>	<b>4,809</b>	<b>4,493</b>	<b>4,072</b>	<b>3,639</b>	<b>3,252</b>	<b>2,906</b>	<b>2,703</b>	<b>2,515</b>	<b>2,515</b>	<b>653,096</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	450,000
Significant impact?	Yes	Yes	Yes	Yes	No	No	Yes										

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide = 1, methane = 21, nitrous oxide = 310, hydrofluorocarbons = 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 - 2036 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 - Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

## 5.7 Greenhouse Gas Plan, Policy, Regulation Consistency

Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs (GHG-2)

### Federal and State Reduction Strategies

**Table 45, *Project Compliance with Federal/State Greenhouse Gas Reduction Strategies***, evaluates the consistency of the project with the various Federal and State energy conservation strategies and other regulations related to GHG emissions.

**Table 45**  
**Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

Strategy	Project Consistency
<b>Mandatory Codes</b>	
<b>California Green Building Code.</b> The Cal Green Code (Title 24, Part 11) prescribes a wide array of measures that would directly and indirectly result in reduction of GHG emissions from the Business as Usual Scenario (California Building Code). The mandatory measures that are applicable to nonresidential projects include site selection, energy efficiency, water efficiency, materials conservation and resource efficiency, and environmental quality measures.	<b>Consistent.</b> The project will be required to adhere to the non-residential mandatory measures as required by the Cal Green Code.
<b>Energy Efficiency Measures</b>	
<b>Energy Efficiency.</b> Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).	<b>Consistent with Mitigation Incorporated.</b> The project will comply with current California Building Code (CBC) requirements for building construction. <b>Mitigation Measures MM-GHG-5</b> and <b>MM-GHG-6</b> would increase energy efficiency. <b>Mitigation Measure MM-GHG-7</b> would require that the project exceed Title 24 (2008 version) by 10 percent or comply with the current version. The WLC PDFs go further by committing the project to energy conservation measures that will enable the project to exceed the more rigorous 2016 Title 24 requirements.
<b>Renewables Portfolio Standard.</b> Achieve a 50 percent renewable energy mix statewide by 2050. Qualifying renewable energy sources under the RPS include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	<b>Not Applicable.</b> The project is not part of the State's power generation grid, but would install solar photovoltaic panels on project roofs pursuant to <b>Mitigation Measure MM-GHG-7</b> . The solar would reduce the project's electricity related emissions by approximately 5.0 percent. In addition, Moreno Valley Electric Utility is subject to the Renewable Portfolio Standard.

**Table 45  
Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

<b>Strategy</b>	<b>Project Consistency</b>
<b>Water Conservation and Efficiency Measures</b>	
<p><b>Water Use Efficiency.</b> Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. The CalGreen Code, including the California Plumbing Code (Part 5), promotes water conservation. Title 20 includes appliance and fixture efficiency standards that promote water conservation.</p>	<p><b>Consistent with Mitigation Incorporated.</b> The project will be required to adhere to the non-residential mandatory measures as required by the CalGreen Code. The Specific Plan outlines a number of water conservation measures, and <b>Mitigation Measures MM-GHG-2</b> through <b>MM-GHG-4</b> will help reduce potential water use even further.</p>
<b>Solid Waste Reduction Measures</b>	
<p><b>Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero-Waste.</b> AB 341 mandates commercial recycling and sets a goal that 75 percent of the state's solid waste generated be reduced, recycled, or composted by 2020. AB 1826 adds requirements regarding mandatory commercial organics recycling. SB 1383 requires methane emissions reduction from landfills and sets statewide disposal targets to reduce landfilling of organic waste by 50 percent from the 2014 level by 2020, and 75 percent from the 2014 level by 2025.</p>	<p><b>Consistent with Mitigation Incorporated.</b> Data available from the California Integrated Waste Management Board (CIWMB) indicate that the City of Moreno Valley has not achieved the 50 percent diversion rate. The project will comply with <b>MM-GHG-1</b> to help increase solid waste diversion, composting, and recycling. The measure would also require 50 percent diversion of construction waste prior to 2020 and 75 percent diversion starting in 2020.</p>
<b>Transportation and Motor Vehicle Measures</b>	
<p><b>Pavley Regulations and Vehicle Fuel Efficiency Standards.</b> AB 1493 (Pavley) and the Advanced Clean Car (ACC) program required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light-duty trucks. Regulations were adopted by the CARB in September 2004 and expanded with the ACC program in 2012.</p>	<p><b>Consistent.</b> The project does not involve the manufacture of vehicles or production of vehicle fuels. However, vehicles that are purchased and used within the project site would comply with any vehicle and fuel standards that the CARB adopts or has adopted. In addition, the project would require that all diesel trucks be 2010 or newer (<b>Mitigation Measure MM-AQ-6</b>) and would be built to support the charging of future electric-powered vehicles anticipated by the Mobile Source Strategy. The Project design also includes supporting infrastructure to accommodate future EV populations consistent with targets in the Mobile Source Strategy.</p>
<p><b>Light-Duty Vehicle Efficiency Measures.</b> Implement additional measures that could reduce light-duty vehicle GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency.</p>	
<p><b>Heavy- and Medium-Duty Fuel and Engine Efficiency Measures.</b> Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles.</p>	
<p><b>Mobile Source Strategy.</b> This 2016 plan includes a target of 4.2 million zero emission vehicles (ZEVs) by 2030, and GHG reductions from medium-duty and heavy-duty vehicles, and transit. It also includes reductions in GHGs from medium-duty and heavy-duty vehicles via the Phase 2 Medium and Heavy-Duty GHG Standards.</p>	

**Table 45**  
**Project Compliance with Federal/State Greenhouse Gas Reduction Strategies**

<b>Strategy</b>	<b>Project Consistency</b>
<p><b>Low Carbon Fuel Standard.</b> The CARB identified this measure as a Discrete Early Action Measure in the 2008 Scoping Plan. As included in the Mobile Source Strategy, this measure would reduce the carbon intensity of California's transportation fuels by at least 18 percent by 2030.</p>	
<p><b>Sustainable Freight Action Plan.</b> The 2016 plan directs the State to establish targets to improve freight efficiency, transition to zero emission technologies, and increase the competitiveness of California's freight transport system.</p>	
<p><b>Regional Transportation-Related Greenhouse Gas Targets.</b> Develop regional GHG emissions reduction targets for passenger vehicles, as required by SB 375. Local governments will play a significant role in the regional planning process to reach passenger vehicle GHG emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces GHGs associated with vehicle travel.</p>	<p><b>Not Applicable.</b> Specific regional emission targets for transportation emissions do not directly apply to the project; regional GHG reduction target development is outside the scope of this project. The project will comply with any plans developed by the City of Moreno Valley.</p>
<p align="center"><b>Measures to Reduce High Global Warming Potential (GWP) Gases</b></p>	
<p><b>Short-lived Climate Pollutant Strategy.</b> SB 1383 (2016) requires the CARB to approve and implement Short-Lived Climate Pollutant strategy to reduce high GWP GHGs to achieve a statewide reduction in methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030.</p>	<p><b>Not Applicable.</b> New products used or serviced on the project site (after implementation of the reduction of GHG gases) would comply with future CARB rules and regulations, as would vehicles (with their refrigerants used in air conditioning systems) visiting the site.</p>
<p>AB = Assembly Bill CARB = California Air Resources Board GHG = greenhouse gas</p>	

With implementation of applicable strategies/measures project design features, and mitigation measures, the project's contribution to cumulative GHG emissions would be reduced. In order to ensure that the project complies with and would not conflict with or impede the implementation of reduction goals identified in AB 32 and SB 32, the Mitigation Measures listed in the above table shall be implemented.

The project will comply with existing State and Federal regulations regarding the energy efficiency of buildings, appliances, and lighting. The warehouse buildings will be built in compliance with the California Building Code to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices. In addition, Mitigation Measure MM-GHG-5 requires that the project will exceed the Title 24 energy conservation standards (2008 version) by 10 percent or comply with the current version, while the WLC Sustainability Plan goes even further by committing the project to energy

conservation measures that will enable the project to exceed the more rigorous 2019 Title 24 requirements.<sup>86</sup>

### CARB Scoping Plan

AB 32 focuses on reducing GHG emissions to 1990 levels by the year 2020, while SB 32 has a target of 40 percent below 1990 levels by 2030. Pursuant to the requirements in AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which contains a variety of strategies to reduce the State’s emissions. The First Update to the Scoping Plan was approved in 2014 and the Second Update was approved in 2017 following the passage of SB 32. The 2017 Scoping Plan Update incorporates all of the state’s GHG reduction strategies included in Table 45. **Table 46, *Analysis of Additional Measures in the 2017 Scoping Plan Update***, considers the strategies in the 2017 Scoping Plan Update that are not included in Table 52, indicating that all are either consistent with or not applicable to the project; therefore, the project does not conflict with the Scoping Plan.

**Table 46**  
**Analysis of Additional Measures in the 2017 Scoping Plan Update**

Scoping Plan Reduction Measure	Consistency Analysis
<p>16. <b>Carbon Sequestration in Natural and Working Lands.</b> Natural and working lands – including forests and agricultural lands – are a key sector in the State’s climate change strategy. Storing carbon in trees, other vegetation, soils, and aquatic sediment is an effective way to remove carbon dioxide from the atmosphere. The 2017 Scoping Plan Update describes policies and programs that prioritize protection and enhancement of California’s landscapes, and commits the State to finalizing a carbon sequestration and GHG emissions reduction goal for natural and working lands by September 2018</p>	<p><b>Not Applicable.</b> No forested lands exist on site. As reported in the Agriculture and Forestry Resources section 4.2.1, approximately 2,200 acres of the 2,610-acre Specific Plan area is currently dry farmed, mainly with winter wheat. However, the state’s Natural and Working Lands Climate Change Implementation Plan has not been adopted, and there is no protection currently in place to preserve the site for agriculture. Further, as described in the Agriculture and Forestry Resources section, the conversion of the existing agricultural lands to urban uses is supported by the City’s General Plan policies, and the entire project site and adjacent lands have been designated for urban uses for nearly 20 years by the City. The Agriculture and Forestry Resources section concludes that project implementation will result in less than significant impacts to conversion of Farmland of Local Importance.</p>

Source: CARB, 2017e

### Moreno Valley General Plan Policies

The project must also be evaluated against the City’s General Plan policies that relate to greenhouse gas emissions, as shown in **Table 47, *Consistency with City General Plan Air Quality Policies***. This analysis shows that the project is consistent with the applicable General Plan objectives and policies, or the particular objective or policy is not applicable to the proposed WLC project.

<sup>86</sup> WSP. World Logistics Center Comparison of Renewable Energy Technologies. 2018

**Table 47**  
**Consistency with City General Plan Air Quality Policies**

<b>Objective or Policy</b>	<b>Project Consistency</b>
<b>Objective 6.6.</b> Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	<b>Consistent.</b> The project is providing employment opportunities to Moreno Valley and the surrounding area.
<b>Policy 6.6.1.</b> Provide sites for new neighborhood commercial facilities within close proximity to the residential areas they serve.	<b>Not Applicable.</b> The project does not propose the development of neighborhood commercial facilities or residential dwellings.
<b>Policy 6.6.2.</b> Provide multifamily residential development sites in close proximity to neighborhood commercial centers in order to encourage pedestrian instead of vehicular travel.	<b>Not Applicable.</b> The project is industrial and does not propose the development of residential uses.
<b>Policy 6.6.3.</b> Locate neighborhood parks in close proximity to the appropriate concentration of residents in order to encourage pedestrian and bicycle travel to local recreation areas.	<b>Not Applicable.</b> The project is industrial and does not propose the development of residential uses.
<b>Objective 6.7.</b> Reduce mobile and stationary source air pollutant emissions.	<b>Consistent.</b> The project would be implementing feasible Mitigation Measures to reduce mobile and stationary emissions ( <b>Mitigation Measures MM-AQ-6, MM-AQ-7, MM-AQ-8, and MM-AQ-10</b> ).
<b>Policy 6.7.1.</b> Cooperate with regional efforts to establish and implement regional air quality strategies and tactics.	<b>Not Applicable.</b> This measure is beyond the scope of the project; the City will continue to work with the SCAQMD in regional planning efforts.
<b>Policy 6.7.2.</b> Encourage the financing and construction of park-and-ride facilities.	<b>Not Applicable.</b> The project consists of industrial uses; a park and ride on the project would not be feasible.
<b>Policy 6.7.3.</b> Encourage express transit service from Moreno Valley to the greater metropolitan areas of Riverside, San Bernardino, Orange and Los Angeles Counties.	<b>Not Applicable.</b> No express mass transit facilities are designated on the project site or planned on the project site; therefore, this measure is beyond the scope of the project.
<b>Policy 6.7.6.</b> Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code.	<b>Consistent.</b> The project will comply with Title 24 requirements.

Source of objective and policy: Moreno Valley General Plan (2006).

## Moreno Valley Climate Action Strategy

**Table 48**, *Consistency with City Climate Action Strategy*, evaluates the consistency of the project with the policies of the City's Climate Action Strategy approved in October 2012. As shown below, the project is consistent with the requirements of the Strategy for non-residential development with implementation of project design features and mitigation measures.

**Table 48**  
**Consistency with City Climate Action Strategy**

Strategy Items	Project Consistency
<p><b>R2-T1:</b> Land Use Based Trips and VMT Reduction Policies. Encourage the development of Transit Priority Projects along High Quality Transit Corridors identified in the SCAG Sustainable Communities Plan, to allow a reduction in vehicle miles traveled.</p>	<p><b>Not Applicable.</b> A Transit Priority Project is one that has at least 50 percent residential use based on area, at least 20 units per acre and is within a ½ mile of a major transit stop or High Quality Transit Corridor. A High Quality Transit Corridor is defined as one with 15-minute frequencies during peak commute hours. The project does not include a residential component and is not along a High Quality Transit Corridor nor are there any High Quality Transit Corridors or major transit stops in the vicinity of the project area. As a result, the strategy is not applicable.</p>
<p><b>R2-T3:</b> Employment-Based Trip Reductions. Require a Transportation Demand Management (TDM) program for new development to reduce automobile travel by encouraging ride-sharing, carpooling, and alternative modes of transportation.</p>	<p><b>Consistent</b> with implementation of <b>Mitigation Measure MM-AQ-10.</b></p>
<p><b>R2-E1:</b> New Construction Residential Energy Efficiency Requirements. Require energy efficient design for all new residential buildings to be 10 percent beyond the current Title 24 standards.</p>	<p><b>Not Applicable.</b> This measure applies to residential projects.</p>
<p><b>R2-E2:</b> New Construction Residential Renewable Energy. Facilitate the use of renewable energy (such as solar (photovoltaic) panels or small wind turbines) for new residential developments. Alternative approach would be the purchase of renewable energy resources offsite.</p>	<p><b>Not Applicable.</b> This measure applies to residential projects.</p>
<p><b>R2-E5:</b> New Construction Commercial Energy Efficiency Requirements. Require energy efficient design for all new commercial buildings to be 10% beyond the current Title 24 standards.</p>	<p><b>Consistent with Mitigation Measure MM-GHG-7.</b></p>
<p><b>R3-E1:</b> Energy Efficient Development, and Renewable Energy Deployment Facilitation and Streamlining. Updating of codes and zoning requirements and guidelines to further implement green building practices. This could include incentives for energy efficient projects.</p>	<p><b>Not Applicable.</b> This refers to updating building and zoning codes and does not apply to this warehousing development plan.</p>
<p><b>R3-L2:</b> Heat Island Plan. Develop measures that address “heat islands.” Potential measures include using strategically placed shade trees, using paving materials with a Solar Reflective Index of at least 29, an open grid pavement system, or covered parking.</p>	<p><b>Consistent.</b> The Specific Plan indicates that vehicle parking areas are to be landscaped to provide a shade canopy (50 percent coverage at maturity).</p>
<p><b>R2-W1:</b> Water Use Reduction Initiative. Consider adopting a per capita water use reduction goal which mandates the reduction of water use of 20 percent per capita with requirements applicable to new development and with cooperative support of the water agencies.</p>	<p><b>Consistent.</b> California Green Building Standards Code, Chapter 5, Division 5.3, Section 5.303.2 requires that indoor water use be reduced by 20 percent. Section 5.304.3 requires irrigation controllers and sensors. The Specific Plan also contains a variety of water conservation features. <b>Mitigation Measures MM-GHG-2, MM-GHG-3, and MM-GHG-4</b> also provide water reduction measures.</p>
<p><b>R3-W1:</b> Water Efficiency Training and Education. Work with EMWD and local water companies to implement a public information and education program that promotes water conservation.</p>	<p><b>Consistent.</b> Tenants and owners within the WLC site will provide water conservation information from EMWD and other sources to workers on a regular basis.</p>

**Table 48**  
**Consistency with City Climate Action Strategy**

Strategy Items	Project Consistency
<b>R2-S1:</b> City Diversion Program. For Solid Waste, consider a target of increasing the waste diverted from the landfill to a total of 75 percent by 2020.	<b>Consistent.</b> The project would incorporate standard City waste reduction features and <b>Mitigation Measure MM-GHG1</b> (has a target to reduce waste by 75 percent by 2020).
<b>C11:</b> Require that developer recycle existing street material for use as base for new streets.	<b>Consistent.</b> Project will implement <b>Mitigation Measure MM-GHG-1</b> where feasible.

### **Executive Order S-3-05**

The SCAQMD developed its thresholds based on consistency with California Executive Order S-3-05. As shown in Section 5.6 (GHG-1), the project's uncapped GHG emissions would not exceed the SCAQMD's industrial threshold. However, with mitigation implemented, the Project would be reduced to levels less than 10,000 MTCO<sub>2e</sub> and, therefore, the project would not conflict with Executive Order S-3-05. This impact is less than significant with mitigation.

## SECTION 6

---

# Mitigation Measures

## 6.1 Air Quality

### Compliance with AQMP

Applicable SCAQMD regulatory requirements are restated in the mitigation measures identified below. These measures shall be incorporated in all project plans, specifications, and contract documents. Implementation of the project would exceed applicable thresholds for all criteria pollutants, with the exception of SO<sub>x</sub>. Despite the implementation of mitigation measures, emissions associated with the project cannot be reduced below the applicable thresholds. Construction and operational emissions would be reduced to the extent feasible through implementation of mitigation measures described below. Construction emissions would be reduced through implementation of mitigation measures that require the use of Tier 4 construction equipment, reduced idling time, use of non-diesel equipment where feasible, low-VOC paints and cleaning solvents, and dust suppression measures. Operational emissions would be reduced through implementation of mitigation measures that require reduced vehicle idling, use of non-diesel on-site equipment, meeting or exceeding 2010 engine emission standards for all diesel trucks entering the site, electric vehicle charging stations, and prohibition of refrigerated warehouses. In the absence of further feasible mitigation to reduce the project's emission of criteria pollutants to below SCAQMD thresholds, potential air quality impacts resulting from exhaust from construction equipment will remain significant and unavoidable.

### Regional Emissions

#### Construction

The following measures are recommended to reduce the level of emissions of criteria pollutants:

- MM-AIR-1** Construction equipment maintenance records (including the emission control tier of the equipment) shall be kept on site during construction and shall be available for inspection by the City of Moreno Valley.
- a) Off-road diesel-powered construction equipment greater than 50 horsepower shall meet United States Environmental Protection Agency Tier 4 off-road emissions standards. A copy of each unit's certified tier specification shall be available for inspection by the City at the time of mobilization of each applicable unit of equipment.

- b) During all construction activities, off-road diesel-powered equipment may be in the “on” position not more than 10 hours per day.
- c) Construction equipment shall be properly maintained according to manufacturer specifications.
- d) All diesel powered construction equipment, delivery vehicles, and delivery trucks shall be turned off when not in use. On-site idling shall be limited to three minutes in any one hour.
- e) Electrical hook ups to the power grid shall be provided for electric construction tools including saws, drills and compressors, where feasible, to reduce the need for diesel-powered electric generators. Where feasible and available, electric tools shall be used
- f) The project shall demonstrate compliance with South Coast Air Quality Management District Rule 403 concerning fugitive dust and provide appropriate documentation to the City of Moreno Valley.
- g) All construction contractors shall be provided information on the South Coast Air Quality Management District Surplus Off-road Opt-In “SOON” funds which provides funds to accelerate cleanup of off-road diesel vehicles.
- h) Construction on-road haul trucks shall be model year 2010 or newer if diesel-fueled.
- i) Information on ridesharing programs shall be made available to construction employees.
- j) During construction, lunch options shall be provided onsite.
- k) A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints per AQMD Standards.
- l) Off-site construction shall be limited to the hours between 6 a.m. to 8 p.m. on weekdays only. Construction during City holidays shall not be permitted.

**MM-AIR-2** Prior to issuance of any grading permits, a Construction Staging Plan shall be submitted to and approved by the City of Moreno Valley that describes in detail the location of equipment staging areas, stockpiling/storage areas, construction parking areas, safe detours around the project construction site, as well as provide temporary traffic control (e.g., flag person) during construction-related truck hauling activities. Construction trucks shall be rerouted away from sensitive receptor areas. Trucks shall use State Route 60 using World Logistics Center Parkway (formerly Theodore Street), Redlands Boulevard (north of Eucalyptus Avenue), and Gilman Springs Road. In addition to its traffic safety purpose, the

traffic control plan can minimize traffic congestion and delays that increase idling emissions. A copy of the approved Construction Staging Plan shall be retained on site in the construction trailer.

**MM-AIR-3** The following measures shall be applied during construction of the project to reduce volatile organic compounds (VOC):

- a) Non-VOC containing paints, sealants, adhesives, solvents, asphalt primer, and architectural coatings (where used), or pre-fabricated architectural panels shall be used in the construction of the project to the maximum extent practicable. If such products are not commercially available, products with a VOC content of 100 grams per liter or lower for both interior and exterior surfaces shall be used.
- b) Leftover paint shall be taken to a designated hazardous waste center.
- c) Paint containers shall be closed when not in use
- d) Low VOC cleaning solvents shall be used to clean paint application equipment.
- e) Paint and solvent-laden rags shall be kept in sealed containers.

**MM-AIR-4** No grading shall occur on days with an Air Quality Index forecast greater than 150 for particulates or ozone as forecasted for the project area (Source Receptor Area 24).

**MM-AIR-5** The project shall comply with the SCAQMD proposed Indirect Source Rule for any warehouse that are constructed after the rule goes into effect. This rule is expected to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions during construction and operation. Emission reductions resulting from this rule were not included in the project analysis.

As shown in **Table 49**, *Mitigated Short-Term Regional Construction Emissions*, construction emissions are still significant after mitigation, with the exception of PM<sub>2.5</sub> and SO<sub>2</sub>. The reduction in PM<sub>2.5</sub> emissions is by a reduction in exhaust from the application of Tier 4 off-road equipment. PM<sub>10</sub> emissions are still significant because emissions in 2022, 2023, 2024, and 2028 exceed the threshold; however, emissions of PM<sub>10</sub> during all other years of construction are less than significant. Although mitigation reduces emissions of all pollutants (with the exception of CO due to how CalEEMod calculates Tier 4 emissions) during construction, potential air quality impacts resulting from exhaust from construction equipment and fugitive dust will remain significant and unavoidable.

**Table 49**  
**Mitigated Short-Term Regional Construction Emissions**

Year	Maximum Daily Pollutant Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>2</sub>	PM <sub>10</sub> Total <sup>2</sup>	PM <sub>2.5</sub> Total <sup>2</sup>
2020	160	148	789	2	130	31
2021	163	172	943	2	130	30
2022	166	191	995	2	159	42
2023	164	172	996	2	174	44
2024	162	165	939	2	155	35
2025	155	126	709	1	126	30
2026	149	87	493	1	93	20
2027	147	71	454	1	42	12
2028	151	103	476	1	174	26
2029	148	87	451	1	116	20
2030	148	82	430	1	116	20
2031	147	77	375	1	109	16
2032	145	72	348	1	104	16
2033	143	61	270	1	82	12
2034	143	64	263	1	100	14
<b>SCAQMD Threshold</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds Threshold?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	No

## Notes:

- Mitigation Measure AIR-1 was estimated by CalEEMod using its mitigation module by assuming Tier 4 off-road equipment for equipment greater than 50 horsepower.
- Mitigation Measure AIR-1(b) restricts equipment from operating more than 10 hours per day in the on position, which is estimated in CalEEMod in both the unmitigated and mitigated estimates.
- Mitigation Measures AIR-1(c) through (e), AIR-1(g) through (m), AIR-2, and AIR-4 are not quantified.
- Mitigation Measure AIR-1 is assumed in the unmitigated and mitigated estimates (Rule 403).
- Mitigation Measure AIR-1(i) requires that construction haul trucks be 2010 model year or greater. Mitigated model years are reflected in EMFAC2017 emission factors.
- Mitigation Measure AIR-3 reduces VOC emissions during painting and is calculated as demonstrated in Appendix A.3.

<sup>1</sup> There is an error in the way CalEEMod estimates the effect of a higher tier (such as Tier 3 or 4) on mitigated CO; therefore, the mitigated CO values are greater than unmitigated values.

<sup>2</sup> PM totals may not add up due to rounding.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

## Operations

The following mitigation measures are required to reduce emissions of criteria pollutants during project operations.

**MM-AIR-6** Prior to issuance of occupancy permits for each warehouse building within the WLCSP, the developer shall demonstrate to the City that vehicles can access the building using paved roads and parking lots.

**MM-AIR-7** The following shall be implemented as indicated:

### Prior to Issuance of a Certificate of Occupancy

- a) Signs shall be prominently displayed informing truck drivers about the California Air Resources Board diesel idling regulations, and the prohibition of parking in residential areas.
- b) Signs shall be prominently displayed in all dock and delivery areas advising of the following: engines shall be turned off when not in use; trucks shall not idle for more than three consecutive minutes; telephone numbers of the building facilities manager and the California Air Resources Board to report air quality violations.
- c) Signs shall be installed at each exit driveway providing directional information to the City's truck route. Text on the sign shall read "To Truck Route" with a directional arrow. Truck routes shall be clearly marked per the City Municipal Code.

**On an Ongoing Basis**

- d) Tenants shall maintain records on fleet equipment and vehicle engine maintenance to ensure that equipment and vehicles are maintained pursuant to manufacturer's specifications. The records shall be maintained on site and be made available for inspection by the City.
- e) Tenant's staff in charge of keeping vehicle records shall be trained/certified in diesel technologies, by attending California Air Resources Board approved courses (such as the free, one-day Course #512). Documentation of said training shall be maintained on-site and be available for inspection by the City.
- f) Tenants shall be encouraged to become a SmartWay Partner.
- g) Tenants shall be encouraged to utilize SmartWay 1.0 or greater carriers.
- h) Tenants' fleets shall be in compliance with all current air quality regulations for on-road trucks including but not limited to California Air Resources Board's Heavy-Duty Greenhouse Gas Regulation and Truck and Bus Regulation.
- i) Information shall be posted in a prominent location available to truck drivers regarding alternative fueling technologies and the availability of such fuels in the immediate area of the World Logistics Center.
- j) Tenants shall be encouraged to apply for incentive funding (such as the Voucher Incentive Program [VIP], Carl Moyer, etc.) to upgrade their fleet.
- k) All yard trucks (yard dogs/yard goats/yard jockeys/yard hostlers) shall be powered by electricity, natural gas, propane, or an equivalent non-diesel fuel.

Any off-road engines in the yard trucks shall have emissions standards equal to Tier 4 Interim or greater. Any on-road engines in the yard trucks shall have emissions standards that meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1, Section 2025.

- l) All diesel trucks entering logistics sites shall meet or exceed 2010 engine emission standards specified in California Code of Regulations Title 13, Article 4.5, Chapter 1, Section 2025 or be powered by natural gas, electricity, or other diesel alternative. Facility operators shall maintain a log of all trucks entering the facility to document that the truck usage meets these emission standards. This log shall be available for inspection by City staff at any time.
- m) All standby emergency generators shall be fueled by natural gas, propane, or any non-diesel fuel.
- n) Truck and vehicle idling shall be limited to three (3) minutes.

**MM-AIR-8** Prior to the issuance of building permits for more than 25 million square feet of logistics warehousing within the Specific Plan area, a publically-accessible fueling station shall be operational within the Specific Plan area offering alternative fuels (natural gas, electricity, etc.) for purchase by the motoring public. Any fueling station shall be placed a minimum of 1,000 feet from any off-site sensitive receptors or off-site zoned sensitive uses. This facility may be established in connection with the convenience store required in Mitigation Measure MM-AIR-8.

**MM-AIR-9** Prior to the issuance of building permits for more than 25 million square feet of logistics warehousing within the Specific Plan area a site shall be operational within the Specific Plan area offering food and convenience items for purchase by the motoring public. This facility may be established in connection with the fueling station required in Mitigation Measure MM-AIR-7.

**MM-AIR-10** Refrigerated warehouse space is prohibited unless it can be demonstrated that the environmental impacts resulting from the inclusion of refrigerated space and its associated facilities, including, but not limited to, refrigeration units in vehicles serving the logistics warehouse, do not exceed any environmental impact for the entire World Logistics Center identified in the Revised Sections of the FEIR. Such environmental analysis shall be provided with any warehouse plot plan proposing refrigerated space. Any such proposal shall include electrical hookups at dock doors to provide power for vehicles equipped with Transportation Refrigeration Units (TRUs).

**MM-AIR-11** The following measures shall be incorporated as conditions to any Plot Plan approval within the Specific Plan:

- a) All tenants shall be required to participate in Riverside County's Rideshare Program.
- b) Storage lockers shall be provided in each building for a minimum of three percent of the full-time equivalent employees based on a ratio of 0.50 employees per 1,000 square feet of building area. Lockers shall be located in proximity to required bicycle storage facilities.
- c) Class II bike lanes shall be incorporated into the design for all project streets.
- d) The project shall incorporate pedestrian pathways between on-site uses.
- e) Site design and building placement shall provide pedestrian connections between internal and external facilities.
- f) The project shall provide pedestrian connections to residential uses within 0.25 mile from the project site.
- g) A minimum of two electric vehicle-charging stations for automobiles or light-duty trucks shall be provided at each building. In addition, parking facilities with 200 parking spaces or more shall be designed and constructed so that at least six percent of the total parking spaces are capable of supporting future electric vehicle supply equipment (EVSE) charging locations. Sizing of conduit and service capacity at the time of construction shall be sufficient to install Level 2 Electric Vehicle Supply Equipment (EVSE) or greater.
- h) Each building shall provide indoor and/or outdoor - bicycle storage space consistent with the City Municipal Code and the California Green Building Standards Code. Each building shall provide a minimum of two shower and changing facilities for employees.
- i) Each building shall provide preferred and designated parking for any combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles equivalent to the number identified in California Green Building Standards Code Section 5.106.5.2 or the Moreno Valley Municipal Code whichever requires the higher number of carpool/vanpool stalls.
- j) The following information shall be provided to tenants: onsite electric vehicle charging locations and instructions, bicycle parking, shower facilities, transit availability and the schedules, telecommunicating benefits, alternative work schedule benefits, and energy efficiency.

Mitigated operational emissions for full buildout are shown in **Table 50, *Operational Regional Air Pollutant Emissions (Mitigated)***. Note that the emissions are based on conservative assumptions and does not subtract existing emissions that would cease to exist (i.e., assumes all

emissions are net new). As shown in Table 57, even with implementation of the mitigation measures, emissions are still significant.

**Table 50**  
**Operational Regional Air Pollutant Emissions (Mitigated)**

Source	Emissions (pounds per day)					
	VOC	NO <sub>x</sub>	CO <sup>1</sup>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Vehicles: Local and trucks	45	1,341	867	10	387	125
Area	311	0	4	0	0	0
Onsite Equipment	8	91	107	0	0	0
<b>Total Project Emissions</b>	<b>363</b>	<b>1,432</b>	<b>978</b>	<b>10</b>	<b>388</b>	<b>125</b>
<b>Significance Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

Notes:

- PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.
- Landscaping emissions are negligible.
- On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

<sup>1</sup> Mitigation requiring the use of natural gas and propane equipment lead to decreases in PM and NO<sub>x</sub>, but may lead to increases in CO; therefore, the mitigated CO values are greater than unmitigated values.

During overlap of construction and operation, VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> would continue to exceed SCAQMD significance thresholds after mitigation, as shown in **Table 51**, *Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, Pounds per Day) – Mitigated*. Therefore, impacts are significant and unavoidable. The emissions do not take into account the existing onsite agricultural emissions.

**Table 51**  
**Combined Construction and Operational Regional Air Pollutant Emissions (Year by Year, Pounds per Day) – Mitigated**

<b>Year</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2020	160	148	789	2	130	31
2021	207	369	1,032	3	160	40
2022	251	574	1,164	4	220	62
2023	290	730	1,236	5	264	74
2024	328	885	1,238	6	275	75
2025	359	982	1,049	7	263	77
2026	369	983	920	7	261	76
2027	384	1,036	959	7	235	76
2028	406	1,138	1,057	8	393	98
2029	420	1,187	1,103	8	360	100
2030	436	1,245	1,148	9	385	108
2031	451	1,301	1,156	9	403	112
2032	466	1,355	1,188	9	423	119
2033	479	1,401	1,165	10	426	123
2034	495	1,459	1,210	10	469	133
2035	363	1,432	978	10	388	125
<b>Max Daily Emissions</b>	<b>495</b>	<b>1,459</b>	<b>1238</b>	<b>10</b>	<b>469</b>	<b>133</b>
<b>SCAQMD Threshold</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

## Notes:

- Year 2020 contains construction emissions only; buildout contains operational emissions only.
- Emissions do not include existing onsite emissions.

VOC = volatile organic compounds; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter

As discussed above, the TIA provides VMT attributable to the project based on the net effect the project has on regional travel as well as project VMT without consideration of a net effect. For informational purposes only, **Table 52, Operational Regional Air Pollutant Emissions (Mitigated) – No Net Effect (For Informational Purposes Only)** includes mitigated operational mobile emissions without consideration of a net effect in regional traffic volumes.

**Table 52**  
**Operational Regional Air Pollutant Emissions (Mitigated) – No Net Effect (For Informational Purposes Only)**

Scenario	Source	Emissions (pounds per day)					
		VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Buildout	Vehicles: Local and trucks	106	1,965	1,711	16	871	264
	Area	311	0	4	0	0	0
	Onsite Equipment	8	91	107	0	0	0
	<b>Total Project Emissions</b>	424	2,056	1,822	16	872	265

- PM<sub>10</sub> and PM<sub>2.5</sub> emissions include exhaust and road dust.
- Landscaping emissions are negligible.
- Sulfur oxides emissions are under the 150 pounds per day significance threshold and at buildout would be less than 23 pounds per day.

VOC = volatile organic compounds NO<sub>x</sub> = nitrogen oxides CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter  
 On-site equipment emissions include emissions from yard trucks, forklifts, and stationary generators.

## Substantial Pollutant Concentrations

### Localized Emissions

With implementation of Mitigation Measures MM-AIR-6 through MM-AIR-10, the project would continue to exceed the localized significance thresholds at one or more of the existing residences located within and outside the project boundaries for PM<sub>10</sub> (24-hour and/or annual).

**Table 53**, *Comparison of Local Project Air Quality Impacts Before and After Mitigation*, compares the project impacts before and after mitigation for those assessment conditions and pollutants that indicated a significant impact before mitigation.

**Table 53**  
**Comparison of Local Project Air Quality Impacts Before and After Mitigation**

Assessment Condition	Location	Pollutant, Averaging Time, Units	Total Impact Before Mitigation <sup>1</sup>	Total Impact After Mitigation	Significance Threshold	Exceeds Threshold After Mitigation?
Project Development Schedule Year 2025	Inside Project Boundaries	PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	5.7	5.6	2.5	Yes
		PM <sub>10</sub> , Annual, µg/m <sup>3</sup>	2.6	2.6	1.0	Yes
Project Development Schedule Year 2025	Outside Project Boundaries	PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	5.4	5.2	2.5	Yes
Project Development Schedule Year 2022	Inside Project Boundaries	NO <sub>x</sub> National 1 hour, ppm	0.106	0.068	0.100	No
		PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	5.2	5.2	2.5	Yes
		PM <sub>10</sub> Annual, µg/m <sup>3</sup>	1.4	1.4	1.0	Yes
	Outside Project Boundaries	PM <sub>10</sub> 24-hour, µg/m <sup>3</sup>	4.0	4.0	2.5	Yes
Project Development Schedule Year 2035 Build Out	Inside Project Boundaries	PM <sub>10</sub> 24 hour, µg/m <sup>3</sup>	8.3	8.3	2.5	Yes
		PM <sub>10</sub> Annual, µg/m <sup>3</sup>	4.6	4.6	1.0	Yes
	Outside Project Boundaries	PM <sub>10</sub> 24 hour, µg/m <sup>3</sup>	2.50	2.49	2.5	No

Notes:

<sup>1</sup> Total Impacts include the incremental impacts from the project plus the pollutant background.µg/m<sup>3</sup> = micrograms per cubic meter (a unit of concentration); ppm = parts per million (a unit of concentration)

## Cancer Risks

Mitigation Measures MM-AIR-1, MM-AIR-2, and MM-AIR-4 through MM-AIR-10 to reduce construction and operational emissions of criteria pollutants would reduce the estimated cancer risks associated with the project. Additionally, the following mitigation measure is required to ensure that significant health risk does not occur at on-site sensitive receptors.

- MM-AIR-12** (a) The house at 30220 Dracaea Avenue shall be demolished prior to the issuance of the first grading permit for grading within the World Logistics Center.
- (b) An air filtration system meeting ASHRAE Standard 52.2 MERV-13 standards shall be offered to the owners of the houses located at 13100 World Logistics Center Parkway (formerly Theodore Street) and 12400 World Logistics Center Parkway (formerly Theodore Street). The developer shall offer to install

the air filtration system to the owners of the two properties within two months of the certification of the Final Revised FEIR. Prior to the issuance of the first grading permit within the World Logistics Center, documentation shall be provided to the City confirming that an offer to install the air filtration system has been extended to the owners of each of the two properties. The owners of the two properties shall be under no obligation to accept the offer. Each property owner shall have two years from the receipt of the offer to accept the offer. Upon acceptance of each offer, the developer shall work with each owner to ensure the air filtration system is properly installed within one year of acceptance.

Through mitigation requirements, new technology diesel engines are required for the WLC project. The mitigation conditions require that all diesel trucks accessing the project during operation be model year 2010 or newer and that all on-site equipment be Tier 4.

Mitigation Measures MM-AIR-1 and MM-AIR-2 require 2010-compliant trucks for operation and Tier 4 equipment for construction, both of which rely on diesel particulate filters. These vehicles reduce emissions by 90 percent when compared to 2006 vehicles and by 99 percent when compared to uncontrolled diesel engines. Recent emissions testing by CARB revealed that these diesel engines are cleaner than originally estimated. These findings, which are reflected in the CARB emissions factor model EMFAC2017, are 70 percent cleaner than previously estimated.

Beginning in 2001, USEPA and CARB began issuing a series of regulations that require new diesel-powered vehicles and equipment to use the latest emissions control technology. This technology relies on two components. The first is a diesel particulate filter, which is capable of reducing particulate matter emissions by over 90 percent (required for new engines beginning in 2007). The second technology is selective catalytic reduction, which reduces emissions of nitrogen oxides by over 90 percent (required for new engines beginning in 2010). Diesel emissions from equipment equipped with this technology is referred to as New Technology Diesel Engines (NTDE).

Mitigation Measure MM-AIR-8 encourages the use of alternative fueled vehicles on the project site. As discussed above, a High EV Penetration scenario assumes that up to 40 percent of the project's heavy duty trucks would be electric-powered; however, no reduction in emissions has been taken.

As discussed above, the HRA has been prepared consistent with "Current OEHHA Guidance". Although air quality significance thresholds have been established for outdoor environments, a significant portion of human exposure to air pollutants occurs indoors where people spend more than 90 percent of their time.<sup>87</sup> One approach to reduce exposure is the installation of high efficiency panel filters inside the HVAC system. Air filters and other air-cleaning devices are designed to remove pollutants from indoor air. Some are installed in the ductwork of a home's central heating, ventilating, and air-conditioning (HVAC) system to clean the air in the entire

<sup>87</sup> U.S. EPA. 2011. Exposure Factors Handbook. Chapter 16. Activity Factors, Table 16-111. <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252>

house. In studies of the effectiveness of air filtration systems in classrooms and by the EPA in residences,<sup>88, 89</sup> the combination of an HVAC system with a high performance panel filter reduced indoor levels of fine particulate matter, PM<sub>2.5</sub> and smaller particles by 70 to 90 percent.

The use of a filtration system consisting of the application of filters with a rating of ASHRSE Standard 52.2 MERV-13, as required by Mitigation MM-AIR-12, is sufficient to capture a significant portion of the diesel particulate matter. However, the filtration system would not remove the smallest of particles (less than approximately 0.01 to 0.2 micron in diameter). MERV-13 filters would, however, reduce particles in the range of 0.3 to 1 micron by up to 75 percent and particles larger than 1 micron by 90 percent.<sup>90</sup> Based on measurement studies of the size distribution of the collected DPM, approximately 0.1 to 10 percent of the total DPM mass includes particles between 0.01 and 0.2 micrometer in diameter, particles between 0.3 and 1 micrometer in diameter comprise 70 percent of the total DPM mass, and particles above 1 micrometer comprise 5 to 20 percent of the total DPM mass.<sup>91</sup>

Since the cancer risk from DPM is calculated from the mass of DPM emitted, the quantity of DPM reduced by the action of air filters would thus equate to a reduction in cancer risk. The application of MERV-13 air filter filtration system would result in a reduction of DPM exposures by approximately 70 percent.

DPM size:	0.01 to 0.2 µm	0.3 to 1 µm	Greater than 1 µm
Calculation:	10% mass x 0% reduction	70% mass x 75% reduction	20% mass x 90% reduction
Reduction:	0% reduction	52.5% reduction	18% reduction

Attributing an adjustment for time that windows might be open, residents would be outside, or for different compounds that result in the cancer risk would reduce the efficacy of the filters by about 20 percent, bringing the total cancer risk reduction from the filters to 50 percent.

The use of the filters would bring the OEHHA-calculated risk below the SCAQMD threshold eliminating any possible risk from the project on any onsite or offsite receptors within the study area.

### **Residential Receptors**

**Table 54**, Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation, and **Figure 25**, Incremental Project Cancer Risk – With Mitigation (Construction and Operation), shows the cancer risks for the construction and operation HRA

<sup>88</sup> SCAQMD. Air Filtration in Schools. <http://www.aqmd.gov/docs/default-source/technology-research/clean-fuels-program/clean-fuels-program-advisory-group---february-3-2010/air-filtration-in-schools.pdf>

<sup>89</sup> U.S. EPA. Publications about Indoor Air Quality. <https://www.epa.gov/indoor-air-quality-iaq/publications-about-indoor-air-quality#residential-air-cleaners>

<sup>90</sup> CARB. 2013. Rulemaking to Consider Proposed Amendments to the Air Designations for State Ambient Air Quality Standards, 2013. <https://www.arb.ca.gov/regact/2012/area12/area12.htm>

<sup>91</sup> Dieselnets.com. Diesel Exhaust Particle Size, 2002. [https://www.dieselnets.com/tech/dpm\\_size.php](https://www.dieselnets.com/tech/dpm_size.php)

after application of mitigation. As noted, the cancer risks are substantially lower after mitigation, and the SCAQMD cancer risk significance threshold would not be exceeded at any of the onsite or offsite receptors within the study area. The large reduction in cancer risk after mitigation is attributable principally to the reduced emissions associated with the commitment to Tier 4 construction equipment. The impact of this mitigation is largely felt during the first 3 to 5 years of construction when “Current OEHHA Guidance” assigns large age sensitivity factors to the first few years of the 30-year exposure duration. **Table 55**, Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation, and **Figure 26**, Incremental Project Cancer Risk – With Mitigation (30 Years of Full Operation), shows the mitigated cancer risk from the 30-year full project buildout.

### ***School Sensitive Receptors***

With the application of the mitigation measures discussed above, the maximum cancer risk would be approximately 3.0 in one million at Bear Valley Elementary School for both the construction + operational scenario and the full operational scenario. Therefore, maximum impacts at schools are less than the 10 in one million significance threshold with the implementation of mitigation and are less than significant.

### ***Worker Receptors***

The highest worker cancer risk estimates after the application of mitigation is approximately 1.8 in one million for the construction + operational scenario and 1.6 in one million for the full operational scenario. Therefore, cancer risk for worker receptors anywhere in the revised HRA’s study area is less than the 10 in one million significance threshold with the implementation of mitigation and are less than significant.

### ***Cancer Burden***

With the application of mitigation measures, the cancer burden is estimated to be 0.48 out of a population of about 142,397 individuals that were estimated to have a cancer risk of 1 in a million or more after mitigation. This is less than the SCAQMD threshold for cancer burden of 0.5. Therefore, the project would not exceed the SCAQMD’s cancer burden significance threshold after the application of mitigation.

In summary, the implementation of all the recommended mitigation measures, including the requirement to use 2010 diesel engine emissions standards, Tier 4 construction equipment, and installation of air filters at the identified on-site residence will reduce the OEHHA-calculated cancer risk to below 10 in one million at all sensitive receptors. Therefore, impacts would be less than significant.

**Table 54  
Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Construction (Construction and Operation HRA), With Mitigation**

Receptor Location	Incremental Increase in Cancer Risk During Project Construction (risk/million)	Incremental Increase in Cancer Risk During Project Operation (risk/million)	Total Incremental Increase in Cancer Risk <sup>1</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>2</sup>	4.9	4.2	9.1	10	No
Existing residences within the project boundaries					
13241 World Logistics Center Pkwy	4.9	4.2	9.1	10	No
13100 World Logistics Center Pkwy	3.3	4.6	7.9	10	No
13200 World Logistics Center Pkwy	4.0	3.8	7.8	10	No
30220 Dracaea Ave	4.1	4.8	8.9	10	No
29080 Dracaea Ave	2.3	2.5	4.8	10	No
29140 Dracaea Ave	2.5	2.7	5.2	10	No
Maximum risk at any area outside of the project boundaries <sup>3</sup>	1.4	4.3	5.7	10	No

Notes:

- \* Pursuant to Mitigation Measure MM-AQ-12, the Applicant shall install MERV-13 air filters at the residence located at 13241 World Logistics Center Parkway (formerly Theodore Avenue).
- <sup>1</sup> Cancer risk calculation conservatively assumed all receptors modeled are residential receptors. 30-year average exposures from 2020 to 2049 (includes diesel PM emissions from construction and operation); cancer risk estimates derived from the EMFAC2017 emission model and "Current OEHHA Guidance" for estimating cancer risks.
- <sup>2</sup> Location is at existing residences within the boundaries of the project.
- <sup>3</sup> Location is adjacent to the midwestern boundary of the project.

**Table 55a  
Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation**

Receptor Location	Total Incremental Increase in Cancer Risk <sup>(1)</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
Maximum risk anywhere in the modeling domain <sup>2</sup>	14.2	10	Yes
Maximum risk within the project boundaries <sup>3</sup>	10.7	10	Yes
Maximum risk at any area outside of the project boundaries <sup>4</sup>	9.5	10	No
Maximum risk along SR60 freeway outside of the project boundaries <sup>5</sup>	9.5	10	No

Notes:

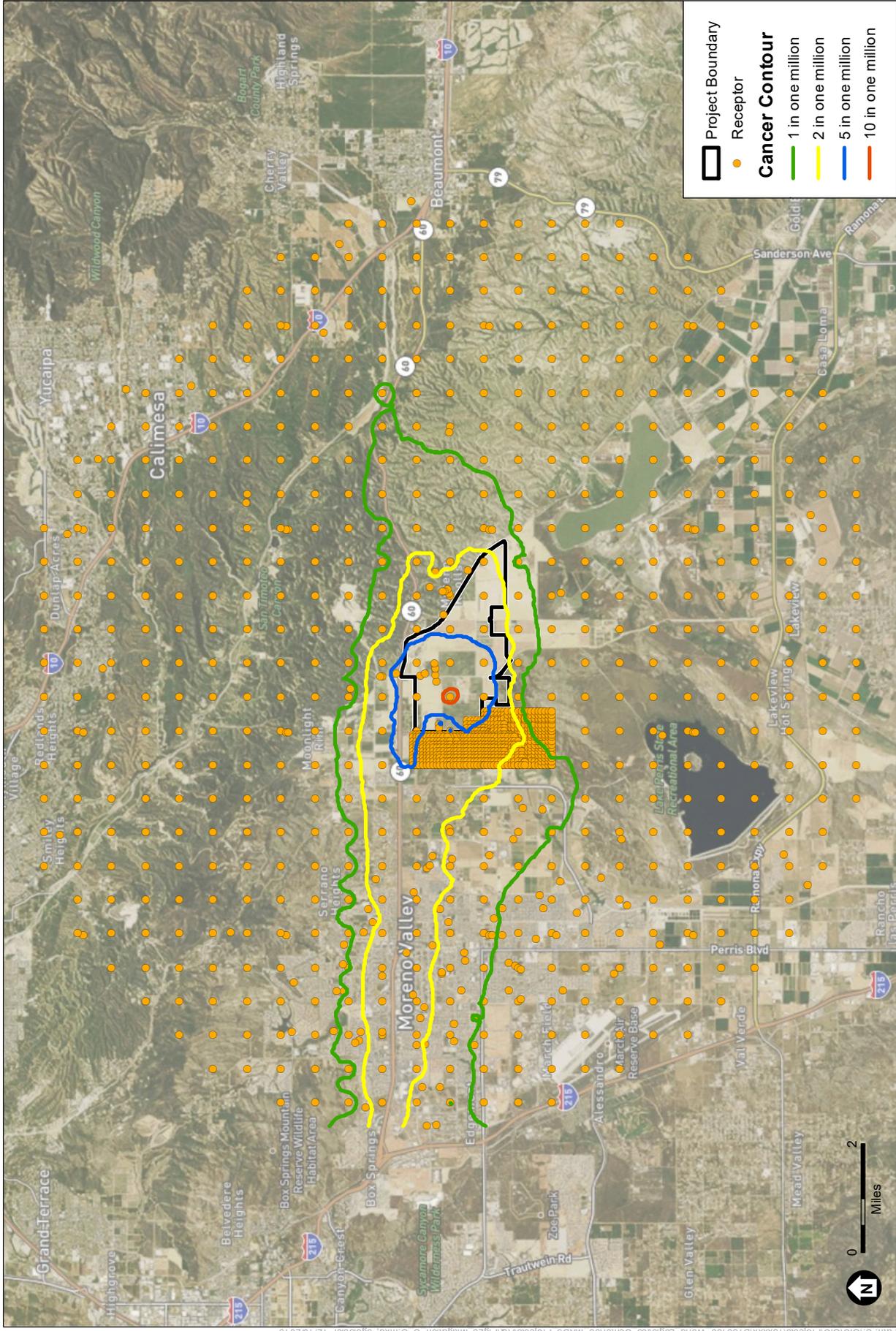
- 1 Conservatively assumed all receptors in the studied domain are residential receptors and will have 30-year average exposures from 2035 to 2064 (includes diesel PM emissions from full project operation); cancer risk estimates derived from the TIA, EMFAC2017 emission model, SCAQMD HRA guidance and "Current OEHHA Guidance" for estimating cancer risks.
- 2 Location is at the existing residence immediately to the north of the project boundary and is owned by the project sponsor.
- 3 Location is at the existing residence located at 30220 Dracaea Avenue.
- 4 Location is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.
- 5 Location is south of SR 60 freeway, same as the location in footnote (4), which is to the northwest of the project boundary, on the west side of Redlands Boulevard and south of Eucalyptus Avenue.

**Table 55b  
Estimated Cancer Risks, 30-Year Exposure Duration for Sensitive/Residential Onsite Receptors Starting from Beginning of Project Full Operation in 2035, With Mitigation & Installation of MERV-13 Filters**

Receptor Location	Total Incremental Increase in Cancer Risk <sup>1</sup> (risk/million)	SCAQMD Cancer Risk Significance Threshold (risk/million)	Exceeds Threshold?
12400 World Logistics Center Parkway	7.1	10	No
30220 Dracaea Avenue	5.35	10	No
13241 World Logistics Center Parkway	4.75	10	No

Notes:

- 1 DieselNet.com, 2002



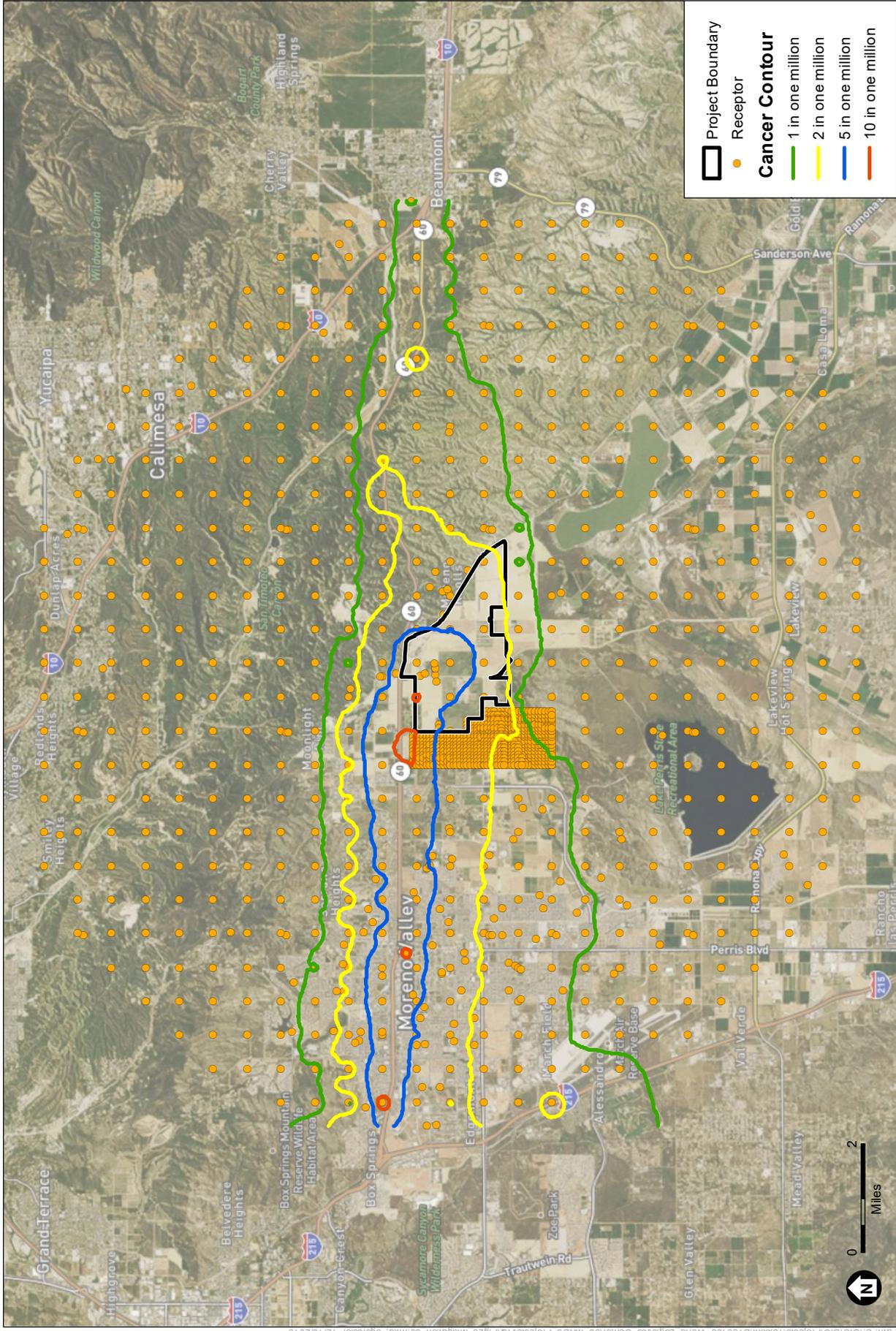
World Logistics Center

**Figure 25**  
Incremental Project Cancer Risk – with Mitigation  
(Construction and Operation)

SOURCE: ESRI 2019; ESA, 2019.



Path: U:\GIS\Projects\18xxxx\Dr180130 World Logistics Center\03 MXDs Projects\AQ\Fig25 Mitigation C O.mxd, sgeisler 12/10/2019



World Logistics Center

**Figure 26**  
Incremental Project Cancer Risk – with Mitigation  
(30 Years of Full Operation)

SOURCE: ESRI 2019; ESA 2019.



## 6.2 Greenhouse Gas Emissions

### Greenhouse Gas Emissions

Implementation of MM-AIR-7, MM-AIR-8, MM-AIR-9, MM-AIR-11, and MM-GHG-1 would result in reductions in greenhouse gas emissions and ensure consistency with applicable plans, policies, and regulations. Additional mitigation includes the following:

**MM-GHG-1** The World Logistics Center project shall implement the following requirements to reduce solid waste and greenhouse gas emissions from construction and operation of project development:

- a) Prior to January 1, 2020, divert a minimum of 50 percent of landfill waste generated by operation of the project. After January 1, 2020, development shall divert a minimum of 75 percent of landfill waste. In January of each calendar year after project approval the developer and/or Property Owners Association shall certify the percentage of landfill waste diverted on an annual basis.
- b) Prior to January 1, 2020, recycle and/or salvage at least 50 percent of non-hazardous construction and demolition debris. After January 1, 2020, recycle and/or salvage at least 75 percent of non-hazardous construction and demolition debris. In January of each calendar year after project approval the developer and/or Property Owners Association shall certify the percentage of landfill waste diverted on an annual basis.

Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled. Calculations can be done by weight or volume, but must be consistent throughout.

- c) The applicant shall submit a Recyclables Collection and Loading Area Plan for construction related materials prior to issuance of a building permit with the Building Division and for operational aspects of the project prior to the issuance of the occupancy permit to the Public Works Department. The plan shall conform to the Riverside County Waste Management Department's Design Guidelines for Recyclable Collection and Loading Areas.
- d) Prior to issuance of certificate of occupancy, the recyclables collection and loading area shall be constructed in compliance with the Recyclables Collection and Loading Area plan.
- e) Prior to issuance of certificate of occupancy, documentation shall be provided to the City confirming that recycling is available for each building.

- f) Within six months after occupancy of a building, the City shall confirm that all tenants have recycling procedures set in place to recycle all items that are recyclable, including but not limited to paper, cardboard, glass, plastics, and metals.
- g) The property owner shall advise all tenants of the availability of community recycling and composting services.
- h) Existing onsite street material shall be recycled for new project streets to the extent feasible.

**MM-GHG-2** Prior to approval of a precise grading permit for each plot plan for development within the World Logistics Center Specific Plan (WLCSP), the developer shall submit landscape plans that demonstrate compliance with the World Logistics Center Specific Plan, the State of California Model Water Efficient Landscape Ordinance (AB 1881), and Conservation in Landscaping Act (AB 325). This measure shall be implemented to the satisfaction of the Planning Division. Said landscape plans shall incorporate the following:

- Use of xeriscape, drought-tolerant, and water-conserving landscape plant materials wherever feasible and as outlined in Section 6.0 of the World Logistics Center Specific Plan;
- Use of vacuums, sweepers, and other “dry” cleaning equipment to reduce the use of water for wash down of exterior areas;
- Weather-based automatic irrigation controllers for outdoor irrigation (i.e., use moisture sensors);
- Use of irrigation systems primarily at night or early morning, when evaporation rates are lowest;
- Use of recirculation systems in any outdoor water features, fountains, etc.;
- Use of low-flow sprinkler heads in irrigation system;
- Provide information to the public in conspicuous places regarding outdoor water conservation; and
- Use of reclaimed water for irrigation if it becomes available.

**MM-GHG-3** All buildings shall include water-efficient design features outlined in Section 4.0 of the World Logistics Center Specific Plan. This measure shall be implemented to the satisfaction of the Land Development/Public Works. These design features shall include, but not be limited to the following:

- Instantaneous (flash) or solar water heaters;

- Automatic on and off water facets;
- Water-efficient appliances;
- Low-flow fittings, fixtures and equipment;
- Use of high efficiency toilets (1.28 gallons per flush [gpf] or less);
- Use of waterless or very low water use urinals (0.0 gpf to 0.25 gpf);
- Use of self-closing valves for drinking fountains;
- Infrared sensors on drinking fountains, sinks, toilets and urinals;
- Low-flow showerheads;
- Water-efficient ice machines, dishwashers, clothes washers, and other water-using appliances;
- Cooling tower recirculating system where applicable;
- Provide information to the public in conspicuous places regarding indoor water conservation; and
- Use of reclaimed water for wash down if it becomes available.

**MM-GHG-4** Prior to approval of a precise grading permit for each plot plan, irrigation plans shall be submitted to and approved by the City demonstrating that the development will have separate irrigation lines for recycled water. All irrigation systems shall be designed so that they will function properly with recycled water if it becomes available. This measure shall be implemented to the satisfaction of the City Planning Division and Land Development Division/Public Works.

**MM-GHG-5** Each application for a building permit shall include energy calculations to demonstrate compliance with the California Energy Efficiency Standards (Title 24, Part 6). Plans shall show the following:

- Energy-efficient roofing systems, such as “cool” roofs, that reduce roof temperatures significantly during the summer and therefore reduce the energy requirement for air conditioning.
- Cool pavement materials such as lighter-colored pavement materials, porous materials, or permeable or porous pavement, for all roadways and walkways not within the public right-of-way, to minimize the absorption of solar heat and subsequent transfer of heat to its surrounding environment.
- Energy-efficient appliances that achieve the 2016 California Appliance Energy Efficiency Standards (e.g., EnergyStar Appliances) and use of sunlight-filtering window coatings or double-paned windows.

**MM-GHG-6** Prior to the issuance of any building permits within the World Logistics Center site, each project developer shall submit energy calculations used to demonstrate compliance with the performance approach to the California Energy Efficiency Standards, for each new structure. Plans may include but are not necessarily limited to implementing the following as appropriate:

- High-efficiency air-conditioning with electronic management system (computer) control.
- Isolated High-efficiency air-conditioning zone control by floors/separable activity areas.
- Use of Energy Star ® exit lighting or exit signage.

**MM-GHG-7** Prior to the issuance of a building permit, new development shall demonstrate that each building has implemented the following:

- Install solar panels with a capacity equal to the peak daily demand for the ancillary office uses in each warehouse building or up to the limit allowed by Moreno Valley Utility’s restriction on distributed solar PV connecting to their grid, whichever is greater;
- Increase efficiency for buildings by implementing either 10 percent over the 2008 Title 24’s energy saving requirements for the Title 24 requirements in place at the time the building permit is approved, whichever is more strict; and
- Require the equivalent of “Leadership in Energy and Environmental Design Certified” for the buildings constructed at the World Logistics Center based on Leadership in Energy and Environmental Design Certified standards in effect at the time of project approval.

This measure shall be implemented to the satisfaction of the Building and Safety and Planning Divisions.

The WLCSP incorporates site and building designs that emphasize conservation of water and energy, which in turn help reduce greenhouse gas emissions (WLCSP September 2014, Section 1.3.2, Green Building-Sustainable Development). The current proposed Project Design Features go substantially beyond that previous commitment with energy conservation measures that exceed minimal compliance with current (2016) Title 24 requirements by about 17 percent at Phase 1 and 16 percent at full buildout, as outlined in the WLC Sustainable Energy Plan.<sup>92</sup> **Table 56, Greenhouse Gas Emissions Reduction Analysis**, evaluates to what degree various design features of the project will reduce potential GHG emissions.

<sup>92</sup> WSP. World Logistics Center Comparison of Renewable Energy Technologies. 2018

**Table 57, *GHG Reductions at Buildout***, shows the GHG emissions and mitigation reductions after implementation of Project Design Features and mitigation at buildout only. **Table 58, *Project GHG Emissions (Year by Year With Mitigation)***, shows the mitigated GHG emissions for each year from 2020 through construction and 30 years operation of all Project facilities. Total uncapped GHG emissions are below the threshold of significance for every year and are therefore less than significant after mitigation.

**Table 56  
Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
Construction Fuel	<b>Mitigation Measure MM-AQ-1</b> would require that construction equipment be Tier 4.	This reduction was estimated in CalEEMod. Tier 4 construction equipment would have fewer PM <sub>2.5</sub> emissions, and therefore black carbon emissions.
Construction Waste	Regulation in the California Green Building Standards require that projects divert (reduce or recycle) at least 50 percent of waste.	This reduction was estimated using the U.S. EPA's Waste Reduction Model (WARM) version 13.
On-Road Vehicles: Local	<i>Project Design Feature:</i> Local bus service to the area is provided by the Riverside Transit Agency. Local bus routes would typically be extended into the project area when adequate demand is generated from this employment center. Future bus routes could circulate on available looped routes with adequate right-of-way along the major arterial roadways of Redlands Boulevard, Theodore Street, and Alessandro Boulevard. Likewise, the industrial collector roadways provide access to locations nearest building front entrances. Due to building scale, bus stops may be spread out by grouped entrances or centralized gateway drive areas as compared to individual business entries.	The California Air Pollution Control Officer's Association (CAPCOA) report's reduction measure TRT-1 indicates a 5.2 percent reduction in commute vehicle miles traveled for low-density suburbs for inclusion of a commute trip reduction program. However, this reduction is not used in this analysis. No reductions are taken for these measures in order to provide a conservative analysis.
	<b>Mitigation Measure MM-AQ-10:</b> Class II bike lanes.	
	<b>Mitigation Measure MM-AQ-10:</b> Participate in Riverside County's rideshare program	
	<b>Mitigation Measure MM-AQ-10:</b> Lockers for employees.	
	<b>Mitigation Measure MM-AQ-10:</b> Bicycle storage and changing rooms	
	<i>Project Design Features:</i> The project would have pedestrian circulation (sidewalks, and a multiuse trail.	
	<b>Mitigation Measure MM-AQ-10:</b> Safe pedestrian connections	
	<b>Mitigation Measure MM-AQ-10:</b> Parking for fuel-efficient vehicles	
On-road Vehicles: Long haul trucks	<b>Mitigation Measure MM-AQ-6:</b> Require model year 2010 diesel trucks or later.	This was implemented by utilizing the emission factors for medium-heavy duty and heavy-heavy duty trucks from EMFAC2017 for year 2010 and after.

**Table 56  
Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
On-road Vehicles: all	<p><i>Pavley-I Regulation:</i> A clean-car standard to reduce greenhouse gas emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.</p> <p><i>Low Carbon Fuel Standard:</i> A fuel standard that requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.</p> <p><i>California Mobile Source Strategy:</i> This 2016 plan includes targets for zero emission vehicles (ZEVs) that exceed assumptions included in EMFAC 2014.</p> <p>Project design includes supporting infrastructure to accommodate future EV populations consistent with targets in the Mobile Source Strategy.</p>	EMFAC2017 provides emission factors for carbon dioxide that include these regulations. Therefore, both the unmitigated and mitigated emissions account for these regulations.
Electricity and Natural Gas: Title 24	<p><b>Mitigation Measures MM-GHG-5</b> and <b>MM-GHG-6</b> would reduce electricity related emissions. In addition, the project would require LEED certification for buildings and would require buildings to exceed Title 24 (2008 version) by 10 percent or comply with the current version in place.</p> <p>Project design includes energy conservation measures that would enable the project to exceed 2019 Title 24 energy standards by lowering electrical demand with implementation of sustainability measures such as high efficiency appliances and skylights.</p>	Reductions from exceeding the requirements of Title 24 (2016) were accounted for in calculations.
Electricity, Lighting	<p><b>Mitigation Measures MM-GHG-6</b> (lighting efficiency) and <b>MM-GHG-7</b> (Title 24) would reduce electricity from lighting.</p> <p>Project design includes energy conservation measures that lower electrical demand with implementation of sustainability measures such as high efficiency lighting and motion sensors.</p>	Reductions due to efficient lighting were accounted for in calculations.
Electricity: Solar	<p><b>Mitigation Measure MM-GHG-7</b> requires that the project install solar panels.</p> <p>Project design includes on-site solar panel installation.</p>	The estimated electricity generation from onsite solar is 24,083 MWh per year, which is 5.0 percent of the electricity demand at buildout. Therefore, 5.0 percent of the unmitigated electricity-related GHG emissions are reduced by solar generation.
Water	<b>Mitigation Measure MM-GHG-2</b> would reduce outdoor water usage	CalEEMod mitigation for water-efficient irrigation systems (6.1% reduction, CalEEMod default)

**Table 56  
Greenhouse Gas Emissions Reduction Analysis**

Category	Operational Mitigation Measure or Project Design Feature <sup>1</sup>	Calculation Method and Reductions
	<p><b>Mitigation Measure MM-GHG-3</b> would reduce interior water usage, including low flow fittings, fixtures and equipment.</p>	<p>CalEEMod mitigation for:</p> <ul style="list-style-type: none"> <li>- low-flow toilet (20% reduction in flow, CalEEMod default)</li> <li>- low flow bathroom faucet (32% reduction in flow, CalEEMod default)</li> <li>- low-flow kitchen faucet (18% reduction in flow, CalEEMod default)</li> <li>- low-flow shower (20% reduction in flow, CalEEMod default)</li> </ul>
Waste	<p><b>Mitigation Measure MM-GHG-4</b> would allow reclaimed water to be used for irrigation.</p> <p><b>Mitigation Measure MM-GHG-1:</b> Recycling and composting to divert construction and operational waste by at least 50 percent before 2020 and 75 percent thereafter.</p> <p><i>Project Design Feature:</i> Specific Plan (Section 5.1.6) requires that all development within the project provide enclosures or compactors for trash and recyclable materials.</p>	<p>No reductions are taken for the potential use of reclaimed water.</p> <p>The project would commit to reducing construction and operational waste by 50 percent prior to 2020 and 75 percent thereafter; therefore, a 75 percent reduction is applied.</p>

<sup>1</sup> Project design features are from the Project Description and WLC Sustainable Energy Plan (WSP, 2018); mitigation measures are shown in Section 1.0, Table 1.B.

**Table 57  
GHG Reductions at Buildout (with Mitigation)**

Source	GHG Emissions (mt CO <sub>2</sub> e) at Buildout		
	Unmitigated	Reductions from Mitigation	With Reductions (Mitigated)
<b>Capped Emissions</b>			
Construction	7,391	0	7,391
Net Mobile	179,355	-557	178,798
Yard trucks	7,172	0	7,172
Generator	267	19	286
Forklifts	257	0	257
Electricity	34,147	-4,715	29,432
Water	2,548	-268	2,280
Natural gas	4,689	-4,689	0
Solar	0	-3,386	-3,386
<b>Total Capped</b>	<b>238,686</b>	<b>-13,596</b>	<b>222,230</b>
<b>Uncapped Emissions</b>			
Construction Refrigerants and Waste	166	-17	149
Waste	19,193	-14,395	4,798
Refrigerants	2,572	0	2,572
Land use change	1,154	0	1,154
Sequestration	-111	0	-111
<b>Total Uncapped</b>	<b>22,974</b>	<b>-14,412</b>	<b>8,562</b>
<b>Threshold</b>	<b>10,000</b>	<b>-</b>	<b>10,000</b>
<b>Significant Impact?</b>	<b>Yes</b>	<b>-</b>	<b>No</b>

**Notes:**

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers. Electricity-based emissions result in an increase due to the inclusion of EV charging stations and electric outlets for electrical property maintenance equipment.

2 - Construction would no longer occur at buildout; however, according to SCAQMD recommendations, construction emissions are included as amortized over 30 years.

**Table 58a  
Project GHG Emissions (Year by Year With Mitigation)**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Net Mobile	0	20,982	41,248	60,829	79,602	96,308	102,643	112,971	123,218	132,710	141,787	150,466	158,748	166,632	174,108
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	32	65	97	130	162	174	187	200	213	225	238	251	263	276
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	5,487	10,505	16,725	22,319	32,535	36,088	36,779	36,207	35,461	35,096	34,716	34,056	33,116	31,366
Water	0	119	239	398	557	853	1,148	1,304	1,398	1,492	1,626	1,778	1,929	2,081	2,181
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	0	-179	-357	-595	-834	-1,276	-1,705	-1,931	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203
<b>Total Capped</b>	<b>18,770</b>	<b>49,483</b>	<b>76,746</b>	<b>103,490</b>	<b>127,254</b>	<b>149,188</b>	<b>155,300</b>	<b>165,860</b>	<b>176,151</b>	<b>184,649</b>	<b>194,501</b>	<b>201,374</b>	<b>208,653</b>	<b>213,328</b>	<b>219,350</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	192	192	192	192	190	85	124	127	124	124	124	124	124	124	101
Waste	0	544	1,087	1,631	2,175	2,712	2,924	3,137	3,356	3,569	3,781	3,994	4,207	4,419	4,632
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>192</b>	<b>1,145</b>	<b>2,098</b>	<b>3,051</b>	<b>4,003</b>	<b>4,840</b>	<b>5,252</b>	<b>5,628</b>	<b>6,009</b>	<b>6,382</b>	<b>6,755</b>	<b>7,128</b>	<b>7,501</b>	<b>7,874</b>	<b>8,223</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Table 58b  
Project GHG Emissions (Year by Year With Mitigation)**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Mobile	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798	178,798
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	286	286	267	267	267	267	267	267	267	267	267	267	267	267	267
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	29,432	26,712	23,744	20,776	17,808	14,840	11,872	8,904	5,936	2,968	0	0	0	0	0
Water	2,280	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386
<b>Total Capped</b>	<b>214,839</b>	<b>212,148</b>	<b>209,161</b>	<b>206,193</b>	<b>203,225</b>	<b>200,257</b>	<b>197,289</b>	<b>194,321</b>	<b>191,353</b>	<b>188,385</b>	<b>183,109</b>	<b>183,109</b>	<b>183,109</b>	<b>183,109</b>	<b>183,109</b>
<b>Uncapped Emissions</b>															
Construction	149	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refrigerants and Waste	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798
Waste	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Refrigerants	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Land use change	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111
Sequestration	8,563	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414	8,414
<b>Total Uncapped</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>
Threshold	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Table 58c  
Project GHG Emissions (Year by Year With Mitigation)**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)												Total (2020-2064)			
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061		2062	2063	2064
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Net Mobile	153,767	132,239	107,555	87,478	57,152	45,312	40,356	37,703	35,225	31,920	28,525	25,491	22,779	21,191	19,714	5,090,636
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	230	198	161	131	85	68	60	56	53	48	43	38	34	32	29	7,821
Forklifts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,122
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	563,449
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,159
Natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solar	-2,912	-2,505	-2,037	-1,657	-1,082	-858	-764	-714	-667	-605	-540	-483	-431	-401	-373	-92,091
<b>Subtotal, capped</b>	<b>157,252</b>	<b>135,237</b>	<b>109,993</b>	<b>89,461</b>	<b>58,448</b>	<b>46,339</b>	<b>41,270</b>	<b>38,557</b>	<b>36,023</b>	<b>32,644</b>	<b>29,172</b>	<b>26,068</b>	<b>23,295</b>	<b>21,671</b>	<b>20,161</b>	<b>6,042,384</b>
<b>Uncapped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,289
Refrigerants and Waste	4,126	3,549	2,886	2,348	1,534	1,216	1,083	1,012	945	857	765	684	611	569	529	136,855
Waste	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Refrigerants	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Land use change	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
Sequestration	<b>7,236</b>	<b>6,223</b>	<b>5,061</b>	<b>4,116</b>	<b>2,689</b>	<b>2,132</b>	<b>1,899</b>	<b>1,774</b>	<b>1,658</b>	<b>1,502</b>	<b>1,342</b>	<b>1,199</b>	<b>1,072</b>	<b>997</b>	<b>928</b>	<b>242,263</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	<b>450,000</b>
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.

2 - Estimated construction emissions are included prior to buildout.

3 - 2036 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.

4 - Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: *ESA, 2019*

The Scoping Plan Scenario assumes that California’s 2016 Mobile Source Strategy (MSS) would be implemented as a key strategy in the 2017 Scoping Plan Update for meeting the state’s 2030 GHG target (presented in the Energy section as Vehicle Scenario B: Medium EV Penetration). The MSS has a target of 4.2 million zero emission vehicles (ZEVs) in operation statewide by 2030. As explained in the Energy Section, after 2025 the sales and penetration of ZEVs under the MSS start to exceed the numbers assumed by EMFAC2017. **Table 59, California and SCAQMD Electric Vehicle (EV) Penetration Estimates**, shows that under the MSS approximately 5.2 percent of the passenger vehicle (LDA, LDT1, and LDT2) and light truck (MDV) fleet is expected to be powered by electricity or other zero emission engines by 2025 in the South Coast AQMD region, compared to 2.5 percent of passenger vehicles and 1.6 percent of light trucks using EMFAC2017 assumptions. By 2035, 21 percent of passenger vehicles and 22.5 percent of light trucks are expected to be ZEVs in the South Coast AQMD region, compared to 4.7 percent of passenger vehicles and 3.9 percent of light trucks using EMFAC2017 assumptions.

AB 32/SB 32 capped emissions are shown for informational purposes in **Table 60, Project Operational GHG Emissions (Year by Year With Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**, as those emissions are not compared with the SCAQMD’s significance threshold. The emissions presented under the Scoping Plan scenario (Table 60) assume successful implementation of the 2017 Scoping Plan Update, which included the Mobile Source Strategy in addition to the Pavley regulations, the Low Carbon Fuel Standard, and California’s Advanced Clean Car program. The mobile emissions estimates for future years are based on emission factors that account for higher penetrations of electric vehicles (EVs) than assumed by EMFAC.

**Table 59  
California and SCAQMD Electric Vehicle (EV) Penetration Estimates**

Jurisdiction	Year	Passenger Vehicles			Light Trucks		
		Total	EVs	% EVs	Total	EVs	% EVs
South Coast Air Basin using EMFAC2017 Model	2020	9,125,366	103,722	1.1%	1,539,990	3,852	0.3%
	2025	10,034,980	252,889	2.5%	1,627,185	26,375	1.6%
	2030	10,907,401	417,413	3.8%	1,733,368	51,603	3.0%
	2035	11,642,018	546,208	4.7%	1,849,556	72,433	3.9%
South Coast Air Basin with Governor’s order and MSS	2020	9,125,366	103,722	1.1%	1,539,990	3,852	0.3%
	2025	10,034,980	517,550	5.2%	1,627,185	83,921	5.2%
	2030	10,907,401	1,444,602	13.2%	1,733,368	229,571	13.2%
	2035	11,642,018	2,447,659	21.0%	1,849,556	416,980	22.5%

LDA, LDT1, and LDT2 = Passenger cars (EMFAC category)  
MDV = Light Duty Trucks (EMFAC category)

Sources: CARB, 2017b - based on EMFAC2011 Categories, and EMFAC2017 Volume III - Technical Documentation

**Table 60a**  
**Project GHG Emissions (Year by Year with Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Capped Emissions</b>															
Construction	18,770	22,198	23,363	23,511	22,113	16,408	12,424	11,692	12,000	11,452	12,311	10,610	9,993	7,451	7,430
Mobile	0	20,982	41,248	60,829	79,602	94,618	102,528	112,913	123,228	132,810	141,992	150,778	159,165	167,154	174,742
Yard trucks	0	813	1,625	2,438	3,250	4,053	4,371	4,689	5,016	5,334	5,652	5,970	6,288	6,606	6,924
Generator	0	32	65	97	130	162	174	187	200	213	225	238	251	263	276
Forklifts	0	29	58	87	117	145	157	168	180	191	203	214	226	237	248
Electricity	0	5,634	10,785	17,172	22,915	33,404	40,224	42,353	42,411	42,184	42,583	42,956	42,870	42,326	40,453
Water	0	119	239	398	557	853	1,148	1,304	1,398	1,492	1,626	1,778	1,929	2,081	2,181
Natural gas	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Solar	0	-179	-357	-595	-834	-1,276	-1,705	-1,931	-2,068	-2,204	-2,398	-2,618	-2,838	-3,059	-3,203
<b>Total Capped</b>	<b>18,770</b>	<b>49,629</b>	<b>77,027</b>	<b>103,937</b>	<b>127,851</b>	<b>148,367</b>	<b>159,322</b>	<b>171,376</b>	<b>182,365</b>	<b>191,474</b>	<b>202,194</b>	<b>209,926</b>	<b>217,884</b>	<b>223,060</b>	<b>229,051</b>
<b>Uncapped Emissions</b>															
Construction	192	192	192	192	190	85	124	127	124	124	124	124	124	124	101
Refrigerants and Waste	0	544	1,087	1,631	2,175	2,712	2,924	3,137	3,356	3,569	3,781	3,994	4,207	4,419	4,632
Refrigerants	0	291	583	874	1,166	1,454	1,568	1,682	1,799	1,913	2,027	2,141	2,255	2,369	2,483
Land use change	0	131	262	392	523	652	704	755	807	858	910	961	1,012	1,063	1,114
Sequestration	0	-13	-25	-38	-50	-63	-68	-72	-77	-82	-87	-92	-97	-102	-107
<b>Total Uncapped</b>	<b>192</b>	<b>1,145</b>	<b>2,098</b>	<b>3,051</b>	<b>4,003</b>	<b>4,840</b>	<b>5,252</b>	<b>5,628</b>	<b>6,009</b>	<b>6,382</b>	<b>6,755</b>	<b>7,128</b>	<b>7,501</b>	<b>7,874</b>	<b>8,223</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Table 60b  
Project GHG Emissions (Year by Year with Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														
	2035 (Buildout)	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>Capped Emissions</b>															
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mobile	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356	172,356
Yard trucks	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172	7,172
Generator	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286
Forklifts	257	257	257	257	257	257	257	257	257	257	257	257	257	257	257
Electricity	38,279	34,818	30,949	27,080	23,212	19,343	15,475	11,606	7,737	3,869	0	0	0	0	0
Water	2,280	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308	2,308
Natural gas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Solar	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386	-3,386
<b>Total Capped</b>	<b>217,245</b>	<b>213,812</b>	<b>209,943</b>	<b>206,075</b>	<b>202,206</b>	<b>198,337</b>	<b>194,469</b>	<b>190,600</b>	<b>186,731</b>	<b>182,863</b>	<b>176,686</b>	<b>176,686</b>	<b>176,686</b>	<b>176,686</b>	<b>176,686</b>
<b>Uncapped Emissions</b>															
Construction Refrigerants and Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798	4,798
Refrigerants	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572	2,572
Land use change	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154
Sequestration	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111	-111
<b>Total</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>	<b>8,414</b>
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Significant impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

**Table 60c**  
**Project GHG Emissions (Year by Year with Mitigation and Medium EV Penetration) – Scoping Plan Scenario, For Informational Purposes Only**

Source	GHG Mitigated Emissions (mt CO <sub>2</sub> e/year)														Total (2020-2064)	
	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063		2064
<b>Capped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221,727
Mobile	148,226	127,475	103,680	84,326	55,093	43,680	38,902	36,344	33,956	30,770	27,497	24,572	21,958	20,428	19,003	4,963,844
Yard trucks	6,168	5,304	4,314	3,509	2,293	1,818	1,619	1,512	1,413	1,280	1,144	1,022	914	850	791	204,561
Generator	246	211	172	140	91	72	65	60	56	51	46	41	36	34	32	8,152
Forklifts	221	190	155	126	82	65	58	54	51	46	41	37	33	30	28	7,340
Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	680,637
Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,159
Natural gas	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Solar	-2,912	-2,505	-2,037	-1,657	-1,082	-858	-764	-714	-667	-605	-540	-483	-431	-401	-373	-92,091
<b>Total Capped</b>	<b>151,950</b>	<b>130,677</b>	<b>106,284</b>	<b>86,444</b>	<b>56,477</b>	<b>44,777</b>	<b>39,879</b>	<b>37,257</b>	<b>34,808</b>	<b>31,543</b>	<b>28,188</b>	<b>25,189</b>	<b>22,510</b>	<b>20,941</b>	<b>19,481</b>	<b>6,034,349</b>
<b>Uncapped Emissions</b>																
Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,140
Refrigerants and Waste	4,126	3,549	2,886	2,348	1,534	1,216	1,083	1,012	945	857	765	684	611	569	529	136,855
Waste	2,212	1,902	1,547	1,258	822	652	580	542	507	459	410	367	328	305	284	73,356
Refrigerants	993	854	694	565	369	293	261	243	227	206	184	165	147	137	127	32,922
Land use change	-95	-82	-67	-54	-35	-28	-25	-23	-22	-20	-18	-16	-14	-13	-12	-3,159
Sequestration	7,236	6,223	5,061	4,116	2,689	2,132	1,899	1,774	1,658	1,502	1,342	1,199	1,072	997	928	242,114
Threshold	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	450,000
Significant Impact?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

mt CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, which is calculated from the emissions (tons/year) by multiplying by the individual global warming potential (carbon dioxide – 1, methane – 21, nitrous oxide – 310, hydrofluorocarbons – 1500, black carbon 760) and converted to metric tons by multiplying by 0.9072.

- 1 - Electricity and natural gas emissions estimates account for PDFs that improve energy efficiency and eliminate the use of building natural gas; includes electricity use by on-site EV chargers.
- 2 - Estimated construction emissions are included prior to buildout.
- 3 - 2035 is the first full year that the Project would be built out. Years from buildout until 2049 are conservatively estimated to be equivalent to buildout year emissions and exclude construction emissions since construction activity would cease after buildout. Years post-2049 take into account the phasing out of structures as they reach their presumed 30-year lifetime.
- 4 - Electricity emissions decrease to zero in 2045 after RPS has reached 100% renewable electricity

Source: *ESA, 2019*

## Plan, Policy, Regulation Consistency

The WLCSP contains a sustainability section that emphasizes water and energy conservation throughout the project design, which in turn will help reduce GHG emissions (Section 1.3.2, Green Building-Sustainable Development). The WLC Sustainable Energy Plan includes additional Project Design Features that go beyond the WLSCP with energy conservation measures that exceed minimal compliance with current (2016) Title 24 requirements by about 17 percent at Phase 1 and 16 percent at full buildout.<sup>93</sup>

As previously identified, implementation of the project could result in the development of an approximately 40.6 million square foot high cube-logistics distribution logistics. The project includes a variety of physical attributes and operational programs that would help reduce operational-source pollutant emissions from worker commuting, including GHG emissions. Future development that would occur under the project would be consistent with greenhouse gas emission reduction strategies and policies, including the City's Climate Change Strategy. The project would implement the Mitigation Measures listed above to reduce its contribution to GHG emissions and to ensure it does not conflict with or impede implementation of reduction goals identified in AB 32, SB 32, Governor's Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, the project would not conflict with any applicable plan, program, policy, or regulation related to the reduction of GHG emissions. Impacts are considered less than significant.

Similar to the discussion of cumulative air quality impacts, the project may employ workers locally from the City. This has the benefit of improving the local jobs/housing balance leading to air quality benefits in terms of shorter trip lengths, which lead to lower emissions than if the workforce was derived from distant locations.

The State of California has adopted a number of policies, including AB 32, SB 32, Governor's Executive Order S-3-05, the Pavley vehicle standards, the Advanced Clean Car program, and the Mobile Source Strategy, which collectively provide the structure and commitment to address California's contribution to global climate change. Since the project is consistent with these policies, including being below the SCAQMD threshold for greenhouse gases that was structured in accordance with these State policies, the project is consistent with greenhouse gas plans, policies, and regulations and impacts are less than significant after mitigation.

---

<sup>93</sup> WSP. World Logistics Center Comparison of Renewable Energy Technologies. 2018



Prepared for  
**Highland Fairview**

Prepared by  
**Ramboll US Corporation**

Project Number  
**1690014654**

Date  
**December, 2019**

**HIGHLAND FAIRVIEW WORLD  
LOGISTICS CENTER  
ADDITIONAL INFORMATION REGARDING  
POTENTIAL HEALTH EFFECTS OF AIR  
QUALITY IMPACTS  
MORENO VALLEY, CALIFORNIA**



## CONTENTS

<b>1.</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2.</b>	<b>TECHNICAL APPROACH</b>	<b>3</b>
<b>3.</b>	<b>RESULTS</b>	<b>6</b>
<b>4.</b>	<b>REFERENCES</b>	<b>15</b>

## APPENDICES

Appendix A:	Emissions Inventory, Spatial Allocation, and SMOKE Setup
Appendix B:	PGM Inputs, Outputs, and Assumptions
Appendix C:	BenMAP and Potential Health Effects



## 1. INTRODUCTION

This report presents an estimate of the potential health effects of the emissions of criteria pollutants that may result from the construction and operation of the Highland Fairview World Logistics Center Project (the Project).<sup>1</sup>

### FRIANT RANCH DECISION

As background, Environmental Impact Reports (EIRs) prepared pursuant to the California Environmental Quality Act (CEQA) have long evaluated project-related health effects of toxic air contaminants, such as diesel particulate matter, through quantitative and/or qualitative means relative to air district-issued thresholds of significance. However, EIRs historically have not evaluated the specific health effects of project-related increases in criteria pollutants, other than to note and summarize scientific literature regarding the general effect of those pollutants on health. Instead, in accordance with air district-issued thresholds of significance and industry standard practice at the time, CEQA analysis historically and traditionally focused on estimating project-related mass emissions totals for criteria pollutants and, in certain cases, conducting dispersion modeling to assess impacts on local ambient air quality concentrations.

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (hereinafter referred to as “the Friant Ranch decision”). The Court noted that the EIR at issue in the Friant Ranch decision disclosed the project’s significant impacts attributable to the emissions of criteria pollutants, including oxides of nitrogen (NO<sub>x</sub>), and particulate matter (PM), but did not correlate the project’s emissions to health effects. In finding the EIR inadequate in that respect, the Court held that the EIR should have “relate[d] the expected adverse air quality impacts to likely health consequences or explain[ed] in meaningful detail why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions regarding the costs and benefits of” the project. (Id. at p. 510.)

CEQA practitioners and other expert agencies (like air districts) are still developing tools and methodologies to provide the type of CEQA analysis described in the Friant Ranch decision. In this report, Ramboll presents one method that can be used to correlate project-related mass emissions totals for criteria pollutants to estimated health effects. More specifically, in order to estimate the health effects of the increases of criteria pollutants for the Project, Ramboll applied a photochemical grid model (PGM), Comprehensive Air Quality Model with extensions (CAMx), to estimate the small increases in concentrations of ozone and PM<sub>2.5</sub> in the region as a result of the emissions of criteria and precursor pollutants from the Project. Ramboll then applied a U.S. Environmental Protection Agency (USEPA)-authored program, the Benefits Mapping and Analysis Program (BenMAP)<sup>2</sup>, to estimate the resulting health effects from the small increases in concentration. Only the health effects of ozone and PM<sub>2.5</sub> are estimated, as those are the pollutants that USEPA uses in BenMAP to estimate the health

---

<sup>1</sup> Criteria pollutants are those pollutants with an air pollution standard or pollutants which are precursors to those with a standard. Pollutants with an air pollution standard include nitrogen dioxide, sulfur dioxide (SO<sub>2</sub>), ozone, carbon monoxide (CO), particulate matter smaller than 2.5 microns in diameter and 10 microns in diameter, and ozone. Precursor pollutants to criteria pollutants include oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOCs).

<sup>2</sup> <https://www.epa.gov/benmap/benmap-ce-manual-and-appendices>.

effects of emissions of NO<sub>x</sub>, VOCs, CO, SO<sub>2</sub>, and PM<sub>2.5</sub>. Ozone and PM<sub>2.5</sub> have the most critical health effects and thus are the emissions evaluated to determine the Project's health effects.

### **ADDITIONAL EVALUATION**

In light of the Friant Ranch decision, this analysis estimates the health effects of criteria pollutants and their precursors, specifically those that are evaluated by the USEPA in rulemaking setting the national ambient air quality standards: NO<sub>x</sub>, VOC [also known as reactive organic gases, or ROG, which are virtually the same as VOC with some slight differences]<sup>3</sup>, CO, ozone, SO<sub>2</sub>, and PM<sub>2.5</sub>. USEPA's default health effect functions in BenMAP for PM use fine particulate matter (PM<sub>2.5</sub>) as the causal PM agent, so the health effects of PM<sub>10</sub> are represented using PM<sub>2.5</sub> as a surrogate. NO<sub>x</sub> and VOCs are not criteria air pollutants but, in the presence of sunlight, they form ozone and contribute to the formation of secondary PM<sub>2.5</sub> and thus are analyzed here. As a conservative measure, SO<sub>2</sub> and CO are evaluated due to their small contribution to the formation of secondary PM<sub>2.5</sub> and ozone. The health effects from ozone and PM<sub>2.5</sub> are examined for this Project because the USEPA has determined that these criteria pollutants would have the greatest effect on human health. The emissions of other criteria and precursor pollutants, including VOC, NO<sub>x</sub>, CO and SO<sub>2</sub>, are analyzed in their contribution in the formation of ozone and secondary PM<sub>2.5</sub>.

Additionally, NO<sub>2</sub> and CO concentration changes due to the Project are not evaluated here individually, as a localized significance threshold (LST) analysis has been performed as presented in Section 4.3 of the Draft Recirculated Revised Sections of the Final Environmental Report (Draft Recirculated RSFEIR), where Project plus background contributions are compared to the National Ambient Air Quality Standards (NAAQS). The NAAQS are health based thresholds and thus a direct comparison against such thresholds allows evaluation of potential health effects. Further, there are currently no NO<sub>2</sub> non-attainment areas in the United States, even after the 1-hour standard was implemented. Similarly, SO<sub>2</sub> concentration changes are also not individually evaluated here as there are no current SO<sub>2</sub> non-attainment areas in the state of California. Even so, as noted above, contributions of NO<sub>x</sub>, CO, and SO<sub>2</sub> are all still evaluated here in their contribution to the formation of ozone and secondary PM<sub>2.5</sub>, the two criteria pollutants the USEPA has determined to have the greatest effect on human health.

The evaluation presented herein serves to describe the potential health effects of the criteria pollutant emissions disclosed in Section 4.3 of the Project's Draft Recirculated RSFEIR. This evaluation does not make a new significance determination, as the Project's air quality impacts were already found to be significant and unavoidable. Instead, this evaluation provides additional information regarding the potential health effects of the previously identified significant air quality impacts.

---

<sup>3</sup> Reactive organic gas (ROG) emissions are quantified and modeled as VOCs in this assessment. ROG means total organic gases minus the California Air Resources Board's (ARB's) "exempt" compounds (e.g., methane, ethane, CFCs, etc.). ROG is similar, but not identical, to USEPA's term "VOC", which is based on USEPA's exempt list, which is slightly different from ARB's list.

## 2. TECHNICAL APPROACH

The first step in the process is to run the PGM with appropriate information to assess the small increases in ambient air concentrations of pollutants that the Project emissions may cause. PGMs require a database of information, including the spatial allocation of emissions, in the area to be modeled. This includes both base (background/existing) emissions and Project emissions. The latest publicly available PGM database for Southern California, which contains base emissions, was developed by the South Coast Air Quality Management District (SCAQMD) in support of its adopted 2016 Air Quality Management Plan (AQMP)<sup>4</sup> and was adapted for use in this analysis. This PGM database is tailored for Southern California using California-specific input tools (e.g., the Emission FACTors (EMFAC)<sup>5</sup> mobile source emissions model) and uses a high-resolution 4-kilometer (km) horizontal grid to better simulate meteorology and air quality in the complex terrain and coastal environment of California.

Project emissions included NO<sub>x</sub>, SO<sub>2</sub>, CO, respirable (PM<sub>10</sub>) and fine (PM<sub>2.5</sub>) primary particulate matter (PM), and VOCs. As discussed above, NO<sub>x</sub> and VOC are precursors to ozone and, along with SO<sub>2</sub>, are also precursors to secondarily formed PM<sub>2.5</sub>. CO also plays a smaller role in the formation of ozone and is thus conservatively evaluated here.

The USEPA's air quality modeling guidelines (Appendix W<sup>6</sup>) and ozone and PM<sub>2.5</sub> modeling guidance<sup>7</sup> recommend using a PGM to estimate ozone and secondary PM<sub>2.5</sub> concentrations. The USEPA's modeling guidance does not recommend specific PGMs but provides procedures for determining an appropriate PGM on a case-by-case basis. Both the modeling guidelines and guidance note that the CAMx<sup>8</sup> and the Community Multiscale Air Quality (CMAQ<sup>9</sup>) PGMs have been used extensively in the past and would be acceptable PGMs. As such, the USEPA has prepared a memorandum<sup>10</sup> documenting the suitability for using CAMx and CMAQ for ozone and secondary PM<sub>2.5</sub> modeling of single-sources or group of sources.

To estimate the potential outcome of the Project's emissions on ambient air concentrations, the Project's unmitigated and mitigated emissions were added to the CAMx 4-km annual PGM modeling database.<sup>11</sup> Operational and construction emissions from the Project were estimated as described in Section 4.3 of the Draft Recirculated RSFEIR.<sup>12</sup> For this analysis, both unmitigated and mitigated Project emissions were evaluated. In both cases, total emissions modeled reflect the maximum combined (operational + construction) emissions by

---

<sup>4</sup> <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>.

<sup>5</sup> <https://www.arb.ca.gov/emfac/>.

<sup>6</sup> [https://www3.epa.gov/ttn/scram/appendix\\_w/2016/AppendixW\\_2017.pdf](https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf).

<sup>7</sup> [https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling\\_Guidance-2018.pdf](https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf).

<sup>8</sup> <http://www.camx.com/>.

<sup>9</sup> <https://www.epa.gov/cmaq>.

<sup>10</sup> [https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical\\_Grid\\_Model\\_Clarification\\_Memo.pdf](https://www3.epa.gov/ttn/scram/guidance/clarification/20170804-Photochemical_Grid_Model_Clarification_Memo.pdf).

<sup>11</sup> SCAQMD performed Weather Research and Forecasting (WRF) meteorological modeling for the 4-km domain and 2012 calendar year that has been processed by WRF-CAMx to generate CAMx 2012 4-km meteorological inputs for the domain. The CMAQ 2012 emissions have been converted to the format used by CAMx using the CMAQ2CAMx processor.

<sup>12</sup> To the extent that the Draft Recirculated RSFEIR used conservative inputs to estimate Project-related criteria pollutants and precursors, the analysis provided herein also is conservatively influenced by those inputs.

pollutant. These maxima may occur in different years for different pollutants, though each pollutant's maximum year is conservatively analyzed collectively in a single year assessment. Full operational emissions (at Project buildout) were modeled for all pollutants, and the balance of emissions were allocated to construction sources, with the distribution of emissions types representative of the maximum construction years. This allows for analysis of the worst-case emissions scenario over a single construction or operational year. Full operational emissions (at Project buildout) are expected to have the greatest contribution to health effects due to the proximity of the mobile source emissions to dense population centers, and thus were modeled in full. Additional construction emissions were evaluated to conservatively represent a potential year where construction and operation may coincide, though in reality the situation of full operations plus construction is hypothetical, and conservative for the purposes of this analysis.

For use in PGMs, each Project emissions source must be spatially distributed across the modeling grid cells so that they can be incorporated into the gridded emission inventory. Operational emissions include area sources (architectural coatings, VOCs in consumer products, and landscaping equipment), emergency generators, off-road equipment, and emissions associated with motor vehicle use. Construction emissions include off-road equipment, paving, architectural coatings, fugitive dust, and emissions associated with hauling, vendor, and worker activity. Operational area sources and off-road equipment emissions were evenly distributed within the Project site. Emergency generator emissions were evenly distributed across all emergency generator point source locations. The operational mobile source category includes both passenger vehicles and trucks. The operational mobile sources are also spatially distributed in both the site's grid cells, as well as the grid cells for the local and regional roadways with Project travel. Non-road construction emissions (off-road equipment, paving, architectural coating, and fugitive dust) were allocated to specific plots within the Project area. On-road mobile construction emissions were spatially distributed to the Project site and nearby roadways. Annual emission estimates from the Project were spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modelling using the Sparse Matrix Operator Kernel Emissions (SMOKE) emissions modelling system supported by the USEPA. The emissions inventories, spatial allocation, and SMOKE inputs and outputs are shown in **Appendix A**.

As discussed above, the SCAQMD's Southern California 2016 AQMP modeling database was used for this Project. The Southern California 4-km CAMx modeling database is based on a 2012 base meteorological year and includes future year emission scenarios. The 2031 future year projections were used for this analysis, as that is the nearest future year to full operational buildout with base emissions available as of the date of this report. The Project's emissions were tagged for treatment by the source apportionment tools in CAMx to obtain the incremental ozone and PM<sub>2.5</sub> concentration changes due to the Project's emissions. More details and inputs for the PGM modeling are included in **Appendix B**.

Following completion of the CAMx source apportionment modeling, Ramboll used the USEPA's BenMAP<sup>13, 14</sup> program to estimate the potential health effects of the Project's

---

<sup>13</sup> <https://www.epa.gov/benmap/how-benmap-ce-estimates-health-and-economic-effects-air-pollution>.

<sup>14</sup> [https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce\\_user\\_manual\\_march\\_2015.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf).

contribution to ozone and PM<sub>2.5</sub> concentration. BenMAP uses the concentration estimates produced by CAMx, along with population and health effect concentration-response (C-R) functions, to estimate various health effects of the concentration increases. BenMAP has a wide history of applications by the USEPA and others, including for local-scale analysis<sup>15</sup> as needed for assessing the health effects of a project's emissions. Ramboll used the USEPA default BenMAP health effects C-R functions that are typically used in national rulemaking, such as the health effects assessment<sup>16</sup> for the 2012 PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS). The health effects estimated for PM<sub>2.5</sub> include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infarction (non-fatal). For ozone, the endpoints estimated include mortality, emergency room visits (respiratory) and hospital admissions (respiratory). BenMAP applies "effect functions" to calculate incremental health effects from incremental changes in PM and ozone, and an underlying assumption is that there is a causal link between PM and ozone exposures and health effects. The effect functions are derived from statistical correlations reported in epidemiologic studies that compare fluctuations in air pollutant levels measured at central monitors against small fluctuations in population-wide health effects. These are statistical correlations and do not establish a cause-and-effect relationship between small fluctuations in the level of one (or many) ambient air pollutants and health effects, particularly mortality. For example, there is no toxicological or experimental study that has demonstrated or supported that small incremental changes in PM concentrations as a whole, or major PM components, at ambient levels can cause any serious health effects, let alone death (USEPA, 2009). That being said, in an overabundance of caution, and as an expression of the precautionary principal, BenMAP uses these studies to characterize the potential human health effect of small changes in PM and ozone concentrations. Details on the BenMAP inputs and outputs and definitions for the health effects are shown in **Appendix C**.

---

<sup>15</sup> <https://www.epa.gov/benmap/benmap-ce-applications-articles-and-presentations#local>.

<sup>16</sup> [https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM\\_RA\\_FINAL\\_June\\_2010.pdf](https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf).

### 3. RESULTS

This section presents the results of the health effects analysis for the incremental increases in PM<sub>2.5</sub> and ozone resulting from primary and precursor emissions for these constituents. The results presented here describe the potential health effects of the criteria pollutant emissions already disclosed in Section 4.3 of the Draft Recirculated RSFEIR, and the results themselves do not constitute a new significance determination, as the Project's air quality impacts were already found to be significant and unavoidable.

It is important to note there are a number of conservative assumptions built into this evaluation, beginning with the quantification of emissions themselves. These conservative assumptions include, but are not limited to, the following:

- Potential reductions due to mitigation measure 4.3.6.2A(d) which restricts idling of all diesel powered construction equipment, delivery vehicles, and delivery trucks to three minutes has conservatively not been accounted for (discussed further in Appendix A).
- Evaluation of full operational emissions at Project buildout, plus additional construction emissions to reflect the potential maximum combined year (discussed further in Appendix A);
- Assumption that health effects occur at any concentration, including small incremental concentrations (discussed further in Appendix C);
- Assumption that all PM<sub>2.5</sub> is of equal toxicity (discussed further in Appendix C);

As such, results presented below are meant to represent an upper bound of potential health effects, and actual effects may be zero.

#### POTENTIAL PROJECT HEALTH EFFECTS

Overall, the estimated health effects from ozone and PM<sub>2.5</sub> are minimal in light of background incidences. **Tables 3-1 through 3-4** below show the annual percent of background health incidence for PM<sub>2.5</sub> and Ozone health effects associated with the Unmitigated and Mitigated Project, respectively. The "background health incidence" is the actual incidence of health effects (based on available data) as estimated in the local population in the absence of additional emissions from the Project.<sup>17</sup> When taken into context, the small increase in incidences and the very small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment.

---

<sup>17</sup> Background health statistics were obtained from data included in the BenMAP model, and the sources are referenced in the BenMAP manual (USEPA, 2018). For example, EPA obtained mortality rates from the Centers for Disease Control (CDC) WONDER database, and hospital admissions rates from the Healthcare Cost and Utilization Project (HCUP).

**Unmitigated Project Health Effects**

<b>Table 3-1. BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain <sup>1</sup></b>		
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.0051%	130,805
Mortality, All Cause [30-99]	0.0047%	325,048
Hospital Admissions, Asthma [0-64]	0.0029%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00063%	224,047
Hospital Admissions, All Respiratory [65-99]	0.0016%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0020%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0021%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0020%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0020%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0019%	40,966
<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences or “background health incidence”). Health effects and background health incidences are across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.		

Potential PM<sub>2.5</sub>-related health effects associated with unmitigated Project-related increases in ambient air concentrations include asthma-related emergency room visits (6.63 incidences per year), asthma-related hospital admissions (0.52 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (1.42 incidences per year), all respiratory-related hospital admissions (3.17 incidences per year), mortality (15.19 incidences per year), and nonfatal acute myocardial infarction (less than 0.78 incidences per year for all age groups) (discussed further in Appendix C).

<b>Table 3-2. BenMAP-Estimated Annual Mean Ozone Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup></b>		
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00075%	193,354
Mortality, Non-Accidental [0-99]	0.00033%	210,692
Emergency Room Visits, Asthma [0-17]	0.014%	50,722
Emergency Room Visits, Asthma [18-99]	0.010%	80,084
<p><sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base values (2035 base year health effect incidences, or "background health incidence"). Health effects and background health incidences are across the Southern California model domain.</p> <p><sup>2</sup> Affected age ranges are shown in square brackets.</p>		

Potential ozone-related health effects associated with unmitigated Project-related increases in ambient air concentrations include respiratory-related hospital admissions (1.46 incidences per year), mortality (0.69 incidences per year), and asthma-related emergency room visits for any age range (lower than 8.20 incidences per year for all age groups) (discussed further in Appendix C).

**Mitigated Project Health Effects**

<b>Table 3-3. BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain <sup>1</sup></b>		
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.0047%	130,805
Mortality, All Cause [30-99]	0.0044%	325,048
Hospital Admissions, Asthma [0-64]	0.0028%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00059%	224,047
Hospital Admissions, All Respiratory [65-99]	0.0015%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0019%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0020%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0019%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0019%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0018%	40,966
<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or “background health incidence”). Health effects and background health incidences are across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.		

Potential PM<sub>2.5</sub>-related health effects associated with mitigated Project-related increases in ambient air concentrations include asthma-related emergency room visits (6.2 incidences per year), asthma-related hospital admissions (0.49 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (1.33 incidences per year), all respiratory-related hospital admissions (2.98 incidences per year), mortality (14.17 incidences per year), and nonfatal acute myocardial infarction (less than 0.724 incidences per year for all age groups) (discussed further in Appendix C).

<b>Table 3-4. BenMAP-Estimated Annual Mean Ozone Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup></b>		
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00062%	193,354
Mortality, Non-Accidental [0-99]	0.00027%	210,692
Emergency Room Visits, Asthma [0-17]	0.011%	50,722
Emergency Room Visits, Asthma [18-99]	0.0085%	80,084
<sup>1</sup> Health effects are shown terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or “background health incidence”). Health effects and background health incidences are across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.		

Potential ozone-related health effects associated with mitigated Project-related increases in ambient air concentrations include respiratory-related hospital admissions (1.20 incidences per year), mortality (0.56 incidences per year), and asthma-related emergency room visits for any age range (lower than 6.84 incidences per year for all age groups) (discussed further in Appendix C).

Because the health effects from ozone and PM<sub>2.5</sub> are minimal in light of background incidences, and health effects from other criteria pollutants would be even smaller, the health effects of those other criteria pollutants were not quantified.

**POTENTIAL CUMULATIVE HEALTH EFFECTS**

Maximum daily operational and construction emissions were estimated for 354 projects (herein referred to as “cumulative projects”) in the region surrounding the Project, as described further in Section 4.3 of the Draft Recirculated RSFEIR. Maximum daily operational emissions for all cumulative projects are reflective of year 2035, consistent with the full buildout year for the Project. Construction emissions vary by project but occur within years 2020 through year 2035. To capture both potential operational and construction emissions from the cumulative projects in a single year, either maximum daily operational or construction emissions were used for each project, evaluated on a pollutant basis (shown in Appendix A).

Potential health effects from the cumulative project emissions can be generally characterized using the Project level modeling results and a comparison of overall emissions. Emissions from cumulative projects would be subject to the similar meteorological and photochemical reaction conditions as the Project assessment. The application of an overall scaling factor based on emissions, as presented here, is likely conservative since the cumulative projects are unlikely to have the same distribution of mobile emissions to the Los Angeles area as the Project.

**Tables 3-5 and 3-6** below show the estimated annual percent of background health incidence for PM<sub>2.5</sub> and Ozone health effects associated with cumulative projects (including the unmitigated Project). When taken into context, the small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment.

<b>Table 3-5. Estimated Annual PM<sub>2.5</sub> Health Effects of Cumulative Project Emissions</b>		
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.16%	130,805
Mortality, All Cause [30-99]	0.14%	325,048
Hospital Admissions, Asthma [0-64]	0.09%	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.02%	224,047
Hospital Admissions, All Respiratory [65-99]	0.05%	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.06%	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.07%	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.06%	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.06%	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.06%	40,966
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.		

Potential PM<sub>2.5</sub>-related health effects associated with increases in ambient air concentrations estimated from cumulative Projects (including the unmitigated Project) include asthma-related emergency room visits (204 incidences per year), asthma-related hospital admissions (16 incidences per year), all cardiovascular-related hospital admissions (not including myocardial infarctions) (44 incidences per year), all respiratory-related hospital admissions (98 incidences per year), mortality (467 incidences per year), and nonfatal acute myocardial infarction (less than 24 incidences per year for all age groups) (discussed further in Appendix C).

<b>Table 3-6. Estimated Annual Ozone Health Effects of Cumulative Project Emissions</b>		
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.02%	193,354
Mortality, Non-Accidental [0-99]	0.01%	210,692
Emergency Room Visits, Asthma [0-17]	0.31%	50,722
Emergency Room Visits, Asthma [18-99]	0.23%	80,084
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.		

Potential ozone-related health effects associated with increases in ambient air concentrations estimated from cumulative Projects (including the unmitigated Project) include respiratory-related hospital admissions (33 incidences per year), mortality (16 incidences per year), and asthma-related emergency room visits for any age range (lower than 188 incidences per year for all age groups) (discussed further in Appendix C).

**UNCERTAINTY**

Analyses that evaluate the increases in concentrations resulting from individual sources, and the health effects of increases or decreases in pollutants as a result of regulation on a localized basis, are routinely done. This analysis does not tie the increase in concentration to a specific health effect in an individual; however, it does use scientific correlations of certain types of health effects from pollution to estimate increases in effects to the population at large.

There is a degree of uncertainty in these results from a combination of the uncertainty in the emissions themselves, the increase in concentration resulting from the PGM and the uncertainty of the application of the C-R increase. All simulations of physical processes, whether ambient air concentrations, or health effects from air pollution, have a level of uncertainty associated with them, due to simplifying assumptions. The overall uncertainty is a combination of the uncertainty associated with each piece of the modeling study, in this case, the emissions quantification, the emissions model, the PGM, and BenMAP. While these results reflect a level of uncertainty, regulatory agencies, including the USEPA have judged that, even with the uncertainty in the results, the results provide sufficient information to the public to allow them to understand the potential health effects of increases or decreases in air pollution (USEPA 2012).

The approach and methodology of this analysis ensures that the uncertainty is of a conservative nature. In addition to the conservative assumptions built into the emissions noted above, there are a number of assumptions built into the application of C-R functions in BenMAP that may lead to an overestimation of health effects. For example, for all-cause mortality health effects from PM<sub>2.5</sub>, these estimates are based on a single epidemiological

study that found an association between PM<sub>2.5</sub> concentrations and mortality.<sup>18</sup> While similar studies suggest that such an association exists, there remains uncertainty regarding a clear causal link. This uncertainty stems from the limitations of epidemiological studies, such as inadequate exposure estimates and the inability to control for many factors that could explain the association between PM<sub>2.5</sub> and mortality such as lifestyle factors like smoking. Several reviews have evaluated the scientific evidence of health effects from specific particulate components (e.g., Rohr and Wyzga 2012; Lippmann and Chen, 2009; Kelly and Fussell, 2007). These reviews indicate that the evidence is strongest for combustion-derived components of PM including elemental carbon (EC), organic carbon (OC) and various metals (e.g., nickel and vanadium); however, there is still no definitive data that points to any particular component of PM as being more toxic than other components. The USEPA has also stated that results from various studies have shown the importance of considering particle size, composition, and particle source in determining the health effects of PM (USEPA, 2009). Further, the USEPA (2009) found that studies have reported that particles from industrial sources and from coal combustion appear to be the most significant contributors to PM-related mortality, consistent with the findings by Rohr and Wyzga (2012) and others. This is particularly important to note here, as the majority of PM emissions generated from the Project are from entrained roadway dust, brakewear, and tirewear (see Appendix A), and not from combustion. Therefore, because they do not consider the relative toxicity of PM components, the results presented here are conservative.

Air pollution epidemiology studies are ecological studies. This means that they are population-based, observational epidemiological studies that look for patterns between population exposure and population disease rates. They do not use data at the individual level (e.g., correlations between regional mortality rates and community air pollution levels). Epidemiologists generally consider relative risks (RRs, a measure of the association between exposures and health effects) from these types of studies that are greater than 3 to 4 to reflect strong associations and to be supportive of a causal link, while smaller RRs (1.5 to 3) are considered to be weak, and require other lines of evidence (e.g., toxicological evidence, plausible biological mechanism) to demonstrate causality (Taubes 1995). For example, the RR of lung cancer for heavy smokers is in the range of 10 to 20, whereas PM associations with mortality yield RRs in the range of 1.01 to 1.05, i.e., very close to the RR = 1.0, which indicates little to no association.

Aside from the uncertainty as to the causal basis of the statistical associations in air pollution epidemiology studies of PM and mortality, some epidemiological studies have found no correlation between mortality and increased PM (Enstrom, 2005; 2017; Lipfert et al., 2000; Murray and Nelson, 2000; Greven et al., 2011; You et al., 2018; Zhou et al., 2015). Although there are a greater number of publications reporting a positive PM association for mortality compared to those reporting no association.

Another uncertainty highlighted by the USEPA (2012) that applies to potential health effects from both PM<sub>2.5</sub> and ozone, is the assumption of a log-linear response between exposure and health effects, without consideration for a threshold below which effects may not be

---

<sup>18</sup> For PM<sub>2.5</sub> mortality estimates, BenMAP relies on the study by Krewski et al. (2009). This study conducted multiple sensitivity analyses using different statistical model specifications. For all-cause mortality, the authors reported positive associations between exposures to PM<sub>2.5</sub> and all-cause mortality that ranged from a 3% to a 6% increase in mortality per increase in 10 ug/m<sup>3</sup> of PM<sub>2.5</sub>, depending on the model used and the exposure data considered. The default USEPA value in BenMAP is the 6% increase, or double the low end of the range.

measurable. The issue of a threshold for PM<sub>2.5</sub> and ozone is highly debatable and can have significant implications for health effects analyses as it requires consideration of current air pollution levels and calculating effects only for areas that exceed threshold levels. Without consideration of a threshold, any incremental contribution to existing ambient air pollution levels, whether below or above the applicable threshold for a given criteria pollutant, is assumed to adversely affect health. Although the USEPA traditionally does not consider thresholds in its cost-benefit analyses, the NAAQS itself is a health-based threshold level that the USEPA has developed based on evaluating the most current evidence of health effects.

As noted above, the health effects estimation using this method presumes that effects seen at large concentration differences can be linearly scaled down to (i.e., correspond to) small increases in concentration, with no consideration of potential thresholds below which health effects may not occur. This methodology of linearly scaling health effects is broadly accepted for use in regulatory evaluations and is considered as being health protective (USEPA, 2010), but potentially overstates the potential effects. In summary, health effects presented are conservatively estimated, and the actual effects may be zero.

## 4. REFERENCES

- /1/ Enstrom, JE. 2005. "Fine particulate air pollution and total mortality among elderly Californians, 1973-2002." *Inhal. Toxicol.* 17 (14) :803-816.
- /2/ Enstrom, J. E. (2017). Fine Particulate Matter and Total Mortality in Cancer Prevention Study Cohort Reanalysis. *Dose-Response*.
- /3/ Greven, S., Dominici, F., and Zeger, S. (2011). An approach to the estimation of chronic air pollution 1 effects using Spatio-Temporal information. *Journal of the American Statistical Association*, 2 106(494):396-406.
- /4/ Kelly, F.J., J.C. Fussell, 2007. Particulate Toxicity Ranking Report. Report Number 2/07. Environmental Research Group, Kings College, London.
- /5/ Lipfert FW, Morris SC, Wyzga RE. 2000. "Daily mortality in the Philadelphia metropolitan area and size-classified particulate matter." *J Air Waste Manag Assoc.* 50(8):1501-13.
- /6/ Lippmann, M., L.C. Chen, 2009. Health effects of concentrated ambient air particulate matter (CAPs) and its components. *Crit. Rev. Toxicol.*, 39, 865e913.
- /7/ Murray C.J.; Nelson, C.R. 2000, "State-Space Modeling of the Relationship between Air Quality and Mortality." *Journal of the Air & Waste Management Association* 50: 1075-1080.
- /8/ Rohr A.C., R.E. Wyzga, 2012. Attributing Health Effects to Individual Particulate Matter Constituents. *Atmos Environ.*, 62, 130-152. doi:10.1016/j.atmosenv.07.036.
- /9/ Taubes, G. 1995. "Epidemiology faces its limits." *Science* 269:164-169.
- /10/ USEPA, 2009. Integrated Science Assessment (ISA) For Particulate Matter (Final Report, Dec 2009). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/139F, 2009.  
<https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=216546>
- /11/ USEPA, 2010. Quantitative Health Risk Assessment for Particulate Matter. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency. EPA-452/R-10-005. June 2010. Available:  
[https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM\\_RA\\_FINAL\\_June\\_2010.pdf](https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf).
- /12/ USEPA, 2012. Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter. U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-12-005.  
[https://www3.epa.gov/ttn/ecas/docs/ria/naaqs-pm\\_ria\\_final\\_2012-12.pdf](https://www3.epa.gov/ttn/ecas/docs/ria/naaqs-pm_ria_final_2012-12.pdf).
- /13/ USEPA, 2018. BenMAP Environmental Benefits Mapping and Analysis Program – Community Edition User’s Manual. United States Environmental Protection Agency. Available at: <https://www.epa.gov/benmap/benmap-ce-manual-and-appendices>.
- /14/ You, C., Lin, D. K. J., and Young, S. S. (2018). and ozone, indicators of air quality, and acute deaths in 39 california, 2004-2007. *Regulatory Toxicology and Pharmacology*, 96:190-196.
- /15/ Zhou, M., He, G., Fan, M., Wang, Z., Liu, Y., Ma, J., Ma, Z., Liu, J., Liu, Y., Wang, L., and Liu, Y. 4 (2015). Smog episodes, fine particulate pollution and mortality in china. *Environmental Research*, 5 136:396-404.

**APPENDIX A  
EMISSIONS INVENTORY, SPATIAL  
ALLOCATION, AND SMOKE SETUP HIGHLAND  
FAIRVIEW WORLD LOGISTICS CENTER  
MORENO VALLEY, CALIFORNIA**

## 1. INTRODUCTION

As set forth in Section 4.3 of the Project's Draft Recirculated Revised Sections of the Final Environmental Impact Report (Draft Recirculated RSFEIR), construction and operational emissions from the Project were estimated using methodologies consistent with the California Emissions Estimator Model (CalEEMod®) and Project-specific data, where available. The model employs widely accepted calculation methodologies for emission estimates combined with appropriate default data if site-specific information is not available. In order to allow for a more accurate representation of mobile source operational emissions associated with the Project, mobile source emission factors were estimated using EMFAC2017. These emission factors were then used to estimate mobile source operational emissions using Project-specific traffic data.

Annual emission estimates from the Project need to be spatially gridded, temporally allocated, and chemically speciated to be used for photochemical grid modeling. The Sparse Matrix Operator Kernel Emissions (SMOKE) emissions modeling system (Coats, 1996; Coats and Houyoux, 1996)<sup>1</sup> is used for this process.

Section 2 of this Appendix describes in detail the development of the gridded Project emissions.

## 2. PROJECT EMISSIONS AND SPATIAL ALLOCATION

Both unmitigated and mitigated emissions were estimated for the Project to support the photochemical grid model (PGM) and are allocated into 4 kilometer (km) x 4 km grid cells. This section describes those emissions and how they were spatially allocated.

### 2.1 Project Emissions and Spatial Allocation

For use in PGMs, emissions must be spatially allocated over the area so that they can be incorporated into the gridded emission inventory. The total unmitigated emission inventory for the Project is below in **Table 2-1a** and the total mitigated emission inventory for the Project is below in **Table 2-1b**. Mobile source emissions were split into sub-categories based on Project-specific data and EMFAC2017 emission rates. For particulate matter, less than 2.5 microns in diameter (PM<sub>2.5</sub>) emissions are used in the modelling; less than 10 microns in diameter (PM<sub>10</sub>) emissions are presented for information below.

All emissions listed in **Table 2-1a** represent the sum of the maximum daily unmitigated emissions for the maximum operational and maximum construction emission years. Total emissions modeled reflect the maximum combined (operational + construction) emissions by pollutant. These maxima may occur in different years for different pollutants, though each pollutant's maximum year is conservatively analyzed collectively in a single year assessment. Full operational emissions (at Project buildout) were modeled for all pollutants, and the balance of emissions were allocated to construction sources, with the distribution of emissions types representative of the maximum construction years. This allows for analysis of the worst-case emissions scenario over a single construction or operational year. Full operational emissions (at Project buildout) are expected to have the greatest contribution to health effects due to the proximity of the mobile source emissions to dense population centers, and thus were modeled in full. Additional construction emissions were evaluated to conservatively represent a potential year where construction and operation may coincide, though in reality the situation of full operations plus construction is hypothetical, and conservative for the purposes of this analysis.

---

<sup>1</sup> <https://www.cmascenter.org/smoke/>.

<b>Table 2-1a. Maximum Daily Unmitigated Criteria Air Pollutant Emissions Estimates</b>						
<b>Emission Category</b>	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>
<b>Operational Emissions</b>						
On-Road Mobile	45	1,361	388	125	9.63	867
Diurnal	1.96	0	0	0	0	0
Hotsoak	1.50	0	0	0	0	0
Idling Exhaust	5.7	35	0.18	0.18	0.07	80
Brakewear	0	0	113	48	0	0
Tirewear	0	0	29	7.4	0	0
Resting Loss	2.0	0	0	0	0	0
Road Dust	0	0	232	57	0	0
Running Exhaust	20	1,288	13	12	9.55	746
Running Loss	10.71	0	0	0	0	0
Starting Exhaust	2.51	38	0.02	0.02	0.01	41
Emergency Generators	2.06	62	1.88	1.86	0.00	11
Architectural Coatings	103	0	0	0	0	0
Consumer Products	207	0	0	0	0	0
Landscaping	0.38	0.04	0.01	0.01	0.0003	4.12
Off-Road Mobile	7.18	183	0.50	0.50	0	78
<b>Total Operational</b>	<b>364</b>	<b>1,606</b>	<b>390</b>	<b>127</b>	<b>9.63</b>	<b>961</b>
<b>Construction Emissions</b>						
Fugitive Dust	0	0	29.95	4.91	0	0
Off-Road Equipment	75	204	2.16	2.15	0.38	184
Paving	50	0	0	0	0	0
Architectural Coating	111	0	0	0	0	0
On-Road Mobile	3.37	7.4	50.5	2.22	0.06	5.04
Diurnal	0.13	0	0	0	0	0
Hotsoak	0.26	0	0	0	0	0
Idling Exhaust	0.80	0.98	0.00001	0.00004	0.003	0.88
Brakewear	0	0	0.00830	0.01085	0	0
Tirewear	0	0	0.00337	0.00244	0	0
Resting Loss	0.13	0	0	0	0	0
Road Dust	0	0	50.50	2.21	0	0
Running Exhaust	0.59	5.58	0.00170	0.00478	0.06	2.88
Running Loss	0.97	0	0	0	0	0
Starting Exhaust	0.49	0.80	0.00001	0.00001	0.0003	1.27
<b>Total Construction</b>	<b>239</b>	<b>212</b>	<b>82.6</b>	<b>9.3</b>	<b>0.45</b>	<b>189</b>
<b>Total Combined</b>	<b>603</b>	<b>1,818</b>	<b>473</b>	<b>137</b>	<b>10.07</b>	<b>1,150</b>

<b>Table 2-1a. Maximum Daily Unmitigated Criteria Air Pollutant Emissions Estimates</b>						
<b>Emission Category</b>	<b>ROG</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>
Abbreviations: CO - Carbon Monoxide lbs - Pounds NOx - Nitrogen Oxides PM <sub>2.5</sub> - Particulate Matter less than 2.5 microns in diameter PM <sub>10</sub> - Particulate Matter less than 10 microns in diameter ROG - Reactive Organic Gas SO <sub>2</sub> - Sulfur Dioxide						

The emissions listed in **Table 2-1b** represent the sum of the maximum daily mitigated emissions for the maximum operational and maximum construction emission years. Mitigated construction emissions were scaled using the approach described for unmitigated emissions. The mitigated emission inventory includes mitigation measures 4.3.6.2A through E, 4.3.6.3A through F, 4.3.6.4A, and 4.3.6.5A, as listed in Section 4.3 of the Draft Recirculated RSFEIR. Potential reductions due to mitigation measure 4.3.6.2A(d) which restricts idling of all diesel powered construction equipment, delivery vehicles, and delivery trucks to three minutes has conservatively not been accounted for (the emissions presented here assume five minutes of idling per vehicle).

<b>Table 2-1b. Maximum Daily Mitigated Criteria Air Pollutant Emissions Estimates</b>						
<b>Emission Category</b>	<b>ROG</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>
<b>Operational Emissions</b>						
On-Road Mobile	45	1,341	387	125	9.60	867
Diurnal	1.96	0	0	0	0	0
Hotsoak	1.50	0	0	0	0	0
Idling Exhaust	5.7	35	0.18	0.17	0.07	80
Brakewear	0	0	113	48	0	0
Tirewear	0	0	29	7.4	0	0
Resting Loss	2.0	0	0	0	0	0
Road Dust	0	0	232	57	0	0
Running Exhaust	20	1,269	13	12	9.53	746
Running Loss	10.71	0	0	0	0	0
Starting Exhaust	2.51	38	0.02	0.02	0.01	41
Emergency Generators	0.56	0	0.00	0.00	0.00	28
Architectural Coatings	103	0	0	0	0	0
Consumer Products	207	0	0	0	0	0
Landscaping	0.38	0.04	0.01	0.01	0.0003	4.12
Off-Road Mobile	7.18	91	0.50	0.50	0	78
<b>Total Operational</b>	<b>363</b>	<b>1,432</b>	<b>388</b>	<b>125</b>	<b>9.60</b>	<b>978</b>

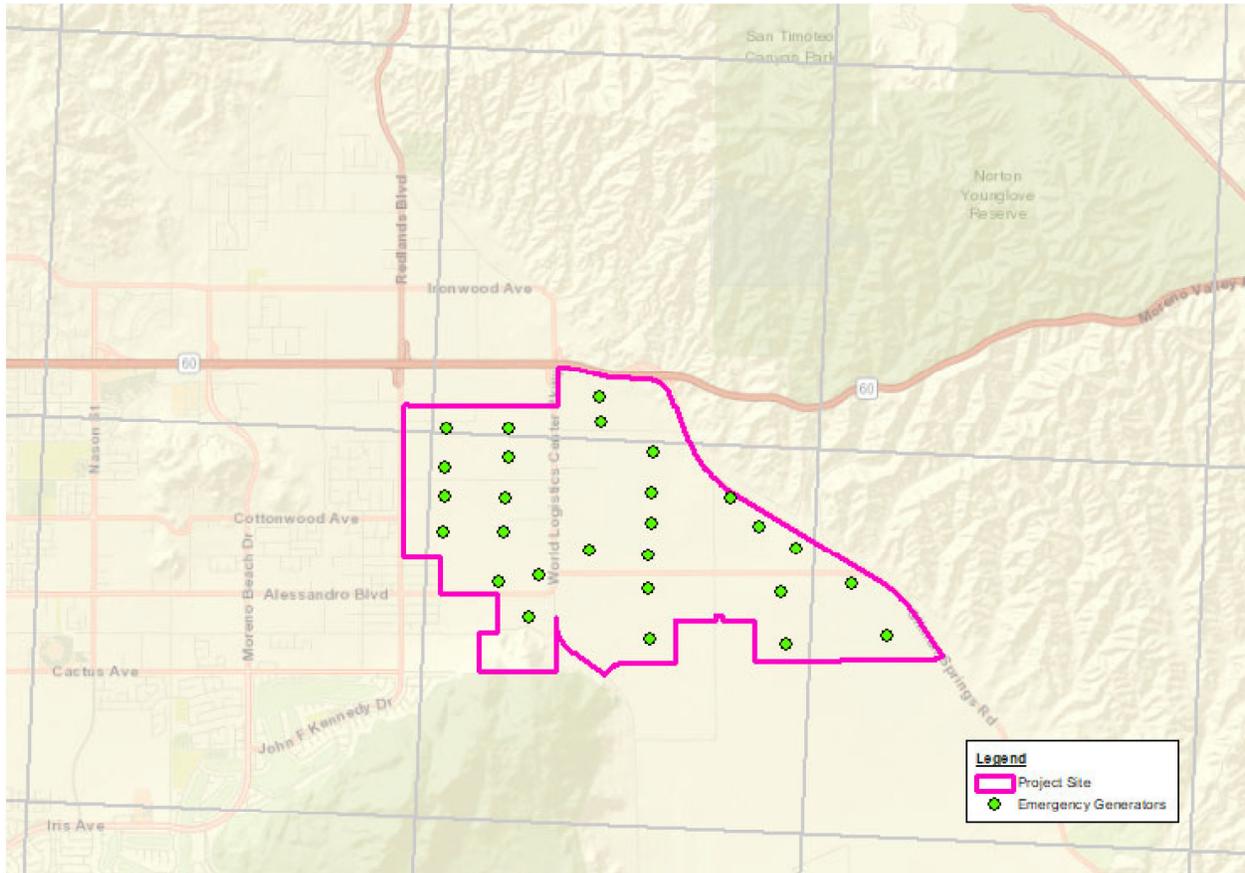
<b>Table 2-1b. Maximum Daily Mitigated Criteria Air Pollutant Emissions Estimates</b>						
<b>Emission Category</b>	<b>ROG</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>
<b>Construction Emissions</b>						
Fugitive Dust	0	0	29.95	4.92	0	0
Off-Road Equipment	23	23	0.57	0.57	0.41	255
Paving	55	0	0	0	0	0
Architectural Coating	50	0	0	0	0	0
On-Road Mobile	3.45	4.1	50.5	2.23	0.07	5.31
Diurnal	0.13	0	0	0	0	0
Hotsoak	0.29	0	0	0	0	0
Idling Exhaust	0.71	0.51	0.00004	0.00008	0.003	0.68
Brakewear	0	0	0.02370	0.02075	0	0
Tirewear	0	0	0.00960	0.00491	0	0
Resting Loss	0.13	0	0	0	0	0
Road Dust	0	0	50.50	2.20	0	0
Running Exhaust	0.58	3.09	0.00483	0.00938	0.06	3.19
Running Loss	1.07	0	0	0	0	0
Starting Exhaust	0.55	0.51	0.00002	0.00003	0.0003	1.44
<b>Total Construction</b>	<b>132</b>	<b>27</b>	<b>81.1</b>	<b>7.7</b>	<b>0.47</b>	<b>260</b>
<b>Total</b>	<b>495</b>	<b>1,459</b>	<b>469</b>	<b>133</b>	<b>10.07</b>	<b>1,238</b>
Abbreviations: CO - Carbon Monoxide lbs - Pounds NOx - Nitrogen Oxides PM <sub>2.5</sub> - Particulate Matter less than 2.5 microns in diameter PM <sub>10</sub> - Particulate Matter less than 10 microns in diameter ROG - Reactive Organic Gas SO <sub>2</sub> - Sulfur Dioxide						

Mobile emissions include light, medium, and heavy-duty vehicles. **Table 2-2** below provides a summary of the spatial distribution of operational mobile emissions broken down by roadway for the regional freeway segments. For roadways within the Project vicinity, emissions were distributed using the VMT modeled for the Project Operational HRA. The overall distribution percentages were weighted based on the vehicle miles travelled (VMT). This breakdown was applied to both unmitigated and mitigated mobile emissions.

<b>Table 2-2. Operational Mobile Emission Distribution</b>					
<b>Location</b>	<b>Roadway</b>	<b>Overall Project Distribution</b>			
		<b>Cars</b>	<b>Light Trucks</b>	<b>Medium Trucks</b>	<b>Heavy Trucks</b>
	Project Vicinity	26%	33%	42%	29%
Regional Segments	I-10	11%	5%	5%	4%
	I-110	5%	5%	4%	6%
	SR-215 (North of SR-60)	3%	2%	1%	1%
	SR-215 (South of SR-60)	4%	2%	2%	1%
	SR-60 (between I-215 and SR-71/Gary Ave)	20%	21%	18%	21%
	SR-60 - (between SR-71/Gary Ave and I-110/SR-91)	10%	12%	9%	17%
	SR-91 (between Spruce St/SR-60 and I-15)	6%	6%	6%	6%
	SR-91 (between I-15 and I-110)	14%	14%	14%	15%

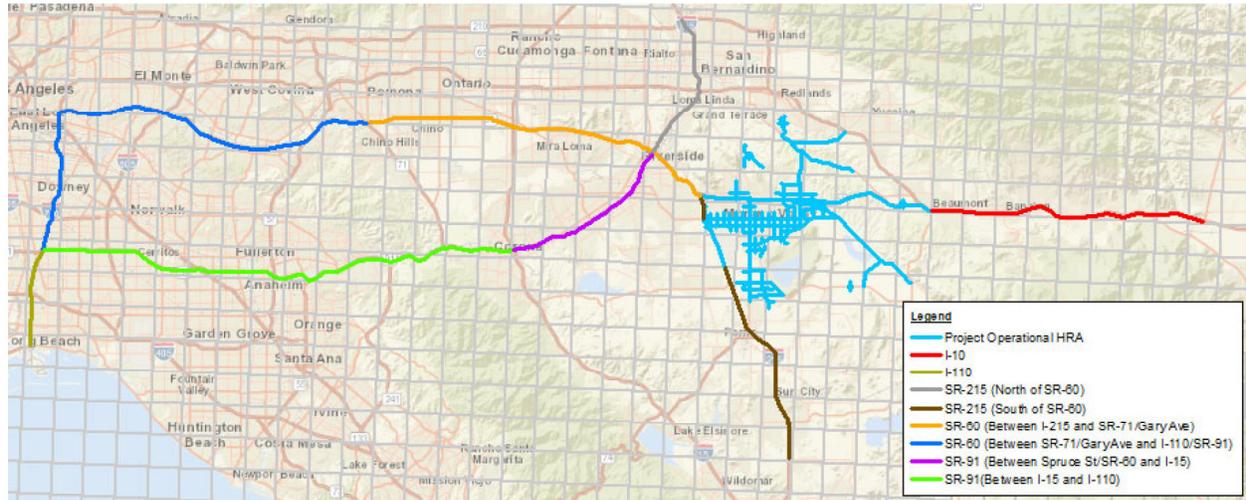
Project emissions are allocated according to their expected location into 4 km x 4 km grid cells for the PGM. **Figure 2-1a** below shows a close-up of the Project boundary overlay with the 4-km grid. Operational area sources and off-road equipment emissions were evenly distributed within the Project site. Emergency generator emissions were evenly distributed across all emergency generator point source locations as shown in Figure 2-1a.

**Figure 2-1a. Overlap of Model Grid Cells on Project Site**



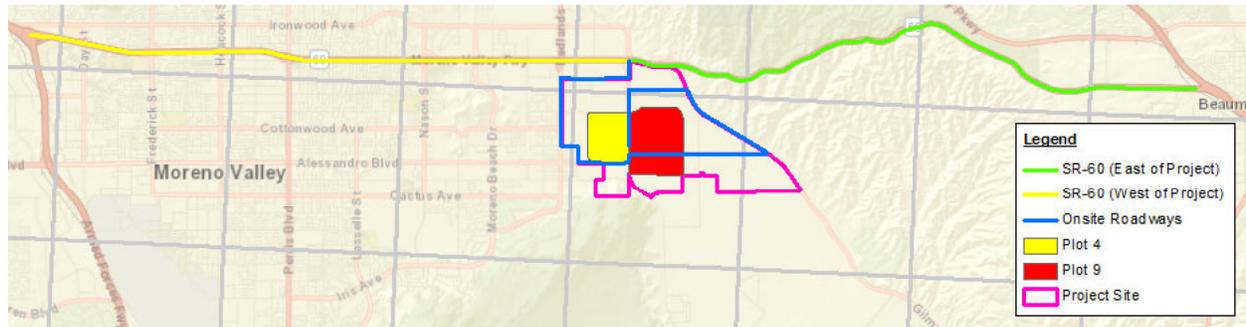
**Figure 2-1b** shows the full extent of operational roadways modeled. Emissions on links in the Project Vicinity were allocated using VMT modeled in the Project Operational HRA. VMT that was not modeled in the Operational HRA was allocated to regional freeway links. This includes the portions of the I-10, SR-60, SR-91, I-110 and SR-215 shown on the figure, with overall project distributions as assigned in **Table 2-2**. For major roadways that cross into multiple cells, emissions were allocated proportionally based on the length of roadway within each cell.

**Figure 2-1b. Roadways Modeled**



Construction emissions were allocated to sources modeled in the Project Construction HRA. Off-road equipment activity was allocated to Plots 4 and 9 based on the location of activity in the maximum construction year. As these plots are located within the same grid cell as the majority of the Project site, they were determined to be a reasonable representation of construction off-road equipment activity. On-site on-road emissions were evenly distributed within the Project Site. Off-site on-road emissions were evenly distributed to the road segments modeled in the Project Construction HRA (see green, yellow, and blue links in the figure below). The location of the Project construction sources are shown in **Figure 2-1c**.

**Figure 2-1c. Modeled Construction Sources**



**2.2 Convert Project Inventories to SMOKE Input Format**

The first step in the emissions processing was to convert the Project emission inventory into the Flat File 2010 (FF10) format for input to SMOKE. Appropriate Source Classification Codes (SCCs) were then assigned to the Project emissions sources. **Table 2-3** provides the SCC assigned to each Project source.

<b>Table 2-3. Assigned SCC to Project Emission Sources</b>		
<b>Emission Source</b>	<b>SCC</b>	<b>SCC Description</b>
Architectural Coatings	2401001000	Solvent Utilization; Surface Coating; Architectural Coatings; Total: All Solvent Types
Consumer Products	2460000000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Processes; Total: All Solvent Types
Consumer Products	2460100000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Personal Care Products; Total: All Solvent Types
Consumer Products	2460200000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Household Products; Total: All Solvent Types
Consumer Products	2460400000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Automotive Aftermarket Products; Total: All Solvent Types
Consumer Products	2460500000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Coatings and Related Products; Total: All Solvent Types
Consumer Products	2460600000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All Adhesives and Sealants; Total: All Solvent Types
Consumer Products	2460800000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; All FIFRA Related Products; Total: All Solvent Types
Consumer Products	2460900000	Solvent Utilization; Miscellaneous Non-industrial: Consumer and Commercial; Miscellaneous Products (Not Otherwise Covered); Total: All Solvent Types
Consumer Products	2461021000	Solvent Utilization; Miscellaneous Non-industrial: Commercial; Cutback Asphalt; Total: All Solvent Types
Energy	20200202	Internal Combustion Engines; Industrial; Natural Gas; Reciprocating
Energy	20200102	Internal Combustion Engines; Industrial; Distillate Oil (Diesel); Reciprocating
Construction Dust	2311020000	Industrial Processes; Construction: SIC 15 - 17; Industrial/Commercial/Institutional; Total
Off-road equipment	2265004010	Mobile Sources; Off-highway Vehicle Gasoline, 4-Stroke; Lawn and Garden Equipment; Lawn Mowers (Residential)
Off-road equipment	2267003070	Mobile Sources; LPG; Industrial Equipment; Terminal Tractors
Off-road equipment	2268003020	Mobile Sources; CNG; Industrial Equipment; Forklifts
Mobile	220100111B	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV); Rural Interstate: Brake Wear
Mobile	220100111R	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV); Rural Interstate: Resting
Mobile	220100111S	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV); Rural Interstate: Start

<b>Table 2-3. Assigned SCC to Project Emission Sources</b>		
<b>Emission Source</b>	<b>SCC</b>	<b>SCC Description</b>
Mobile	220100111T	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV);Rural Interstate: Tire Wear
Mobile	220100111V	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV);Rural Interstate: Eva (except Refueling)
Mobile	220100111X	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Vehicles (LDGV);Rural Interstate: Exhaust
Mobile	220102011B	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5);Rural Interstate: Brake Wear
Mobile	220102011R	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5);Rural Interstate: Resting
Mobile	220102011S	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5);Rural Interstate: Start
Mobile	220102011T	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5);Rural Interstate: Tire Wear
Mobile	220102011V	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5);Rural Interstate: Eva (except Refueling)
Mobile	220102011X	Mobile Sources; Highway Vehicles - Gasoline; Light Duty Gasoline Trucks 1 & 2 (M6) = LDGT1 (M5);Rural Interstate: Exhaust
Mobile	220107011B	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Brake Wear
Mobile	220107011I	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Idle
Mobile	220107011R	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Resting
Mobile	220107011S	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Start
Mobile	220107011T	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Tire Wear
Mobile	220107011V	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Eva (except Refueling)
Mobile	220107011X	Mobile Sources; Highway Vehicles - Gasoline; Heavy Duty Gasoline Vehicles 2B thru 8B & Buses (HDGV);Rural Interstate: Exhaust
Mobile	220361008B	Mobile Sources; Highway Vehicles - Compressed Natural Gas (CNG);Combination Short-haul Truck; All on and off-network processes except refueling: Brake Wear

<b>Table 2-3. Assigned SCC to Project Emission Sources</b>		
<b>Emission Source</b>	<b>SCC</b>	<b>SCC Description</b>
Mobile	220361008I	Mobile Sources; Highway Vehicles - Compressed Natural Gas (CNG);Combination Short-haul Truck; All on and off-network processes except refueling: Idle
Mobile	220361008T	Mobile Sources; Highway Vehicles - Compressed Natural Gas (CNG);Combination Short-haul Truck; All on and off-network processes except refueling: Tire Wear
Mobile	220361008X	Mobile Sources; Highway Vehicles - Compressed Natural Gas (CNG);Combination Short-haul Truck; All on and off-network processes except refueling: Exhaust
Mobile	223000111B	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Vehicles (LDDV);Rural Interstate: Brake Wear
Mobile	223000111T	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Vehicles (LDDV);Rural Interstate: Tire Wear
Mobile	223000111X	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Vehicles (LDDV);Rural Interstate: Exhaust
Mobile	223006011B	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Trucks 1 thru 4 (M6) (LDDT);Rural Interstate: Brake Wear
Mobile	223006011T	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Trucks 1 thru 4 (M6) (LDDT);Rural Interstate: Tire Wear
Mobile	223006011X	Mobile Sources; Highway Vehicles - Diesel; Light Duty Diesel Trucks 1 thru 4 (M6) (LDDT);Rural Interstate: Exhaust
Mobile	223007111B	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 2B;Rural Interstate: Brake Wear
Mobile	223007111I	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 2B;Rural Interstate: Idle
Mobile	223007111T	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 2B;Rural Interstate: Tire Wear
Mobile	223007111X	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 2B;Rural Interstate: Exhaust
Mobile	2230072110	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 3, 4, & 5;Rural Interstate: Total
Mobile	223007211B	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 3, 4, & 5;Rural Interstate: Brake Wear
Mobile	223007211I	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 3, 4, & 5;Rural Interstate: Idle
Mobile	223007211T	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 3, 4, & 5;Rural Interstate: Tire Wear

<b>Table 2-3. Assigned SCC to Project Emission Sources</b>		
<b>Emission Source</b>	<b>SCC</b>	<b>SCC Description</b>
Mobile	223007211X	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 3, 4, & 5; Rural Interstate: Exhaust
Mobile	223007311B	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Brake Wear
Mobile	223007311I	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Idle
Mobile	223007311S	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Start
Mobile	223007311T	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Tire Wear
Mobile	223007311X	Mobile Sources; Highway Vehicles - Diesel; Heavy Duty Diesel Vehicles (HDDV) Class 6 & 7; Rural Interstate: Exhaust
Mobile	2270000000	Mobile Sources; Off-highway Vehicle Diesel; Compression Ignition Equipment except Rail and Marine; Total
Mobile	22940000H1	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Light-Heavy-Duty Trucks (8501-10000 lbs)
Mobile	22940000H2	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Light-Heavy-Duty Trucks (10000-14000 lbs)
Mobile	22940000HT	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Heavy-Heavy Duty Trucks
Mobile	22940000LD	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Passenger Cars
Mobile	22940000MD	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Medium-Duty Trucks (6000-8500 lbs)
Mobile	22940000MT	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Medium-Heavy Duty Trucks
Mobile	22940000T1	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Light-Duty Trucks (0-3750 lbs)
Mobile	22940000T2	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives - Light-Duty Trucks (3751-5750 lbs)
Mobile	22960000HT	Mobile Sources; Unpaved Roads; All Unpaved Roads; Total: Fugitives - Heavy-Heavy Duty Trucks
Mobile	22960000LD	Mobile Sources; Unpaved Roads; All Unpaved Roads; Total: Fugitives - Passenger Cars
Mobile	22960000MT	Mobile Sources; Unpaved Roads; All Unpaved Roads; Total: Fugitives - Medium-Heavy Duty Trucks
Mobile	22960000T1	Mobile Sources; Unpaved Roads; All Unpaved Roads; Total: Fugitives - Light-Duty Trucks (0-3750 lbs)
Mobile	22960000T2	Mobile Sources; Unpaved Roads; All Unpaved Roads; Total: Fugitives - Light-Duty Trucks (3751-5750 lbs)

### 2.2.1 Generate Spatial Surrogates for 4-km Domains

As part of the analysis, the Project source emissions need to be spatially allocated to appropriate geographic locations. The emissions can be allocated to modeling grid cells using gridding surrogates. To process the Project emissions, a Project area-based spatial surrogate was developed. The surrogate was developed using the US Environmental Protection Agency (USEPA's) Spatial Allocation Tool,<sup>2</sup> which combines geographical information system (GIS)-based data (shapefiles) and modeling domain definitions to generate the appropriate gridded surrogate data set. The Project sources were then assigned specific surrogates for gridding by cross-referencing the SCCs. As mentioned above, all unmitigated and mitigated Project emissions were distributed in the modeling grid cells where the Project is located as shown in **Figures 2-1a and 2-1b**. The mobile sources are spatially distributed in the site's grid cells and surrounding grid cells, as outlined in **Table 2-2**.

### 2.2.2 SMOKE 4 km Processing of Project Emissions

SMOKE system was used to process emissions for the Southern California 4-km modeling grid shown in **Figures 2-1a and 2-1b**. A representative week from each month (seven days a month) was used to represent the entire month's emissions. Holidays were modeled separately as if they were a Sunday. SMOKE was applied to perform following tasks:

1. Chemical Speciation: Emission estimates of criteria pollutants were speciated for the SAPRC07 AERO6 chemical mechanism employed in Community Multiscale Air Quality (CMAQ) in SMOKE processing. Speciation profiles compatible with the SAPRC07 AERO6 mechanism from the South Coast Air Quality Management District's (SCAQMD) modeling system were used to be consistent with the regional modeling emissions. Those emissions were then converted into Comprehensive Air Quality Model with extensions (CAMx)-ready formats using CMAQ2CAMx conversion program and species mapping.
2. Temporal Allocation: Annual emission estimates were resolved on an hourly timescale for CAMx modeling. These allocations were determined from the particular source category, specified by the SCC. Monthly, weekly, and diurnal profiles were cross-referenced to the SCCs to provide the appropriate temporal resolution. The temporal profiles were also obtained from the Bay Area Air Quality Management District's (BAAQMD) emissions modeling system, as they were unavailable from SCAQMD.
3. Spatial Allocation: The Project emission estimates were spatially resolved to the grid cells for modeling using spatial surrogates as described above.

### 2.2.3 QA/QC of Emissions Modeling

Standard quality assurance/quality control (QA/QC) was conducted during all aspects of the SMOKE emissions processing. These steps followed the approach recommended in the USEPA modeling guidance (USEPA, 2007). SMOKE includes quality assurance (QA) and reporting features to keep track of the adjustments at each processing stage and ensure that data integrity is not compromised. Ramboll carefully reviewed the SMOKE log files for error messages and ensured that appropriate source profiles were used. All error records reported during processing were reviewed and resolved. This is important to ensure that source categories are correctly characterized. Ramboll also compared SMOKE input and output emissions: summary tables were generated to compare input inventory totals against model-ready output totals to confirm consistency. Spatial plots were generated to visually verify correct spatial allocation of the emissions.

---

<sup>2</sup> [https://www.cmascenter.org/sa-tools/documentation/4.2/html/srgtool/SurrogateToolUserGuide\\_4\\_2.pdf](https://www.cmascenter.org/sa-tools/documentation/4.2/html/srgtool/SurrogateToolUserGuide_4_2.pdf).

#### 2.2.4 Merge SMOKE Pre-merged Emissions to Generate CAMx-ready Emission Inputs

The final step in the emissions processing is to merge the Project gridded emissions with other regional components through the gridded merge program (MRGUAM) for CAMx. The daily emissions were merged in the time format required by CAMx.

#### 2.2.5 Emissions Summary

Summaries of the unmitigated and mitigated Project gridded CAMx model-ready emissions data are provided in this section. **Tables 2-4 and 2-5** summarize the unmitigated and mitigated Project emission inventory data input to SMOKE from the FF10 data files in pounds per day by source type. **Tables 2-6 and 2-7** present the emissions data after SMOKE processing for unmitigated and mitigated, respectively. The consistency in data in Tables 2-4 and 2-6 and in Tables 2-5 and 2-7 offer confidence in the correct operation of the SMOKE emissions processing for CAMx.

<b>Table 2-4. Unmitigated Project Emission Inventory Data Input to SMOKE by Source Type (lbs/day)</b>						
<b>Emission Category</b>	<b>ROG</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>
<b>Operational Emissions</b>						
On-Road Mobile	45	1,361	388	125	9.6	867
Emergency Generators	2.06	62.1	2	2	0	11
Architectural Coatings	103	0	0	0	0	0
Consumer Products	207	0	0	0	0	0
Landscaping	0.38	0	0.01	0.01	0	4
Off-Road Mobile	7.18	183	0.50	0.50	0	78
<b>Total Operational</b>	<b>364</b>	<b>1,606</b>	<b>390</b>	<b>127</b>	<b>9.6</b>	<b>961</b>
<b>Construction Emissions</b>						
Fugitive Dust	0	0	29.95	4.91	0	0
Off-Road Equipment	75	204	2.16	2.15	0.38	184
Paving	50	0	0	0	0	0
Architectural Coating	111	0	0	0	0	0
On-Road Mobile	3.4	7.4	51	2.2	0.06	5.0
<b>Total Construction</b>	<b>239</b>	<b>212</b>	<b>82.6</b>	<b>9.3</b>	<b>0.45</b>	<b>189</b>
<b>Total</b>	<b>603</b>	<b>1,818</b>	<b>473</b>	<b>137</b>	<b>10</b>	<b>1,150</b>
Abbreviations: CO - Carbon Monoxide lbs - Pounds NOx - Nitrogen Oxides PM <sub>2.5</sub> - Particulate Matter less than 2.5 microns in diameter PM <sub>10</sub> - Particulate Matter less than 10 microns in diameter ROG - Reactive Organic Gas SO <sub>2</sub> - Sulfur Dioxide						

<b>Table 2-5. Mitigated Project Emission Inventory Data Input to SMOKE by Source Type (lbs/day)</b>						
<b>Emission Category</b>	<b>ROG</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>	<b>lbs/day</b>
<b>Operational Emissions</b>						
On-Road Mobile	45	1,341	387	125	9.6	868
Emergency Generators	0.56	0.4	0	0	0	28
Architectural Coatings	103	0	0	0	0	0
Consumer Products	207	0	0	0	0	0
Landscaping	0.38	0	0.01	0.01	0	4
Off-Road Mobile	7.18	91	0.50	0.50	0	78
<b>Total Operational</b>	<b>363</b>	<b>1,432</b>	<b>388</b>	<b>125</b>	<b>10</b>	<b>978</b>
<b>Construction Emissions</b>						
Fugitive Dust	0	0	29.95	4.92	0	0
Off-Road Equipment	23	23	0.57	0.57	0.41	255
Paving	55	0	0	0	0	0
Architectural Coating	50	0	0	0	0	0
On-Road Mobile	3.4	4.1	51	2.2	0.07	5.3
<b>Total Construction</b>	<b>132</b>	<b>27</b>	<b>81.1</b>	<b>7.7</b>	<b>0.47</b>	<b>260</b>
<b>Total</b>	<b>495</b>	<b>1,459</b>	<b>469</b>	<b>133</b>	<b>10</b>	<b>1,238</b>
Abbreviations: CO - Carbon Monoxide lbs - Pounds NOx - Nitrogen Oxides PM <sub>2.5</sub> - Particulate Matter less than 2.5 microns in diameter PM <sub>10</sub> - Particulate Matter less than 10 microns in diameter ROG - Reactive Organic Gas SO <sub>2</sub> - Sulfur Dioxide						

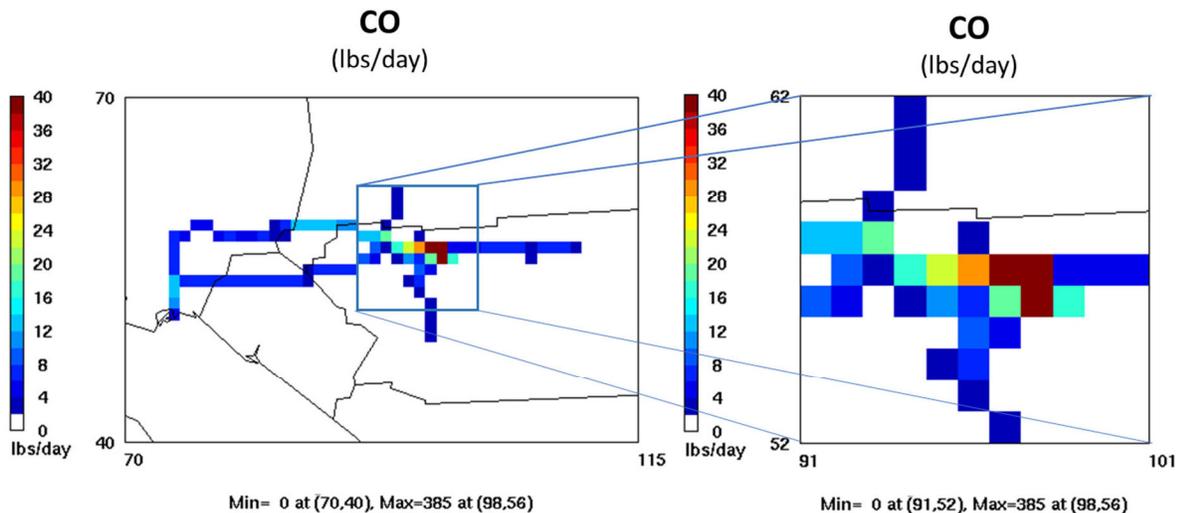
<b>Table 2-6. Unmitigated Project Emission Inventory Data Output from SMOKE by Project Region (lbs/day)</b>						
<b>Type</b>	<b>ROG</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>CO</b>
Onsite	573.4	608.4	183.5	38.0	1.1	459.7
Offsite	29.7	1,209.3	289.1	98.6	9.0	690.4
<b>Total</b>	<b>603</b>	<b>1,818</b>	<b>473</b>	<b>137</b>	<b>10</b>	<b>1,150</b>
Abbreviations: CO - Carbon Monoxide NOx - Nitrogen Oxides PM <sub>2.5</sub> - Particulate Matter less than 2.5 microns in diameter PM <sub>10</sub> - Particulate Matter less than 10 microns in diameter SO <sub>2</sub> - Sulfur Dioxide VOC - Volatile Organic Compounds						

<b>Table 2-7. Mitigated Project Emission Inventory Data Output from SMOKE by Project Region (lbs/day)</b>						
Type	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	CO
Onsite	465.4	271.1	180.0	34.6	1.1	547.8
Offsite	29.3	1,187.9	289.1	98.6	9.0	690.5
<b>Total</b>	<b>495</b>	<b>1,459</b>	<b>469</b>	<b>133</b>	<b>10</b>	<b>1,238</b>

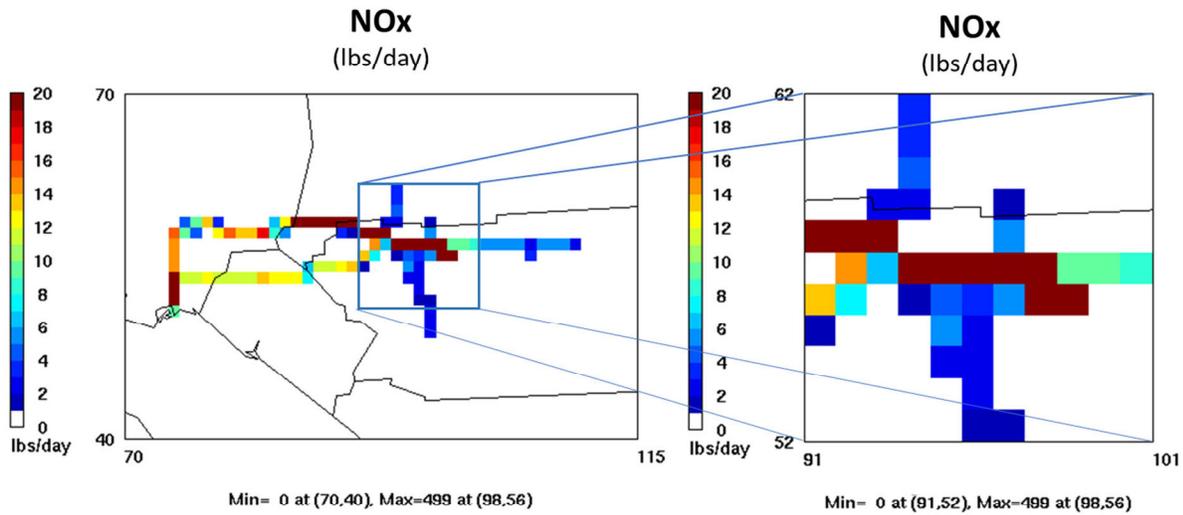
Abbreviations:  
 CO - Carbon Monoxide  
 NOx - Nitrogen Oxides  
 PM<sub>2.5</sub> - Particulate Matter less than 2.5 microns in diameter  
 PM<sub>10</sub> - Particulate Matter less than 10 microns in diameter  
 SO<sub>2</sub> - Sulfur Dioxide  
 VOC - Volatile Organic Compounds

Spatial displays of the gridded emissions data are presented below. Ramboll examined the gridded emissions in 4-km grid to verify accurate spatial allocation by SMOKE. **Figures 2-2 through 2-7** displays gridded emissions for the unmitigated Project inventory in the 4-km modeling grid and **Figures 2-8 through 2-13** displays gridded emissions for the mitigated Project inventory in the 4-km modelling grid.

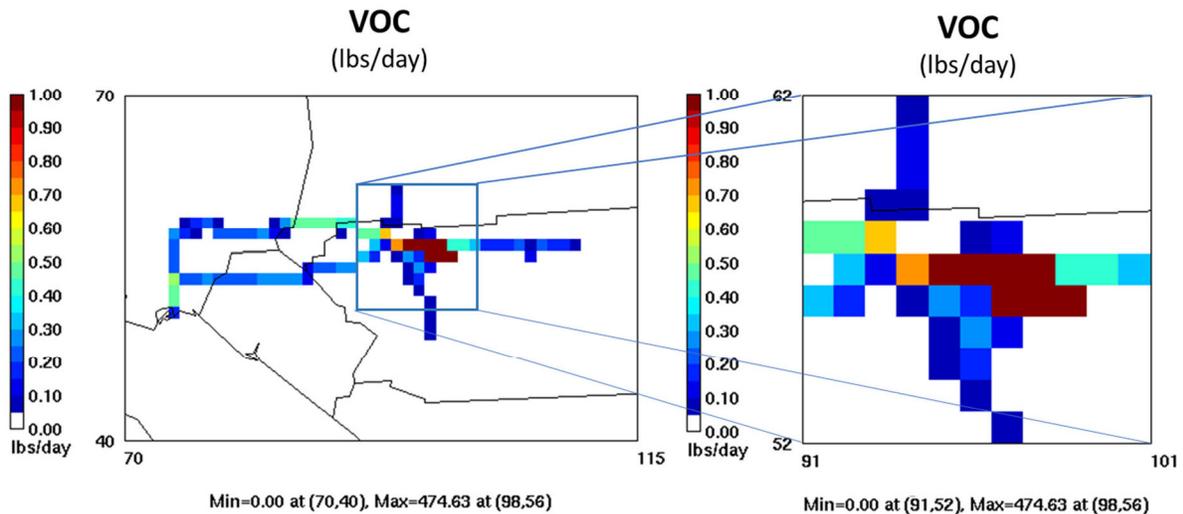
**Figure 2-2. Spatial Distribution of Unmitigated CO Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



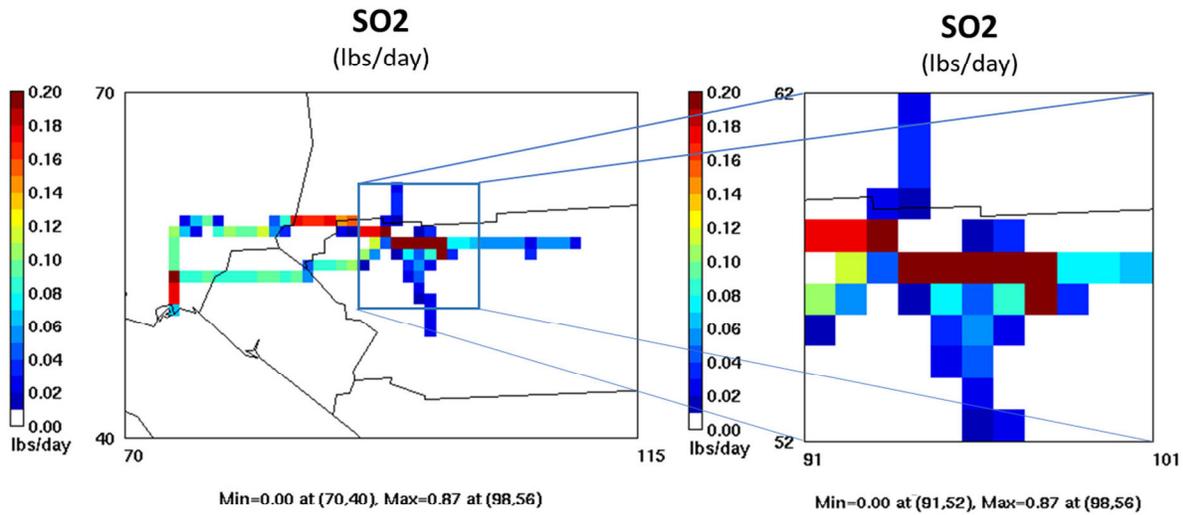
**Figure 2-3. Spatial Distribution of Unmitigated NO<sub>x</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



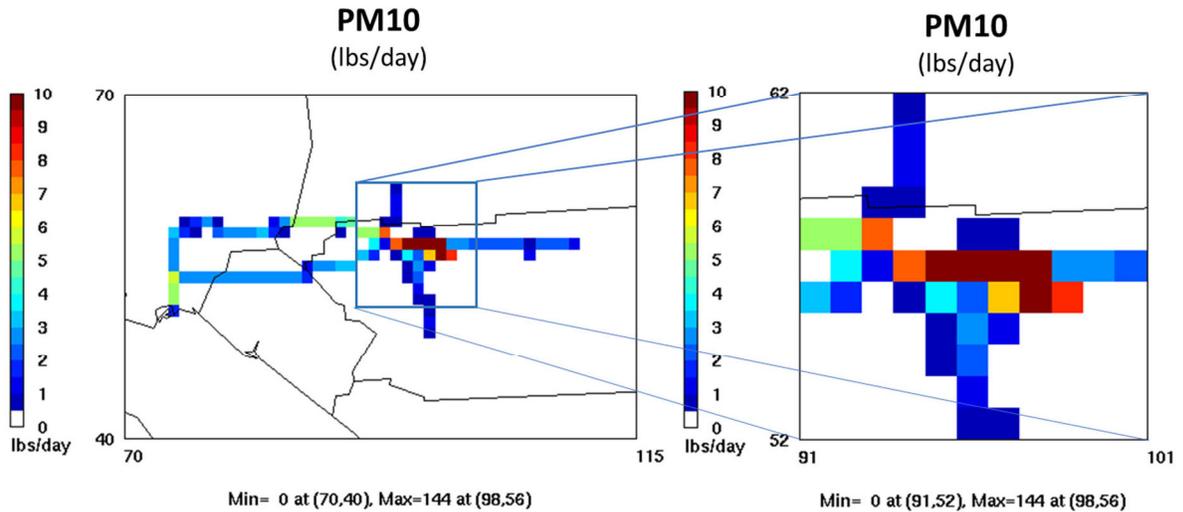
**Figure 2-4. Spatial Distribution of Unmitigated VOC Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



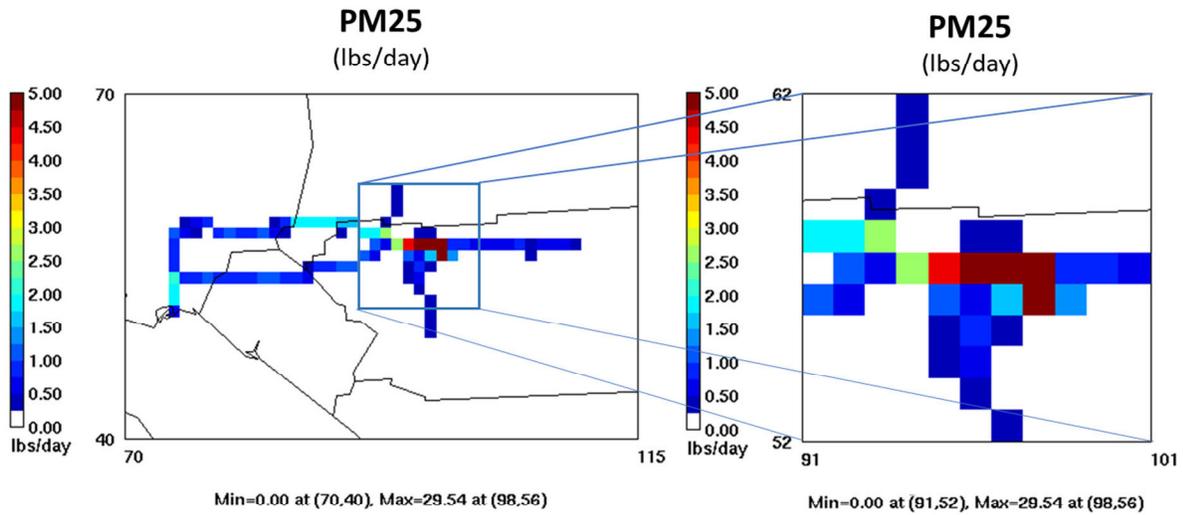
**Figure 2-5. Spatial Distribution of Unmitigated SO<sub>2</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



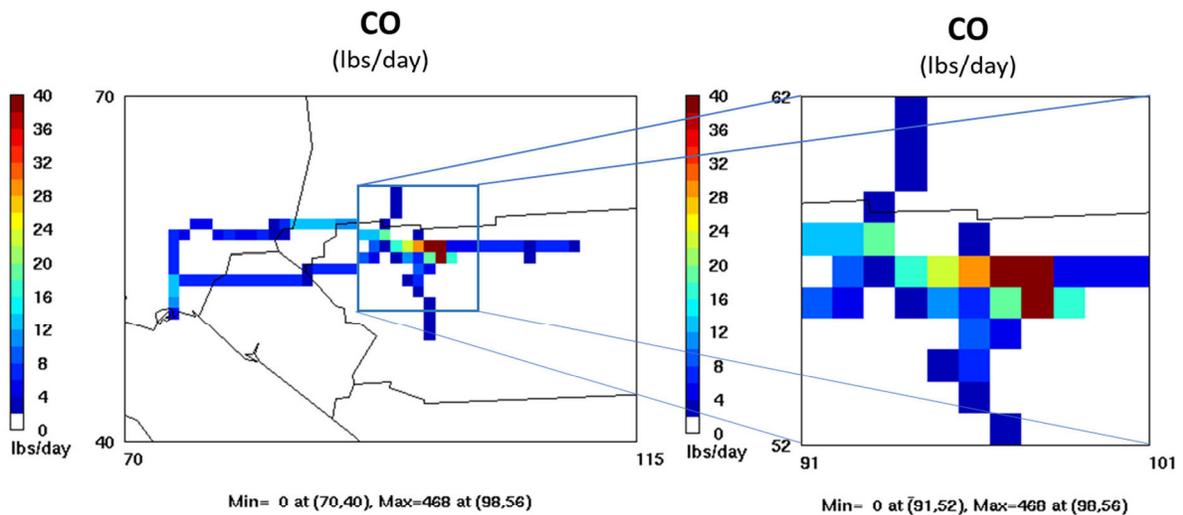
**Figure 2-6. Spatial Distribution of Unmitigated PM<sub>10</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



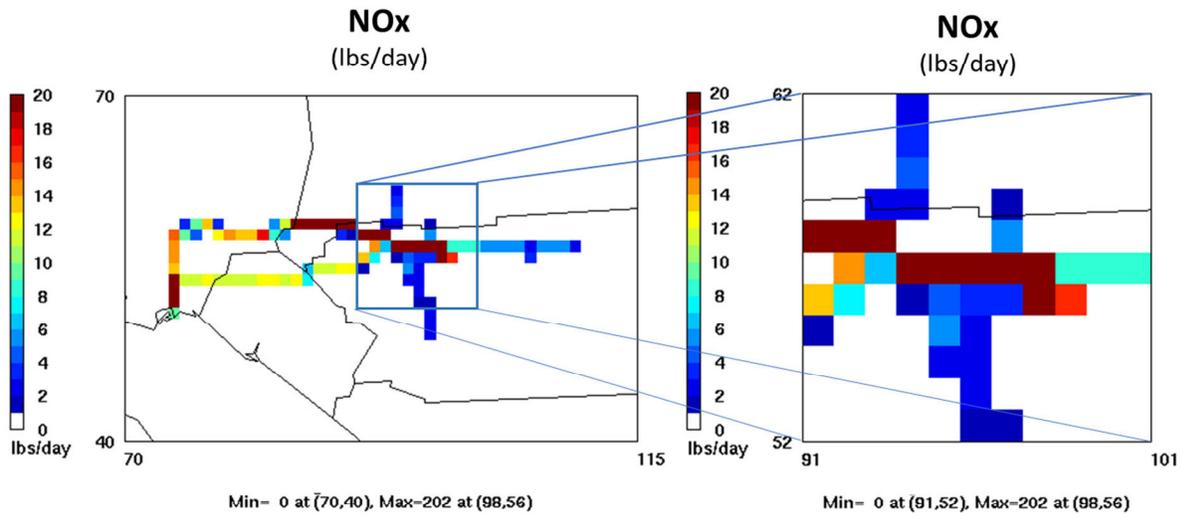
**Figure 2-7. Spatial Distribution of Unmitigated PM<sub>2.5</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



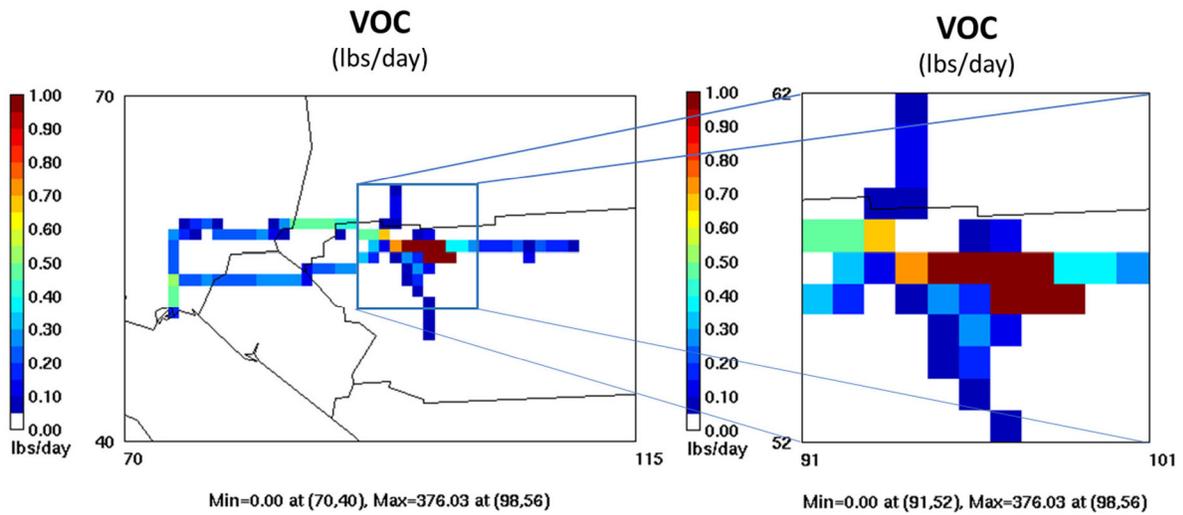
**Figure 2-8. Spatial Distribution of Mitigated CO Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



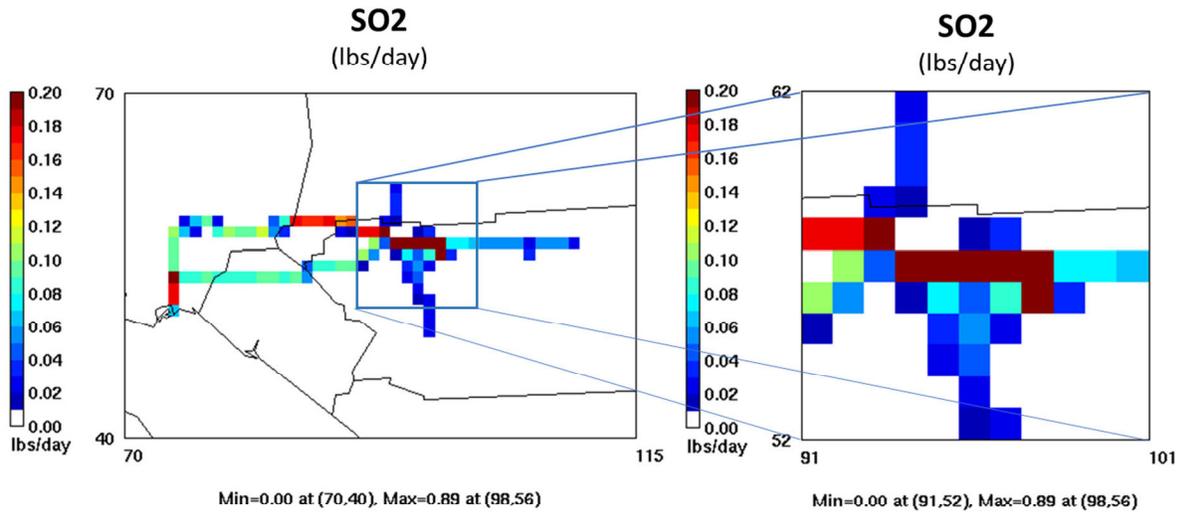
**Figure 2-9. Spatial Distribution of Mitigated NO<sub>x</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



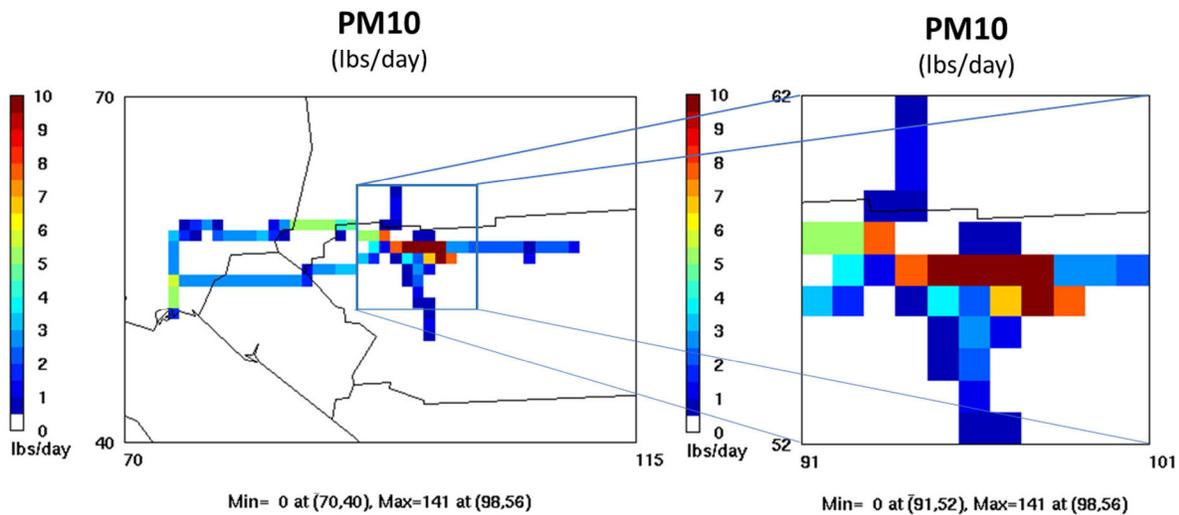
**Figure 2-10. Spatial Distribution of Mitigated VOC Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



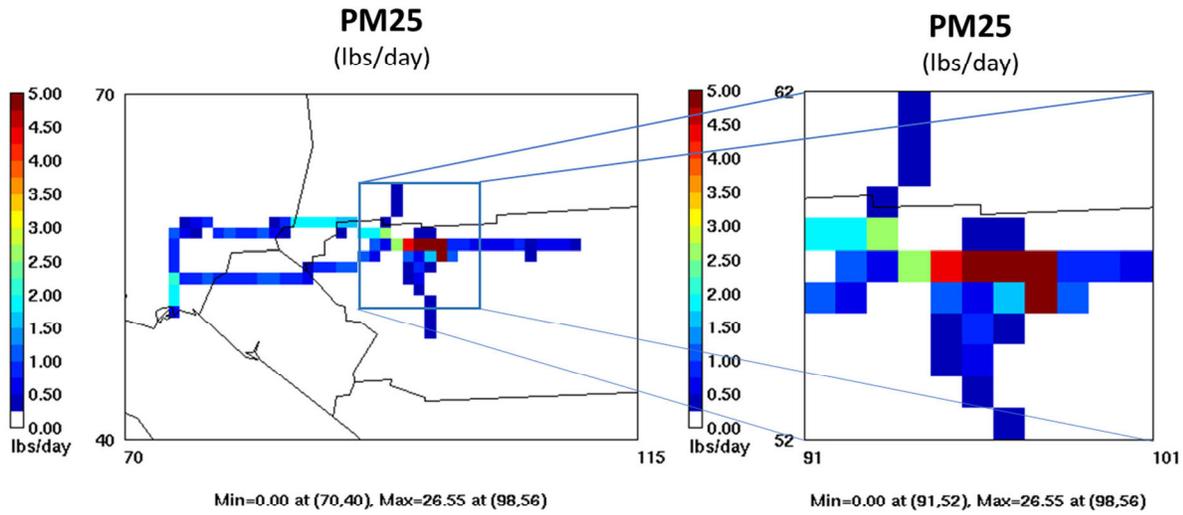
**Figure 2-11. Spatial Distribution of Mitigated SO<sub>2</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



**Figure 2-12. Spatial Distribution of Mitigated PM<sub>10</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



**Figure 2-13. Spatial Distribution of Mitigated PM<sub>2.5</sub> Emissions (in lbs/day) for the Project in the Southern California 4-km Domain**



### 3. CUMULATIVE EMISSIONS

Maximum daily operational and construction emissions were estimated for 349 projects (herein referred to as “cumulative projects”) in the region surrounding the Project, as described further in Section 6.3 of the Draft Recirculated RSFEIR. Maximum daily operational emissions for all cumulative projects are reflective of year 2035, consistent with the full buildout year for the Project. Construction emissions vary by project but occur within years 2020 through year 2035. To capture both potential operational and construction emissions from the cumulative projects in a single year, either maximum daily operational or construction emissions were used for each project, evaluated on a pollutant basis. Resulting maximum daily emissions for each of the cumulative projects are shown in **Table 3-1** below.

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
B-001	159.63	376.90	682.82	1.90	230.13	64.81
B-002	17.12	15.71	101.66	0.25	30.84	8.66
B-003	44.60	125.63	190.78	0.53	64.30	18.11
B-004	292.73	62.82	146.98	0.71	82.18	23.03
B-005	63.58	60.33	176.22	0.86	96.70	27.35
B-006	312.85	72.13	295.58	1.28	165.89	44.92
B-007	20.93	62.82	83.39	0.23	28.10	7.91

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
B-008	31.35	125.63	134.08	0.37	45.19	13.09
B-009	215.26	546.63	920.77	2.56	310.33	87.39
B-010	30.79	73.66	43.56	0.11	10.53	6.54
B-011	104.50	98.54	140.66	0.27	34.90	12.01
B-012	8.37	7.67	49.67	0.12	15.07	4.23
B-013	91.43	251.27	391.07	1.09	131.80	37.12
B-014	33.86	125.63	144.84	0.40	48.82	13.75
C-001	103.21	87.59	125.03	0.24	31.02	8.71
C-002	319.38	499.42	877.00	2.29	296.44	81.82
C-003	67.60	31.84	45.45	0.09	11.28	3.17
H-001	30.44	62.82	121.67	0.34	41.01	11.55
H-002	22.83	62.82	91.04	0.25	30.68	8.64
H-003	45.04	125.63	192.64	0.54	64.93	18.28
H-004	292.08	62.82	221.02	0.99	123.91	33.88
H-005	38.99	9.21	13.07	0.03	3.24	0.91
H-006	315.70	298.17	425.61	0.81	105.59	29.65
H-007	30.23	62.82	48.10	0.08	10.53	6.55
H-008	20.38	62.82	89.12	0.19	22.30	6.55
H-009	15.95	11.89	80.48	0.14	16.60	4.83
M-001	333.75	106.20	69.14	0.30	36.23	10.03
M-002	126.64	303.00	298.23	2.27	198.18	56.08
M-003	359.18	176.72	128.30	1.17	92.10	26.35
M-004	101.14	47.70	68.08	0.13	16.89	4.74
M-005	184.81	222.58	253.57	1.79	163.11	46.13
M-006	101.90	42.48	34.98	0.15	20.47	12.01
M-007	313.29	73.66	43.56	0.27	21.45	6.54
M-008	300.51	532.68	1,476.21	5.11	660.05	179.57

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
M-009	27.88	62.82	40.79	0.08	10.53	6.55
M-010	259.30	68.24	42.18	0.23	17.75	6.54
M-011	62.32	29.34	41.89	0.08	10.39	2.92
MV-001	141.34	133.36	190.36	0.36	47.23	13.26
MV-002	39.47	62.82	92.67	0.24	29.94	8.42
MV-003	280.95	125.91	115.21	0.92	77.77	22.15
MV-004	24.22	25.70	79.45	0.38	44.42	12.45
MV-005	108.06	50.96	72.74	0.14	18.05	5.07
MV-006	347.82	73.66	43.56	0.30	23.82	6.81
MV-007	17.70	42.48	22.27	0.05	20.47	12.01
MV-008	32.90	68.24	42.18	0.10	10.53	6.54
MV-009	7.12	42.48	22.27	0.04	10.53	6.54
MV-010	26.70	68.24	42.18	0.10	10.53	6.54
MV-011	13.75	42.48	22.27	0.05	20.47	12.01
MV-012	4.28	7.07	29.64	0.12	15.38	4.16
MV-013	55.83	9.32	8.06	0.02	2.01	0.66
MV-014	22.14	73.66	43.56	0.11	10.53	6.55
MV-015	35.69	73.66	43.56	0.11	10.53	6.54
MV-016	18.26	68.24	42.18	0.10	10.53	6.54
MV-017	31.11	73.66	43.56	0.11	10.53	6.54
MV-018	0.44	2.41	3.44	0.01	0.85	0.24
MV-019	3.70	2.76	18.68	0.03	3.85	1.12
MV-020	7.49	41.08	58.63	0.11	14.55	4.08
MV-021	74.37	26.80	29.64	0.12	15.38	4.16
MV-022	1.93	1.51	8.28	0.02	2.79	0.79
MV-023	74.90	73.66	74.24	0.18	22.52	6.54
MV-024	24.12	62.82	40.79	0.09	11.09	6.55

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-025	26.27	73.66	43.56	0.11	10.53	6.54
MV-026	32.40	73.66	43.56	0.11	10.53	6.54
MV-027	19.03	42.48	22.27	0.04	10.53	6.54
MV-028	28.42	42.48	22.27	0.05	20.47	12.01
MV-029	28.42	62.82	56.90	0.16	19.18	6.55
MV-030	26.91	73.66	43.56	0.11	10.53	6.54
MV-031	30.08	68.24	42.18	0.10	10.53	6.54
MV-032	23.78	73.66	43.56	0.11	10.53	6.55
MV-033	30.64	68.24	42.18	0.10	10.53	6.54
MV-034	29.52	68.24	42.18	0.10	10.53	6.54
MV-035	14.32	42.48	22.27	0.05	20.47	12.01
MV-036	1.68	1.54	9.97	0.02	3.02	0.85
MV-037	40.05	38.00	111.00	0.54	60.91	17.23
MV-038	11.21	11.90	36.79	0.18	20.57	5.77
MV-039	41.34	43.88	135.62	0.65	75.83	21.25
MV-040	91.42	21.38	17.08	0.04	4.05	2.46
MV-041	384.38	88.36	64.15	0.59	46.05	13.17
MV-042	207.10	68.24	42.18	0.18	14.18	6.54
MV-043	13.77	13.07	38.17	0.19	20.94	5.92
MV-044	294.12	73.66	49.08	0.45	35.23	10.08
MV-045	80.96	38.16	54.46	0.10	13.51	3.79
MV-046	8.47	23.30	16.91	0.15	12.14	3.47
MV-047	9.25	42.48	22.27	0.05	20.47	12.01
MV-048	47.85	57.78	236.77	1.03	132.88	35.98
MV-049	50.28	60.72	248.81	1.08	139.64	37.81
MV-050	9.17	9.73	30.08	0.14	16.82	4.71
MV-051	19.88	21.10	65.21	0.31	36.46	10.22

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-052	22.71	24.10	74.51	0.36	41.66	11.68
MV-053	27.68	76.17	55.30	0.50	39.70	11.36
MV-054	293.41	105.91	76.89	0.70	55.20	15.79
MV-056	9.25	42.48	22.27	0.05	20.47	12.01
MV-057	21.07	68.24	42.18	0.10	10.53	6.54
MV-058	0.39	0.30	1.66	0.005	0.56	0.16
MV-059	35.69	73.66	43.56	0.11	10.53	6.54
MV-060	29.81	73.66	43.56	0.11	10.53	6.54
MV-061	92.91	78.83	112.53	0.22	27.92	7.84
MV-062	28.13	62.82	112.36	0.31	37.87	10.66
MV-063	33.43	62.82	45.73	0.13	15.41	6.55
MV-064	28.20	73.66	43.56	0.11	10.53	6.54
MV-065	18.33	42.48	22.27	0.04	10.53	6.54
MV-066	78.83	68.24	44.69	0.11	13.56	6.54
MV-067	24.42	62.82	40.79	0.09	11.23	6.55
MV-068	106.87	42.48	22.27	0.07	10.53	6.54
MV-069	10.15	9.63	28.13	0.14	15.44	4.37
MV-070	75.70	68.24	42.91	0.10	13.02	6.54
MV-071	17.29	42.48	22.27	0.04	10.53	6.54
MV-072	15.26	21.38	15.73	0.03	4.05	2.46
MV-073	30.30	42.48	22.27	0.05	20.47	12.01
MV-074	21.80	62.82	40.79	0.08	10.53	6.55
MV-075	38.91	125.63	196.29	0.35	40.48	13.09
MV-076	144.64	136.49	194.82	0.37	48.33	13.57
MV-077	247.25	73.66	45.18	0.22	25.26	7.08
MV-078	13.44	14.26	44.08	0.21	24.65	6.91
MV-079	170.32	42.48	24.86	0.15	20.47	12.01

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-080	41.29	21.38	27.69	0.05	6.87	2.46
MV-081	15.50	42.66	30.97	0.28	22.23	6.36
MV-082	11.07	30.47	22.12	0.20	15.88	4.54
MV-083	9.20	9.76	30.18	0.15	16.87	4.73
MV-084	2.58	2.74	8.47	0.04	4.74	1.33
MV-085	72.32	61.32	87.52	0.17	21.71	6.54
MV-086	3.43	2.69	14.69	0.04	4.95	1.39
MV-087	21.11	42.48	22.27	0.04	10.53	6.54
MV-088	15.26	9.05	8.05	0.01	0.92	0.66
MV-089	15.26	9.05	8.05	0.01	0.92	0.66
MV-090	13.79	9.03	8.05	0.01	1.13	0.66
MV-091	28.20	73.66	43.56	0.11	10.53	6.54
MV-093	3.36	3.08	19.94	0.05	6.05	1.70
MV-094	83.53	73.66	47.36	0.12	14.37	6.54
MV-095	90.34	76.64	109.40	0.21	27.14	7.62
MV-096	44.13	73.66	43.56	0.11	10.53	6.54
MV-097	32.38	62.82	44.28	0.12	14.92	6.55
MV-098	9.25	42.48	22.27	0.05	20.47	12.01
MV-099	30.30	42.48	22.27	0.05	20.47	12.01
MV-100	60.98	68.24	42.18	0.10	10.53	6.54
MV-101	16.92	9.03	8.05	0.01	1.40	0.66
MV-102	78.08	26.80	16.75	0.04	5.61	2.64
MV-103	94.99	42.48	22.27	0.08	10.53	6.54
MV-104	173.12	42.48	24.97	0.15	20.47	12.01
MV-105	15.26	9.05	8.05	0.01	0.92	0.66
MV-106	15.26	9.05	8.05	0.01	0.92	0.66
MV-107	10.37	21.38	15.09	0.03	4.05	2.46

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
MV-108	5.75	8.94	8.05	0.01	0.92	0.66
MV-109	53.45	125.63	228.64	0.64	77.06	21.70
MV-110	21.11	42.48	22.27	0.04	10.53	6.54
MV-111	10.26	21.38	15.45	0.03	4.05	2.46
MV-112	19.01	9.06	8.05	0.01	0.92	0.66
MV-113	29.72	62.82	40.79	0.08	10.53	6.55
MV-114	10.81	8.94	8.05	0.01	0.92	0.66
MV-115	0.90	8.94	8.05	0.01	0.92	0.66
MV-116	14.32	42.48	22.27	0.05	20.47	12.01
MV-117	48.43	21.38	16.04	0.03	4.05	2.46
MV-118	10.37	21.38	15.09	0.03	4.05	2.46
MV-119	19.95	68.24	42.18	0.10	10.53	6.54
MV-120	97.82	83.00	118.48	0.23	29.39	8.25
MV-121	8.31	8.94	8.05	0.01	0.92	0.66
MV-123	26.18	9.12	8.75	0.02	2.17	0.66
MV-124	72.32	61.32	87.52	0.17	21.71	6.54
MV-125	15.26	21.38	15.73	0.03	4.05	2.46
MV-126	24.32	62.82	48.63	0.14	16.39	6.55
P-001	6.63	5.19	28.35	0.08	9.55	2.69
P-002	13.29	36.56	26.54	0.24	19.06	5.45
P-003	10.24	28.17	20.45	0.19	14.68	4.20
P-004	88.81	42.48	22.27	0.07	10.53	6.54
P-005	213.42	68.24	42.18	0.19	14.61	6.54
P-006	278.31	73.66	50.86	0.24	28.44	7.97
P-007	315.44	62.82	100.86	0.49	56.39	15.81
P-008	111.93	42.48	22.27	0.10	20.47	12.01
P-009	297.77	73.66	44.09	0.21	24.20	6.84

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-010	37.65	103.60	75.21	0.69	53.99	15.45
P-011	30.36	28.80	84.14	0.41	46.17	13.06
P-012	210.69	68.24	42.18	0.19	21.52	6.54
P-014	318.13	73.66	53.09	0.48	38.11	10.90
P-015	17.29	47.58	34.54	0.32	24.80	7.09
P-016	29.01	79.83	57.96	0.53	41.61	11.90
P-017	12.84	35.34	25.66	0.23	18.42	5.27
P-018	34.26	94.27	68.44	0.62	49.13	14.06
P-019	15.45	42.51	30.86	0.28	22.16	6.34
P-020	19.30	53.11	38.56	0.35	27.68	7.92
P-021	3.76	10.36	7.52	0.07	5.40	1.54
P-022	176.35	42.48	25.12	0.15	20.47	12.01
P-023	92.93	42.48	22.27	0.07	10.53	6.54
P-024	388.08	89.21	64.77	0.59	46.50	13.30
P-025	481.27	73.66	45.92	0.42	32.97	9.43
P-026	376.38	73.66	68.80	0.33	38.47	10.78
P-027	19.13	52.65	38.22	0.35	27.44	7.85
P-028	310.75	73.66	56.79	0.27	31.76	8.90
P-030	25.50	62.82	101.80	0.28	34.31	9.66
P-031	26.33	42.48	22.27	0.05	10.53	6.54
P-032	298.19	281.62	401.98	0.77	99.73	28.00
P-033	89.97	188.45	384.86	1.07	129.71	36.53
P-034	392.21	192.98	140.11	1.28	100.58	28.77
P-035	25.27	21.38	16.24	0.03	4.05	2.46
P-036	295.79	232.06	183.83	1.45	117.29	33.51
P-037	8.85	6.93	37.87	0.11	12.76	3.59
P-038	10.79	8.44	46.14	0.13	15.55	4.38

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
P-039	363.44	73.66	43.56	0.32	24.89	7.12
P-040	25.21	73.66	43.56	0.11	10.53	6.55
P-041	77.34	42.48	22.27	0.06	10.53	6.54
P-042	34.59	68.24	42.18	0.10	10.53	6.54
P-043	32.33	68.24	42.18	0.10	10.53	6.54
P-044	29.67	42.48	22.27	0.05	20.47	12.01
P-045	26.33	42.48	22.27	0.05	10.53	6.54
P-046	24.80	62.82	57.64	0.10	11.89	6.55
P-047	26.99	62.82	107.80	0.30	36.33	10.23
P-048	42.44	73.66	43.56	0.11	10.53	6.54
P-049	23.58	73.66	43.56	0.11	10.53	6.55
P-050	74.37	35.04	50.01	0.10	12.41	3.48
P-051	19.95	68.24	42.18	0.10	10.53	6.54
P-052	26.59	73.66	43.56	0.11	10.53	6.54
P-053	24.42	62.82	40.79	0.09	11.23	6.55
P-054	24.63	62.82	49.25	0.14	16.60	6.55
P-055	208.76	197.09	281.32	0.54	69.80	19.60
P-056	18.50	9.04	8.05	0.01	0.92	0.66
P-057	77.42	9.50	8.32	0.02	1.32	0.66
P-058	175.42	42.48	25.96	0.13	20.47	12.01
P-059	25.14	62.82	50.28	0.14	16.95	6.55
P-060	8.58	8.94	8.05	0.01	0.92	0.66
P-061	7.75	21.33	15.48	0.14	11.12	3.18
R-001	44.32	53.52	219.33	0.95	123.10	33.33
R-002	12.90	35.51	25.78	0.24	18.51	5.29
R-003	16.85	17.88	55.27	0.27	30.90	8.66
R-004	67.87	68.24	42.18	0.10	11.67	6.54

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-005	231.96	73.66	185.24	0.74	96.09	26.00
R-006	27.03	42.48	22.27	0.05	10.53	6.54
R-007	52.22	24.57	35.07	0.07	8.70	2.46
R-008	11.83	42.48	22.27	0.05	20.47	12.01
R-009	701.42	3,844.34	5,487.47	10.50	1,361.41	382.27
R-010	43.91	10.32	14.73	0.03	3.65	1.03
R-011	158.12	42.48	54.33	0.24	30.49	12.01
R-012	57.11	26.88	38.37	0.07	9.52	2.67
R-013	7.00	8.94	8.05	0.01	0.92	0.66
R-014	7.39	8.94	8.05	0.01	0.92	0.66
R-015	26.03	62.82	40.79	0.10	11.97	6.55
R-016	3.68	8.94	8.05	0.01	0.92	0.66
R-017	86.35	73.66	48.96	0.12	14.85	6.54
R-018	233.52	320.38	766.09	3.69	428.35	120.05
R-019	19.37	42.48	22.27	0.04	10.53	6.54
R-020	387.41	89.06	64.66	0.59	46.42	13.28
R-021	9.63	42.48	22.27	0.04	10.53	6.54
R-022	10.37	21.38	15.09	0.03	4.05	2.46
R-023	15.14	9.03	8.05	0.01	1.25	0.66
R-024	241.87	591.67	1,034.58	2.88	348.69	98.19
R-025	65.37	68.24	42.18	0.10	11.23	6.54
R-026	268.27	169.90	321.69	0.98	122.05	33.93
R-027	6.95	8.94	8.05	0.01	0.92	0.66
R-028	24.21	73.66	43.56	0.11	10.53	6.54
R-029	7.28	8.94	8.05	0.01	0.92	0.66
R-030	107.62	91.35	130.39	0.25	32.35	9.08
R-031	22.77	21.38	16.09	0.03	4.05	2.46

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-032	41.51	9.75	13.92	0.03	3.45	0.97
R-033	19.02	21.38	15.92	0.03	4.05	2.46
R-034	22.79	9.04	8.05	0.01	0.92	0.66
R-035	32.18	42.48	22.27	0.05	20.47	12.01
R-036	21.81	42.48	22.27	0.04	10.53	6.54
R-037	11.36	8.94	8.05	0.01	0.93	0.66
R-038	6.73	8.94	8.05	0.01	0.92	0.66
R-039	20.88	62.82	83.18	0.23	28.03	7.89
R-040	4.69	8.94	8.05	0.01	0.92	0.66
R-041	43.09	9.22	8.05	0.01	1.55	0.66
R-042	30.95	62.82	123.74	0.34	41.70	11.74
R-043	28.39	68.24	42.18	0.10	10.53	6.54
R-044	7.66	8.94	8.05	0.01	0.92	0.66
R-045	70.54	9.49	8.23	0.02	2.54	0.69
R-046	20.42	68.24	42.18	0.10	10.53	6.54
R-047	100.07	21.38	17.27	0.04	4.05	2.46
R-048	70.01	32.98	47.07	0.09	11.68	3.28
R-049	26.21	62.82	41.65	0.08	10.53	6.55
R-050	4.56	21.38	15.01	0.03	4.05	2.46
R-051	4.62	8.94	8.05	0.01	0.92	0.66
R-052	18.26	68.24	42.18	0.10	10.53	6.54
R-053	16.57	42.48	22.27	0.05	20.47	12.01
R-054	14.32	42.48	22.27	0.05	20.47	12.01
R-055	11.50	42.48	22.27	0.05	20.47	12.01
R-056	67.70	42.48	22.27	0.07	10.53	6.54
R-057	88.61	42.48	22.27	0.07	10.53	6.54
R-058	5.33	8.94	8.05	0.01	0.92	0.66

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
R-059	7.75	8.94	8.05	0.01	0.92	0.66
R-060	94.37	26.80	17.12	0.07	9.09	2.64
R-061	197.38	186.33	265.97	0.51	65.99	18.53
R-062	3.64	8.94	8.05	0.01	0.92	0.66
R-063	13.39	21.38	15.65	0.03	4.05	2.46
R-064	5.87	21.38	15.01	0.03	4.05	2.46
R-065	35.15	68.24	42.18	0.10	10.53	6.54
R-066	11.64	9.03	8.05	0.01	0.95	0.66
RC-001	60.52	188.45	258.85	0.72	87.24	24.57
RC-002	96.75	251.27	413.83	1.15	139.48	39.28
RC-003	165.05	376.90	706.00	1.96	237.95	67.01
RC-005	36.28	125.63	155.19	0.43	52.30	14.73
RC-006	278.31	62.82	95.70	0.41	53.71	14.54
RC-007	267.88	96.69	70.19	0.64	50.39	14.42
RC-009	319.91	62.82	84.66	0.41	46.47	13.12
RC-010	262.94	170.02	525.55	2.53	293.85	82.36
RC-011	377.48	73.66	43.56	0.33	25.85	7.40
RC-012	196.58	42.48	35.91	0.17	20.47	12.01
RC-013	25.76	62.82	102.84	0.29	34.66	9.76
RC-014	100.41	73.66	56.97	0.14	17.28	6.54
RC-015	29.31	62.82	40.79	0.08	10.53	6.55
RC-017	17.44	9.03	8.05	0.01	1.44	0.66
RC-018	9.63	42.48	22.27	0.04	10.53	6.54
RC-019	49.16	23.12	33.01	0.06	8.19	2.46
RC-020	5.43	8.94	8.05	0.01	0.92	0.66
RC-021	15.07	9.03	8.05	0.01	0.92	0.66
RC-022	27.06	62.82	40.79	0.08	10.53	6.55

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
RC-023	48.84	21.38	16.08	0.03	4.05	2.46
RC-024	98.49	42.48	22.27	0.08	10.53	6.54
RC-025	79.01	21.38	16.75	0.03	4.05	2.46
RC-026	4.75	8.94	8.05	0.01	0.92	0.66
RC-027	97.40	42.48	22.27	0.08	10.53	6.54
RC-028	10.62	8.94	8.05	0.01	0.92	0.66
RC-029	15.33	9.03	8.05	0.01	1.26	0.66
RC-030	333.77	76.73	55.70	0.51	39.99	11.44
RC-031	93.24	42.48	22.27	0.07	10.53	6.54
RC-032	35.12	125.63	150.22	0.42	50.63	14.26
RC-033	19.95	62.82	79.46	0.22	26.78	7.54
RC-034	22.42	62.82	89.39	0.25	30.13	8.48
RC-035	139.65	314.09	602.02	1.68	204.38	57.49
RC-036	24.27	62.82	96.84	0.27	32.64	9.19
RC-037	29.10	62.82	116.29	0.32	39.19	11.04
RC-038	307.88	111.14	80.69	0.74	57.92	16.57
RC-039	22.20	68.24	42.18	0.10	10.53	6.54
RD-001	3.97	3.10	16.97	0.05	5.72	1.61
RD-002	2.66	2.08	11.38	0.03	3.84	1.08
RD-003	33.37	73.66	43.56	0.11	10.53	6.54
RD-004	37.94	73.66	43.56	0.11	10.53	6.54
RD-005	11.09	30.51	22.15	0.20	15.90	4.55
RD-006	44.93	21.38	30.15	0.06	7.48	2.46
RD-007	118.61	55.95	79.86	0.15	19.81	5.56
RD-008	25.29	42.48	22.27	0.05	20.47	12.01
RD-009	40.83	21.38	27.38	0.05	6.79	2.46
RD-010	75.04	42.48	22.27	0.06	10.53	6.54

<b>Table 3-1. Cumulative Emissions Inventory</b>						
<b>Project ID</b>	<b>Maximum Daily Emissions (lb/day)</b>					
	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
RD-011	51.63	24.29	34.67	0.07	8.60	2.46
RD-012	13.31	36.64	26.60	0.24	19.10	5.46
RD-013	22.43	61.73	44.82	0.41	32.17	9.20
RD-014	17.10	47.04	34.15	0.31	24.52	7.01
RD-015	9.37	25.78	18.71	0.17	13.43	3.84
RD-016	15.83	43.56	31.62	0.29	22.70	6.49
SB-001	13.60	37.44	27.18	0.25	19.51	5.58
SB-002	6.94	19.10	13.87	0.13	9.96	2.85
SB-003	13.14	36.17	26.26	0.24	18.85	5.39
SB-004	17.22	47.39	34.40	0.31	24.70	7.07
SB-005	6.24	17.18	12.48	0.11	8.96	2.56
SB-006	12.02	33.09	24.02	0.22	17.24	4.93
SB-007	19.39	68.24	42.18	0.10	10.53	6.54
SB-008	22.76	68.24	42.18	0.10	10.53	6.54
SJ-001	283.22	735.02	1,049.18	2.01	260.30	73.09
SJ-002	16.72	62.82	66.42	0.18	22.39	6.55
SJ-003	30.03	62.82	120.01	0.33	40.45	11.39
SJ-004	31.72	62.82	126.84	0.35	42.75	12.04
<b>Total</b>	<b>26,381</b>	<b>26,742</b>	<b>33,893</b>	<b>109</b>	<b>12,738</b>	<b>4,076</b>

## 4. REFERENCES

- /1/ Coats Jr., C.J., 1996. High-performance algorithms in the Sparse Matrix Operator Kernel Emissions (SMOKE) modeling system. Proc. Ninth AMS Joint Conference on Applications of Air Pollution Meteorology with AWMA. Amer. Meteor. Soc., Atlanta, GA, 584-588.
- /2/ Coats Jr., C.J., Houyoux, M.R., 1996. Fast Emissions Modeling with the Sparse Matrix Operator Kernel Emissions (SMOKE) Modeling System. The Emission Inventory: Key to Planning, Permits, Compliance, and Reporting, Air & Waste Management Association. New Orleans, Louisiana.
- /3/ USEPA, 2007. Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5 and Regional Haze. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-454/B-07-002.

**APPENDIX B**  
**PGM INPUTS, OUTPUTS, AND ASSUMPTIONS**  
**HIGHLAND FAIRVIEW WORLD LOGISTICS**  
**CENTER MORENO VALLEY, CALIFORNIA**



## 2. REGIONAL GRID MODELING

This section describes the regional PGM modeling setup to assess the outcome of the unmitigated and mitigated Project emissions on the ambient Particulate Matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) levels in the region. The 2012 base case modeling databases were developed by the SCAQMD for the Community Multiscale Air Quality (CMAQ) PGM. The CMAQ annual 2012 4-km modeling database and annual 2012 4-km Weather Research and Forecasting (WRF) meteorological model output files were obtained from the SCAQMD. The SCAQMD CMAQ and WRF 2012 4-km data were then processed to generate a 2012 4-km annual PGM modeling database suitable for the CAMx. The following paragraphs describe how Ramboll developed the CAMx 2012 4-km annual database used in this study, starting with the SCAQMD CMAQ and WRF 2012 4-km data. Preparation of the Project unmitigated and mitigated emissions inputs for CAMx is discussed in **Appendix A**.

### 2.1 Model Inputs and Configuration

The SCAQMD emissions database has both 2012 and 2031 future year projections for CMAQ area and in-line point emissions. Ramboll converted both years' emissions to corresponding CAMx area and point-source emissions files using the CMAQ2CAMx interface program<sup>5</sup>. Sea salt emissions were developed using an emissions processor that integrates published sea spray flux algorithms to estimate sea salt PM emissions for input to CAMx. The CAMx sea salt emissions were then merged with area emissions files.

The most commonly used prognostic meteorological models to provide meteorological fields for air quality modeling are the Weather Research and Forecasting (WRF) model (Skamarock et al., 2005) and the Fifth-Generation Mesoscale Model (MM5; Grell et al, 1994). MM5 is a nonhydrostatic, prognostic meteorological model developed in the 1970s by Pennsylvania State University and the National Center for Atmospheric Research (NCAR) and has been widely used for urban- and regional-scale photochemical, fine particulate, and regional haze regulatory modeling studies. However, development of MM5 ceased in 2006, and WRF has become the new standard model used in place of the older MM5 for regulatory air quality applications in the US. Developed jointly by NCAR and the National Center for Environmental Prediction in late 1990s, WRF has been under continuous development, improvement, testing and open peer-review for more than 10 years and used world-wide by hundreds of researchers and practitioners around the globe for a variety of mesoscale studies. SCAQMD adopted WRF version 3.6 for the 2012 simulations. For the current application, the meteorology remains unchanged for the future year simulation and SCAQMD WRF 2012 4-km model outputs were processed using the WRFCAMx<sup>6</sup> processor to generate the meteorological fields ready for CAMx. The WRF model employs a terrain-following coordinate system defined by pressure, using multiple layers that extend from the surface to 50 millibars (approximately 19 kilometers above ground level [AGL]). A layer averaging scheme is adopted for CAMx simulations to reduce the computational burden. **Table 2-1** presents the mapping from the WRF vertical layer structure to the CAMx vertical layers.

---

<sup>5</sup> <http://www.camx.com/download/support-software.aspx>.

<sup>6</sup> WRFCAMx is available on the CAMx website (<http://www.camx.com/download/support-software.aspx>).

<b>Table 2-1. Vertical Layer Structure for WRF and CAMx Modeling</b>					
<b>WRF</b>		<b>CAMx</b>			
<b>Layer</b>	<b>Height (m)</b>	<b>Layer</b>	<b>Height (m)</b>	<b>Thickness (m)</b>	<b>Sigma</b>
30	19260	18	19260	4769	0.0000
29	17456				
28	15900				
27	14492	17	14492	6027	0.0788
26	13185				
25	11945				
24	10755				
23	9597				
22	8465	16	8465	4906	0.2930
21	7345				
20	6237				
19	5177				
18	4295				
17	3559	15	3559	1560	0.6254
16	2944				
15	2430				
14	1999	14	1999	358	0.7733
13	1641	13	1641	300	0.8107
12	1341	12	1341	251	0.8431
11	1090	11	1090	209	0.8709
10	881	10	881	175	0.8946
9	706	9	706	146	0.9148
8	561	8	561	121	0.9319
7	439	7	439	101	0.9463
6	338	6	338	85	0.9585
5	253	5	253	70	0.9688
4	183	4	183	59	0.9774
3	124	3	124	49	0.9846
2	75	2	75	41	0.9907
1	34	1	34	34	0.9958
0	0		0	0	1

The SCAQMD data set provided the lateral boundary conditions (BCs) for the 4-km state-wide modeling grid. The SCAQMD simulated a 12-km domain whose boundary concentrations were extracted from a global model simulation for the year 2012. The Model for Ozone and Related Chemical Tracers Version 4 (MOZART-4; Emmons et al., 2010) is a global chemical transport model

developed jointly by NCAR, the Geophysical Fluid Dynamics Laboratory, and the Max Planck Institute for Meteorology, and simulates chemistry and transport of tropospheric gases and bulk aerosols. The 12-km outputs were saved and used to derive the boundary conditions for the 4-km domain. The CMAQ2CAMX processor was used to convert the CMAQ 4-km boundary conditions to suitable CAMx BCs. The model was initialized from clean initial concentrations and five days of spin-up period were used for the 4-km grids to minimize their influence.

Additional data used in the air quality modeling include ozone column data from the Ozone Monitoring Instrument (OMI), which continues the Total Ozone Mapping Spectrometer (TOMS) record for total ozone and other atmospheric parameters related to ozone chemistry (OMI officially replaced the TOMS ozone column satellite data on January 1, 2006). OMI data are available every 24-hours and are obtained from the TOMS ftp site<sup>7</sup>. The CAMx O3MAP program reads the OMI ozone column txt file data and interpolates to fill gaps and generated gridded daily ozone column input data. The OMI data is used in the CAMx (TUV) radiation models, which is a radiative transfer model that develops clear-sky photolysis rate inputs for CAMx. The land use file was generated with the WRF-CAMx processor and modified to remove lakes and set coastal waters with a surf zone width of 50 m; this file was used to update the emissions database and provide more realistic representation of sea salt emissions.

**Table 2-2** presents the CAMx configuration used for the modeling in this Project analysis. In the past, the Carbon-Bond IV (CB4) chemical mechanism (Gery et al., 1989) has been predominantly used for the California State Implementation Plan (SIP) modeling. In 1999, however, the California Air Resources Board's (CARB's) Reactivity Scientific Advisory Committee recommended switching to the 1999 State-wide Air Pollution Research Center (SAPRC99) chemical mechanism (Carter, 2000) based on a comprehensive review by Stockwell (1999), and SAPRC99 has since been the mechanism of choice for the California SIPs. The 2007 update to the SAPRC chemistry mechanism, called SAPRC07 (Carter, 2010), replaced the dated SAPRC99 mechanism. The version implemented in CAMx is SAPRC07TC, which includes additional model species to explicitly represent selected toxics and reactive organic compounds and uses numerical expressions of rate constants that are compatible with the current chemistry mechanism solver. The partitioning of inorganic aerosol constituents (sulfate, nitrate, ammonium and chloride) between gas and aerosol phases is performed using the ISORROPIA module. The Secondary Organic Aerosol Processor (SOAP) is a semi-volatile equilibrium scheme used to perform the organic aerosol-gas partitioning. These processes are described in more detailed in the CAMx user guide.<sup>8</sup>

---

<sup>7</sup> <ftp://toms.gsfc.nasa.gov/pub/omi/data/>.

<sup>8</sup> [http://www.camx.com/files/camxusersguide\\_v6-50.pdf](http://www.camx.com/files/camxusersguide_v6-50.pdf)

<b>Table 2-2. CAMx Modeling Configuration</b>		
<b>Science Option</b>	<b>Configuration</b>	<b>Notes</b>
Model Code	CAMx v6.5	Released April 2018
Horizontal Grid	4-km 1-way nesting	
O3 and PM 4-km	156 x 102 grid cells	
Vertical Grid	18 vertical layers extending up to ~19 km AGL	Collapsed from 30 WRF layers (see Table 3-1)
Initial Conditions	Clean initial conditions	5-day spin-up for 4-km domain
Boundary Conditions	CMAQ 4km lateral concentrations converted to CAMx	
Photolysis Rate	Photolysis rates lookup table	Derived from satellite measurements and TUV processor
Gas-phase Chemistry	SAPRC07TC	Solved by the Euler Backward Iterative (EBI) solver
Aerosol-phase Chemistry	ISORROPIA (inorganic aerosol) SOAP v2.1 (organic aerosol)	
Meteorological Input Pre-processor	WRFCAMx v4.7	
Advection	Piecewise Parabolic Method (PPM)	
Diffusion	Eddy diffusion algorithm	

## 2.2 Model Results

The future modeling scenario was simulated using the CAMx source apportionment technology. Both cumulative concentrations from all the sources and the concentrations from Project-specific unmitigated and mitigated emissions are derived from separate simulations following the model configuration discussed in the previous section. The model results of hourly PM<sub>2.5</sub> concentrations were processed into aggregated metrics that are relevant to health effects.

### **PM<sub>2.5</sub> Model Results**

The metrics relevant to the PM<sub>2.5</sub> health effects selected in this study are 24-hour annual average concentrations (see **Appendix C**).

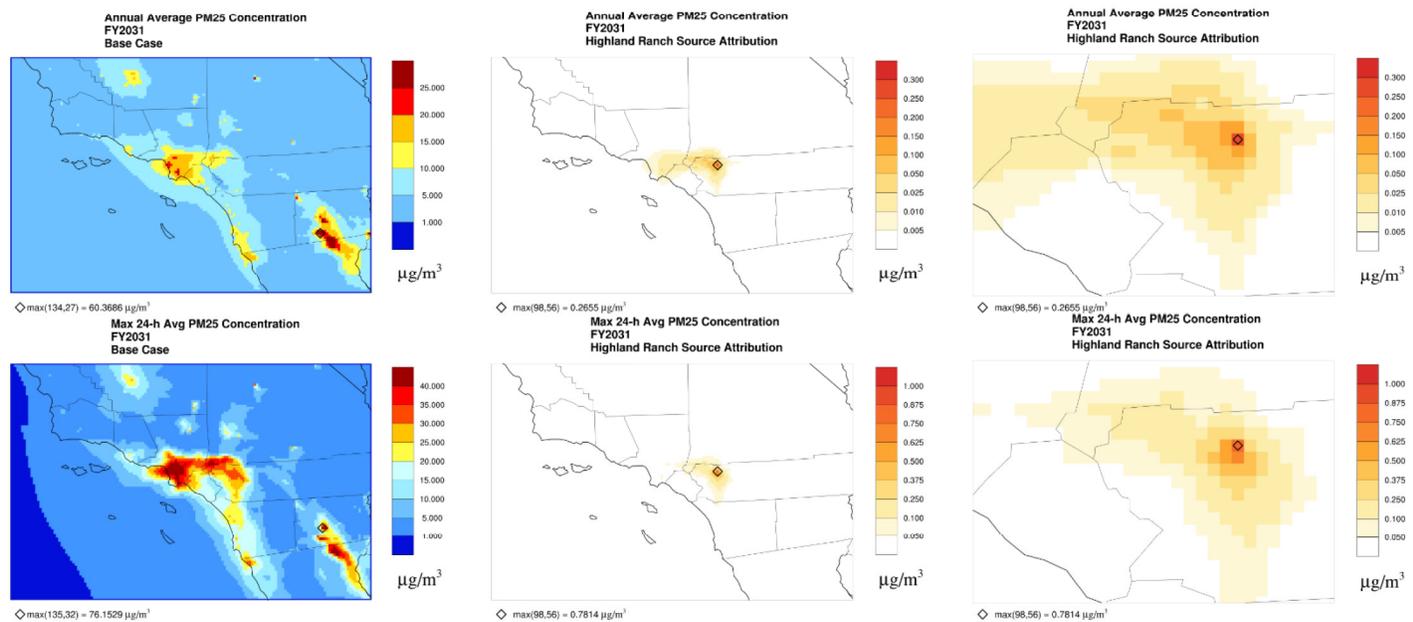
### **Unmitigated Project**

**Figure 2-1** shows spatial plots of annual average and a single day episode maximum 24-hour average PM<sub>2.5</sub> concentrations from the base case and the unmitigated Project emissions. In the 2031 base case scenario, the highest concentrations occur in Los Angeles County and the central portion of Imperial County. Annual PM<sub>2.5</sub> concentrations in these counties generally range between 10 and 20 micrograms per cubic meter (µg/m<sup>3</sup>) with isolated regions that could be higher than 25 µg/m<sup>3</sup>.

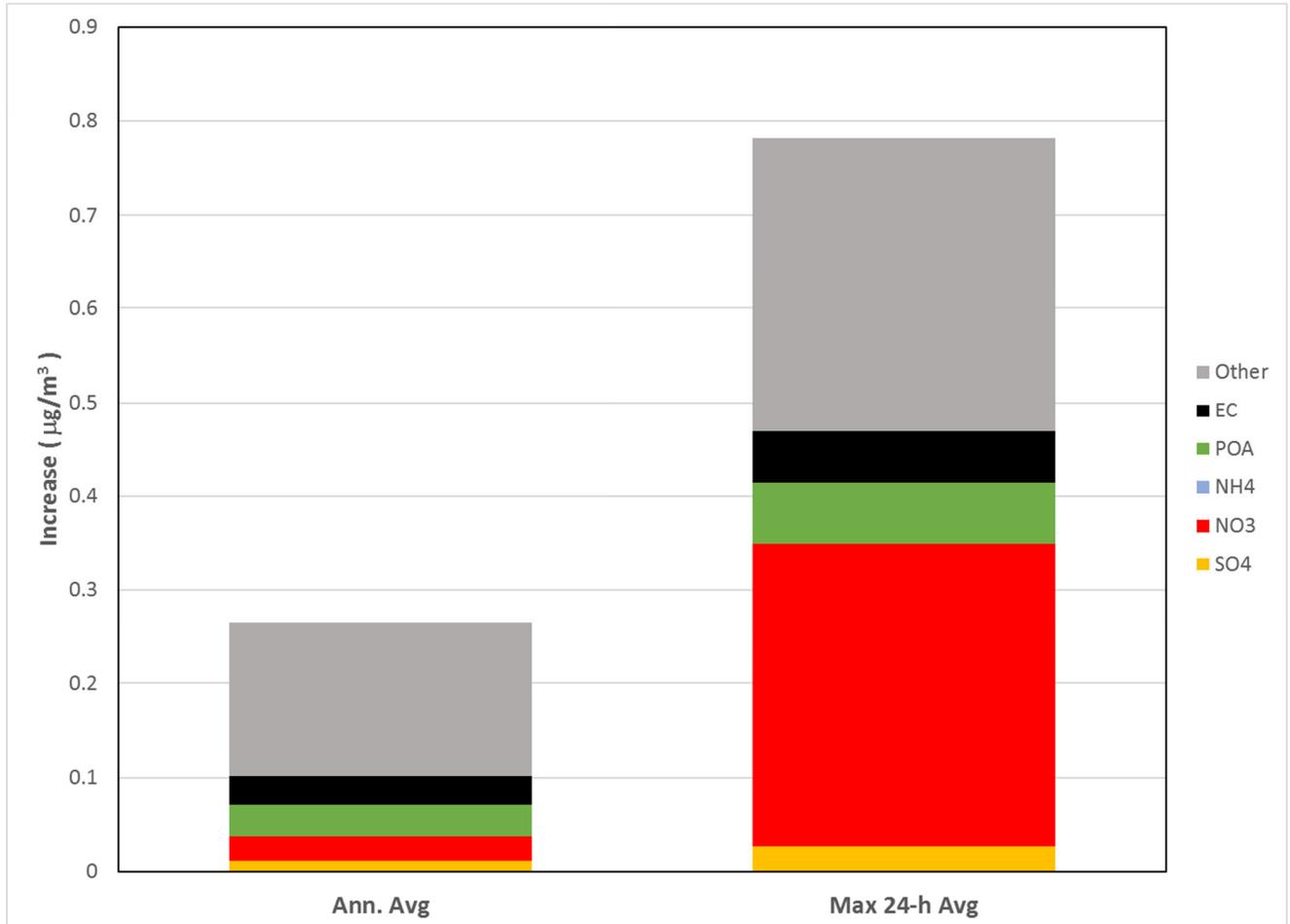
Contributions of the unmitigated Project emissions to annual average  $PM_{2.5}$  are  $0.266 \mu\text{g}/\text{m}^3$  at the most impacted area and represent a 3.2 percent increase over the base case concentrations at that location. Contributions to the maximum 24-hour average  $PM_{2.5}$  are  $0.781 \mu\text{g}/\text{m}^3$  at the most impacted area and represent a 2.4 percent increase over the base case concentrations at that location.

**Figure 2-2** presents increases in annual average and maximum 24-hour average  $PM_{2.5}$  due to the unmitigated Project emissions by  $PM_{2.5}$  chemical component at the grid cell of maximum concentration change. The figure shows that on average, the primary concentrations of crustal material (labeled other), elemental carbon and primary organic aerosol account for about 86 percent of the contributions at the location of maximum impact, while the other 14 percent is due to secondary PM (sulfate, ammonium and nitrate). The maximum 24-hr impacts show a larger impact from secondary PM, in particular nitrate alone represents 41 percent of the Project unmitigated scenario contributions.

**Figure 2-1. Results of the 4 km  $PM_{2.5}$  Modeling Domain**  
 **$PM_{2.5}$  Concentrations from the Base Case Scenario (left panels);**  
**Increases in  $PM_{2.5}$  due to the Unmitigated Project (center and right panels);**  
**Annual Averages (top panels); Maximum 24-hour Averages (bottom panels)**



**Figure 2-2. Increases in Annual Average and Episode Maximum 24-hour Average PM<sub>2.5</sub> Concentrations due to the Unmitigated Project by PM<sub>2.5</sub> Component: fine particulate sulfate (SO<sub>4</sub>), nitrate (NO<sub>3</sub>), ammonium (NH<sub>4</sub>), primary organic aerosol (POA), elemental carbon (EC), and other primary PM (Other); Where the Maximum Change due to Project Emissions Occurred**

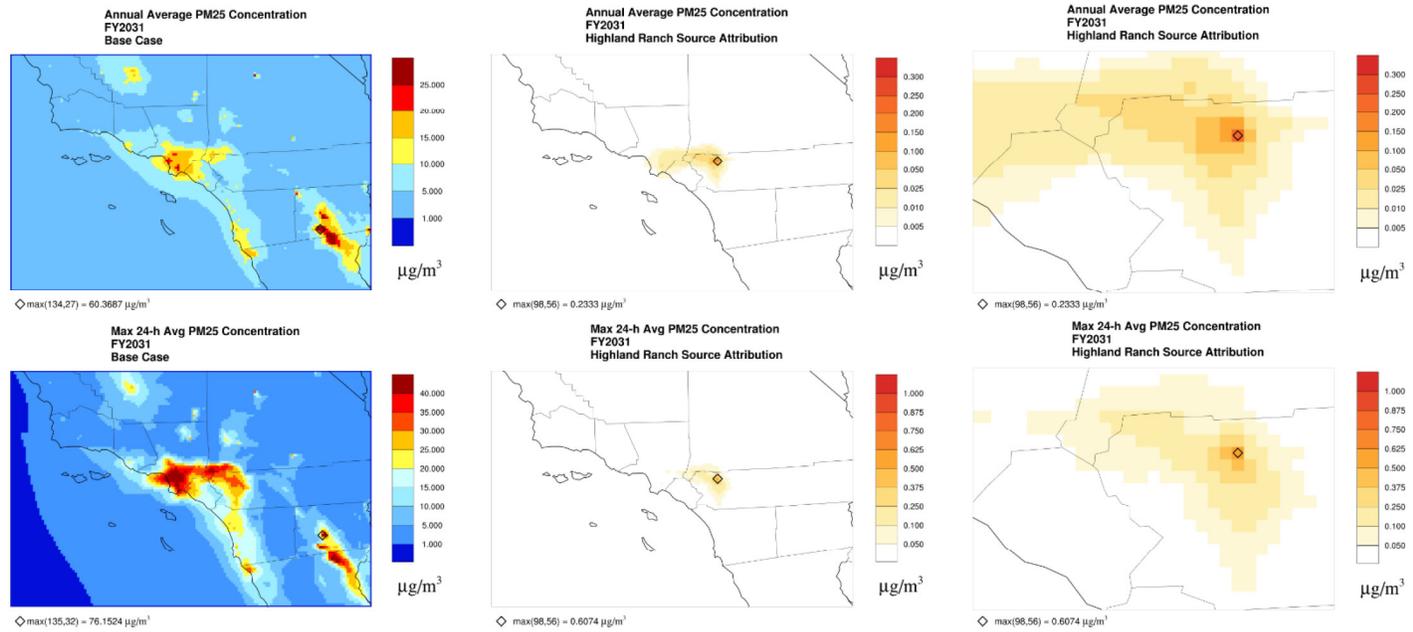


**Mitigated Project**

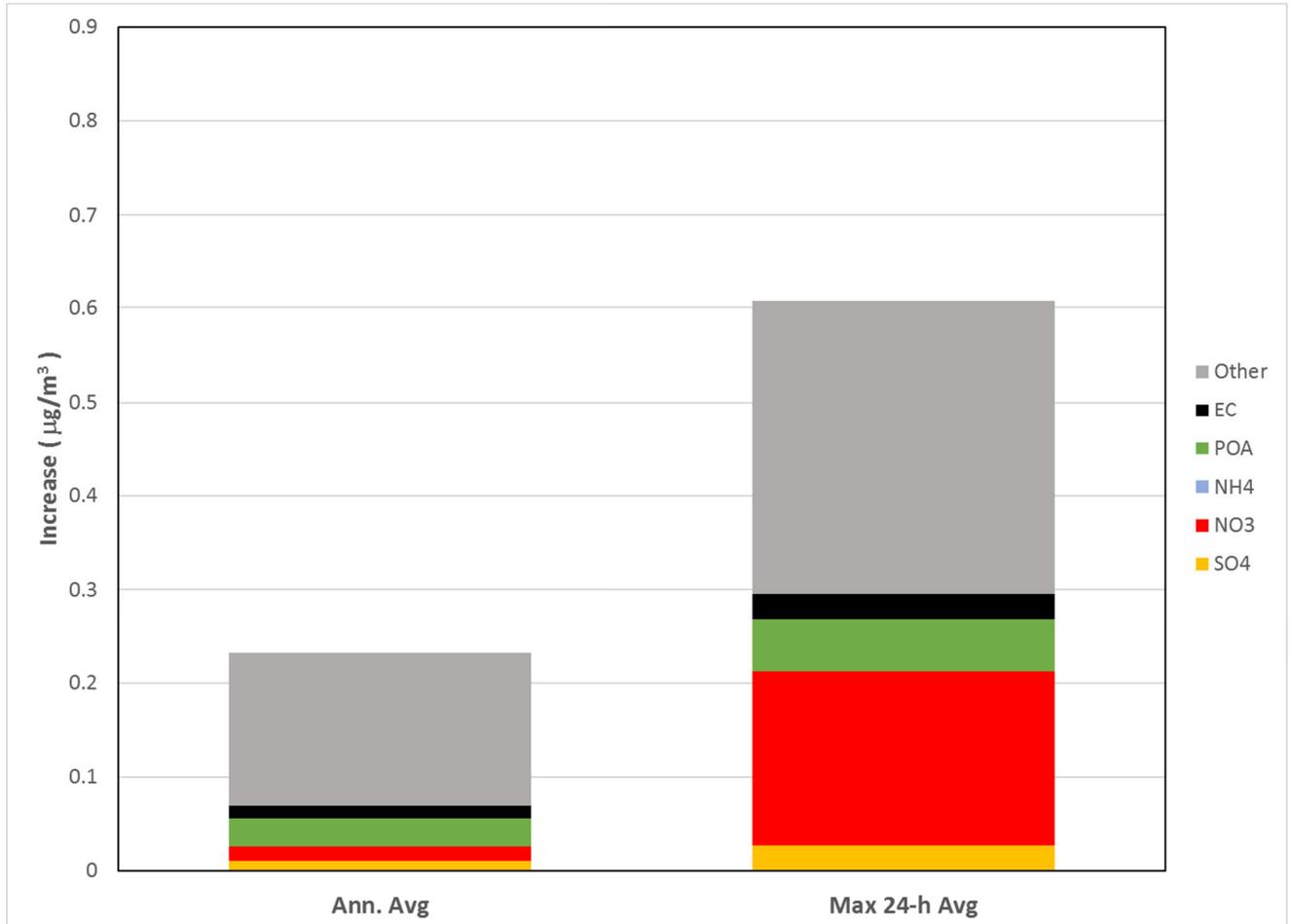
**Figure 2-3** shows spatial plots of annual average and a single day episode maximum 24-hour average PM<sub>2.5</sub> concentrations from the base case and the mitigated Project emissions. Contributions of the mitigated Project emissions to annual average PM<sub>2.5</sub> are 0.233 µg/m<sup>3</sup> at the most impacted area and represent a 2.8 percent increase over the base case concentrations at that location. Contributions to the maximum 24-hour average PM<sub>2.5</sub> are 0.607 µg/m<sup>3</sup> at the most impacted area and represent a 1.9 percent increase over the base case concentrations at that location. **Figure 2-4** presents increases in annual average and maximum 24-hour average PM<sub>2.5</sub> due to the mitigated Project emissions by PM<sub>2.5</sub> chemical component at the grid cell of maximum concentration change. The figure shows that on average, the primary concentrations of crustal material (labeled other), elemental carbon and primary organic aerosol account for about 89 percent of the contributions at the location of maximum impact, while the other 11 percent is due to secondary PM (sulfate, ammonium and

nitrate). The maximum 24-hr impacts show a larger impact from secondary PM, in particular nitrate alone represents 31 percent of the Project mitigated scenario contributions.

**Figure 2-3. Results of the 4 km PM<sub>2.5</sub> Modeling Domain**  
**PM<sub>2.5</sub> Concentrations from the Base Case Scenario (left panels);**  
**Increases in PM<sub>2.5</sub> due to the Mitigated Project (center and right panels);**  
**Annual Averages (top panels);**  
**Maximum 24-hour Averages (bottom panels)**



**Figure 2-4. Increases in Annual Average and Episode Maximum 24-hour Average PM<sub>2.5</sub> Concentrations due to the Mitigated Project by PM<sub>2.5</sub> Component: fine particulate sulfate (SO<sub>4</sub>), nitrate (NO<sub>3</sub>), ammonium (NH<sub>4</sub>), primary organic aerosol (POA), elemental carbon (EC), and other primary PM (Other); Where the Maximum Change due to Project Emissions Occurred**



**Ozone Model Results**

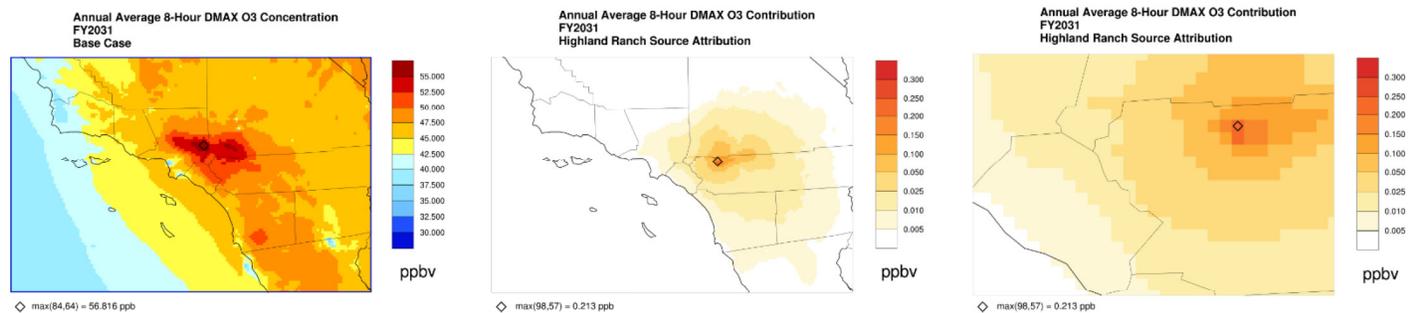
The metrics relevant to the ozone health effects selected in this study are consistent with the ozone NAAQS (see **Appendix C**). The model provides hourly concentrations that are further post-processed to produce maximum daily average 8-hour (MDA8) ozone concentrations for each day.

**Unmitigated Project**

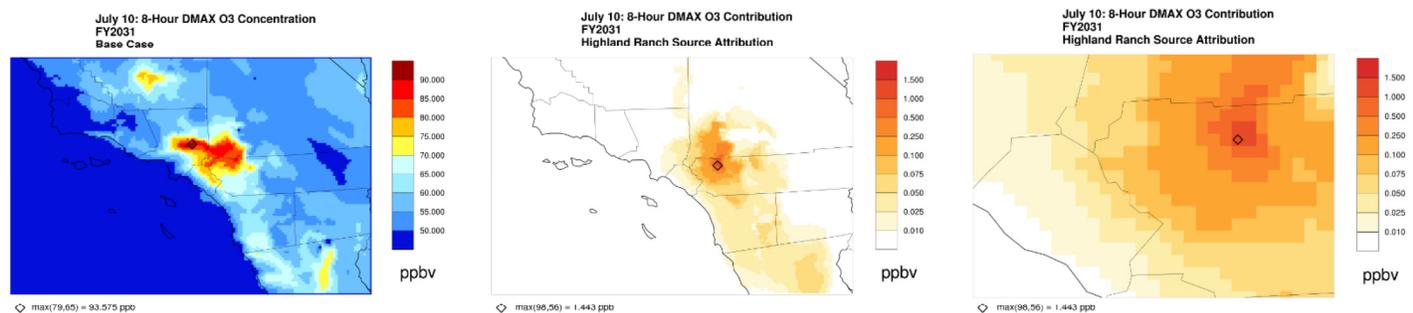
**Figure 2-5** displays spatial plots of the annual average MDA8 ozone for the 2031 emissions scenario and the corresponding annual average MDA8 increases due to the unmitigated Project emissions. In the 2031 base case emissions scenario, the eastern portion of Los Angeles County, the western portions of San Bernardino and Riverside counties and the northern portion of Orange County show the largest concentrations ranging between 50 and 56 ppb. The maximum impact to the annual average MDA8 ozone concentrations due to the unmitigated Project is 0.213 ppb and occurs in northern Riverside County where it represents a 0.41 percent increase over the base case concentrations. **Figure 2-6** displays MDA8 ozone for the base case and increases in MDA8 ozone due to the unmitigated Project on July 10, the day that the unmitigated Project has the highest ozone

contribution for the entire modeling year. The highest MDA8 ozone contribution due to the unmitigated Project is 1.44 ppb (Figure 2-4, right) that occurs in northern Riverside County where total MDA8 ozone concentrations are 79.9 ppb.

**Figure 2-5. Annual Average MDA8 Ozone Concentrations from the Base Case Scenario (left) and Increases in Annual Average MDA8 Ozone Concentrations due to the Unmitigated Project (right) for the Annual Modeling of the 2031 Emissions Scenario**



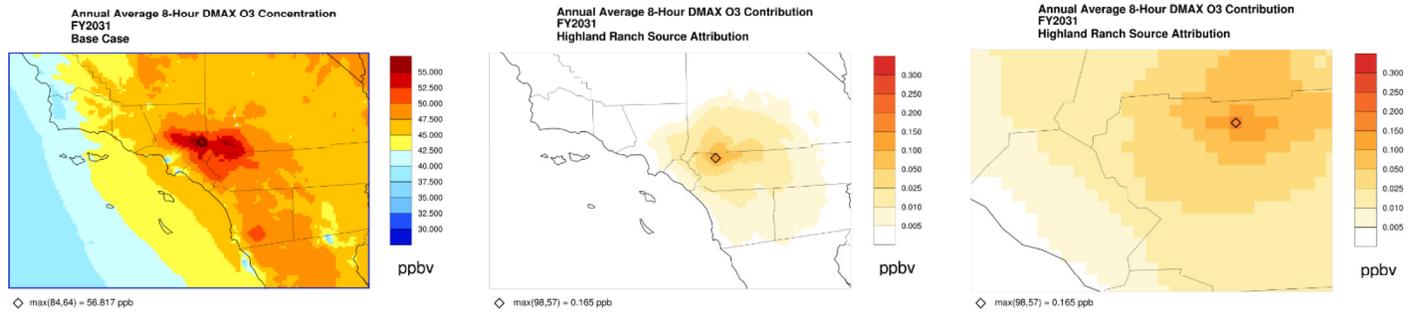
**Figure 2-6. MDA8 Ozone Concentrations from the Base Case Scenario (left) and Increases in MDA8 Ozone Concentrations due to the Unmitigated Project (right) on July 10, the Day with the Highest Unmitigated Project Ozone Contributions for the Annual Modeling of the 2031 Emissions Scenario**



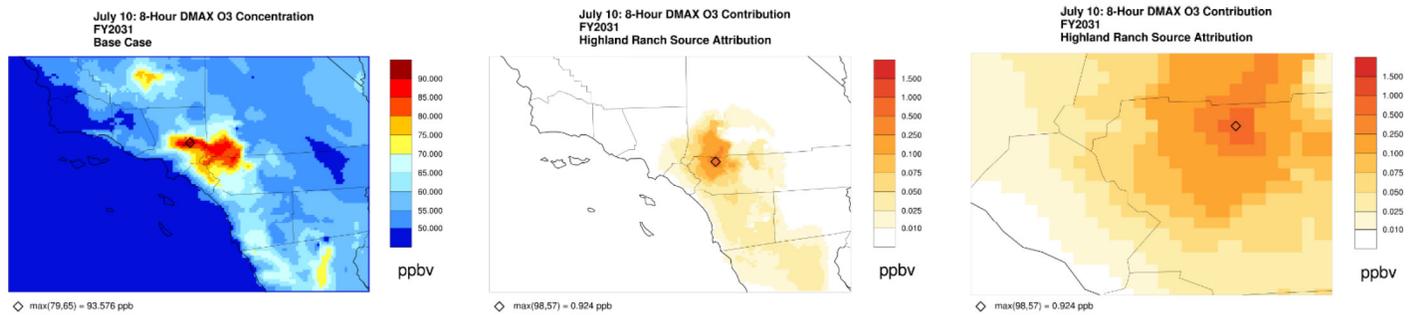
**Mitigated Project**

**Figure 2-7** displays spatial plots of the annual average MDA8 ozone for the 2031 emissions scenario and the corresponding annual average MDA8 increases due to the mitigated Project emissions. The maximum impact to the annual average MDA8 ozone concentrations due to the mitigated Project is 0.165 ppb and occurs in northern Riverside County where it represents a 0.31 percent increase over the base case concentrations. **Figure 2-8** displays MDA8 ozone for the base case and increases in MDA8 ozone due to the mitigated Project on July 10, the day that the mitigated Project has the highest ozone contribution for the entire modeling year. The highest MDA8 ozone contribution due to the mitigated Project is 0.924 ppb (Figure 2-4, right) that occurs in northern Riverside County where total MDA8 ozone concentrations are 84.8 ppb.

**Figure 2-7. Annual Average MDA8 Ozone Concentrations from the Base Case Scenario (left) and Increases in Annual Average MDA8 Ozone Concentrations due to the Mitigated Project (right) for the Annual Modeling of the 2031 Emissions Scenario**



**Figure 2-8. MDA8 Ozone Concentrations from the Base Case Scenario (left) and Increases in MDA8 Ozone Concentrations due to the Mitigated Project (right) on July 10, the Day with the Highest Mitigated Project Ozone Contributions for the Annual Modeling of the 2031 Emissions Scenario**



### 3. REFERENCES

- /1/ Carter, W.P.L., 2000. Documentation of the SAPRC99 Chemical Mechanism for VOC Reactivity Assessment, Final Report to California Air Resources Board, Contract No. 92-329, and (in part) 95-308, May 8, 2000. <http://www.engr.ucr.edu/~carter/reactdat.htm>
- /2/ Emmons, L.K., Walters, S., Hess, P.G., Lamarque, J.F., Pfister, G.G., Fillmore, D., Granier, C., Guenther, A., Kinnison, D., Laepple, T., Orlando, J., Tie, X., Tyndall, G., Wiedinmyer, C., Baughcum, S.L., Kloster, S., 2010. Description and evaluation of the Model for Ozone and Related chemical Tracers, Version 4 (MOZART-4), *Geoscientific Model Development*, 3, 43-67.
- /3/ Gery, M.W., Whitten, G.Z., Killus, J.P., Dodge, M.C., 1989. A Photochemical Kinetics Mechanism for Urban and Regional Scale Computer Modeling. *J. Geophys. Res.*, 94, 925-956.
- /4/ Grell, G.A., Dundhia, J., Stauffer, D.R., 1994. A description of the Fifth-Generation Penn State/NCAR Mesoscale Model (MM5), National Center for Atmospheric Research, Boulder, CO, NCAR/TN-398+STR.
- /5/ Skamarock, W.C., Klemp, J.B., Dudhia, J., Gill, G.O., Barker, D.M., Wang, W., Powers, J.G., 2005. A description of the Advanced Research WRF Version 2. NCAR Technical Note NCAR/TN-468+STR, June 2005.
- /6/ Stockwell, W.R., 1999. Review of the updated maximum incremental reactivity scale of Dr. William Carter. Division of Atmospheric Sciences, Desert Research Institute, November 29, 1999. <http://www.cert.ucr.edu/~carter/pubs/stockrev.pdf>.

Highland Fairview World Logistics Center  
Additional Information Regarding Potential Health Effects  
of Air Quality Impacts  
Moreno Valley, California

**APPENDIX C**  
**BENMAP AND POTENTIAL HEALTH EFFECTS**  
**HIGHLAND FAIRVIEW WORLD LOGISTICS**  
**CENTER MORENO VALLEY, CALIFORNIA**

## 1. HEALTH EFFECTS ANALYSIS

The potential health effects of ozone and Particulate Matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) concentrations associated with the Project's emissions were estimated using the Environmental Benefits Mapping and Analysis Program (BenMAP), Community Edition v1.5 (March 2019).<sup>1</sup> BenMAP, originally developed by the United States Environmental Protection Agency (USEPA), is a powerful and flexible tool that helps users estimate human health effects and economic value resulting from changes in air quality. BenMAP outputs include PM- and ozone-related health endpoints such as premature mortality, hospital admissions, and emergency room visits. BenMAP uses the following simplified formula to relate changes in ambient air pollution to certain health endpoints (USEPA, 2018)<sup>2</sup>:

$$\text{Health Effect} = \text{Air Quality Change} \times \text{Health Effect Estimate} \times \text{Exposed Population} \\ \times \text{Background Health Incidence}$$

- Air Quality Change - The difference between the starting air pollution level (the base) and the air pollution level after some change, such as a new source.
- Health Effect Estimate - An estimate of the percentage change in an adverse health effect due to a one unit change in ambient air pollution. Effect estimates, also referred to as concentration-response (C-R) functions, are obtained from epidemiological studies.
- Exposed Population - The number of people affected by the air quality change. The government census office is a good source for this information. This analysis uses data from PopGrid, which is an add-on program to BenMAP that allocates the block-level U.S. Census population to a user-defined grid.<sup>3</sup>
- Background Health Incidence - An estimate of the average number of people that die (or suffer from some adverse health effect) in a given population over a given period of time. For example, the health incidence rate might be the probability that a person will die in a given year. Health incidence rates and other health data are typically collected by the government as well as the World Health Organization.<sup>4</sup>

BenMAP applies "effect functions" to calculate incremental health effects from incremental changes in PM and ozone, and an underlying assumption is that there is a causal link between PM and ozone exposures and health effects. The effect functions are derived from statistical correlations reported in epidemiologic studies that compare fluctuations in air pollutant levels measured at central monitors against small fluctuations in population-wide health effects. These are statistical correlations and do not establish a cause-and-effect relationship between small fluctuations in the level of one (or many) ambient air pollutants and health effects, particularly mortality. For example, there is no toxicological or experimental study that has demonstrated or supported that small incremental changes in PM concentrations as a whole, or major PM components, at ambient levels can cause any serious health

---

<sup>1</sup> <http://www.epa.gov/air/benmap/>.

<sup>2</sup> The common function used for calculating health effects is the following log-linear function: Health Effect = Background Health Incidence x [1 - exponential (Health Effect Estimate \* Air Quality Change)] x Exposed Population.

<sup>3</sup> <https://www.epa.gov/benmap/benmap-community-edition>.

<sup>4</sup> Background health statistics were obtained from data included in the BenMAP model, and the sources are referenced in the BenMAP manual (AAI, 2018). For example, EPA obtained mortality rates from the Centers for Disease Control (CDC) WONDER database, and hospital admissions rates from the Healthcare Cost and Utilization Project (HCUP).

effects, let alone death (USEPA, 2009). That being said, in an overabundance of caution, and as an expression of the precautionary principal, BenMAP uses these studies to characterize the potential human health effect of small changes in PM and ozone concentrations.

The health endpoints analyzed in this study and the BenMAP results are presented in Section 2 of this appendix.

## 2. PROJECT HEALTH EFFECTS ANALYSIS RESULTS

This section presents the health effects of the unmitigated and mitigated Project emissions on the population in the Southern California model domain, estimated by the BenMAP model.

The Comprehensive Air Quality Model with extensions (CAMx) modeling results (**Appendix B**) are processed to generate aggregated daily averages PM<sub>2.5</sub> and maximum daily 8-hour ozone appropriate for various health endpoints. The CAMx simulation results from the full year (January to December) are used to estimate the health effects of PM<sub>2.5</sub> and ozone. BenMAP translates increases in the pollutant concentration associated with the Project emissions to changes in the incidence rate for each health effect using a C-R function derived from previously published epidemiological studies. BenMAP often provides multiple C-R functions based on different epidemiological studies for a given health endpoint. The USEPA default C-R functions were used when evaluating health effects, except for more refined population data. This analysis uses population data from PopGrid, which allocates the census population to each modeled 4x4 kilometer (km) grid cell.

The population used for both the quantified health effects and the calculation of background health incidence presented here is for the future year 2035<sup>5</sup>, for consistency with the Project buildout year. This is conservative compared to utilizing a 2031 population that would have been consistent with the CAMx model year.

### 2.1 PM<sub>2.5</sub> Health Effects

Although there are a large number of potential health endpoints that could be included in the analysis as described above, Ramboll selected the key health endpoints that have been the focus of recent United States Environmental Protection Agency (USEPA) risk assessments (e.g., USEPA, 2010; USEPA, 2014). For example, the USEPA notes that health endpoints were selected based on consideration of at-risk populations (e.g. asthmatics), endpoints that have public health significance, and endpoints for which information is sufficient to support a quantitative concentration-response relationship (USEPA, 2014).

The health endpoints and associated C-R functions examined in this study are presented in **Table** . Each C-R function is based on a certain age range for the given health endpoint depending on the underlying epidemiological study on which it is based.

---

<sup>5</sup> For background incidence rates, BenMAP projects likely mortality rates for future years, but for other health effects, incidence rates are based on population changes only and may not reflect rates for future years.

<b>Table 2-1. Summary of PM<sub>2.5</sub> Health Endpoints Used in this Study</b>					
<b>Health Endpoint</b>	<b>Age Range</b>	<b>Daily Metric</b>	<b>Seasonal Metric</b>	<b>Annual Metric</b>	<b>C-R Function Selected</b>
Emergency Room Visits, Asthma	0-99	24-hr mean			Mar et al., 2010 <sup>1</sup>
Mortality, All Cause	30-99	24-hr mean	Quarterly mean	Mean	Krewski et al., 2009 <sup>1</sup>
Hospital Admissions, Asthma	0-64	24-hr mean	-	-	Sheppard, 2003 <sup>1</sup>
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65-99	24-hr mean	-	-	Bell, 2012 <sup>1</sup>
Hospital Admissions, All Respiratory	65-99	24-hr mean	-	-	Zanobetti et al., 2009 <sup>1</sup>
Acute Myocardial Infarction, Nonfatal	18-24	24-hr mean	-	-	Zanobetti et al., 2009 <sup>1</sup>
Acute Myocardial Infarction, Nonfatal	25-44	24-hr mean	-	-	
Acute Myocardial Infarction, Nonfatal	45-54	24-hr mean	-	-	
Acute Myocardial Infarction, Nonfatal	55-64	24-hr mean	-	-	
Acute Myocardial Infarction, Nonfatal	65-99	24-hr mean	-	-	
<sup>1</sup> C-R functions available in BenMAP (USEPA, 2018).					

**Unmitigated Project PM<sub>2.5</sub> Health Effects**

Increases in the BenMAP-estimated annual health effect incidences and percent of background health incidence associated with the unmitigated Project emissions are presented in **Table 2-2**. These values reflect the total health effects across the Southern California model domain.

The results show that the highest health effect is for all-cause mortality, with an estimated mean increased incidence of 15.19 deaths per year associated with the Project mitigated emissions. Smaller mean increased incidences were estimated for other relevant PM<sub>2.5</sub>-related health effects: 6.63 increase in incidence of asthma related emergency room visits, 3.17 increase in incidence of respiratory hospital admissions, and 1.42 increase in incidence of cardiovascular hospital admissions.

It should be noted, however, that the estimated increased incidence in those health effects are quite minor compared to the background health incidence values (shown in Table 2-2 as percent of Background Health Incidence). For example, for mortality, the increase of 15.19 deaths per year associated with project emissions represents 0.0047% of the total all-cause mortality for people ages 30 to 99.

**Table 2-2. BenMAP-Estimated Annual Mean PM<sub>2.5</sub> Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

Health Endpoint <sup>2</sup>	Annual Percent of Background Health Incidence (%)	Potential Incidences (Annual, Mean)	Background Health Incidence (Annual)
Emergency Room Visits, Asthma [0-99]	0.0051%	6.63	130,805
Mortality, All Cause [30-99]	0.0047%	15.19	325,048
Hospital Admissions, Asthma [0-64]	0.0029%	0.523	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00063%	1.42	224,047
Hospital Admissions, All Respiratory [65-99]	0.0016%	3.17	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0020%	0.00072	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0021%	0.041	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0020%	0.105	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0020%	0.188	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0019%	0.776	40,966

<sup>1</sup> Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

**Mitigated Project PM<sub>2.5</sub> Health Effects**

Increases in the BenMAP-estimated annual health effect incidences and percent of background health incidence associated with the mitigated Project emissions are presented in **Table 2-3**. These values reflect the total health effects across the Southern California model domain.

The results show that the highest health effect is for all-cause mortality, with an estimated mean increased incidence of 14.17 deaths per year associated with the Project mitigated emissions. Smaller mean increased incidences were estimated for other relevant PM<sub>2.5</sub>-related health effects: 6.20 increase in incidence of asthma related emergency room visits, 2.98 increase in incidence of respiratory hospital admissions, and 1.33 increase in incidence of cardiovascular hospital admissions.

It should be noted, however, that the estimated increased incidence in those health effects are quite minor compared to the background health incidence values (shown in Table 2-3 as percent of Background Health Incidence). For example, for mortality, the increase of 14.17 deaths per year associated with project emissions represents 0.0044% of the total all-cause mortality for people ages 30 to 99.

**Table 2-3. BenMAP-Estimated Annual Mean PM2.5 Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

Health Endpoint <sup>2</sup>	Annual Percent of Background Health Incidence (%)	Potential Incidences (Annual, Mean)	Background Health Incidence (Annual)
Emergency Room Visits, Asthma [0-99]	0.0047%	6.20	130,805
Mortality, All Cause [30-99]	0.0044%	14.17	325,048
Hospital Admissions, Asthma [0-64]	0.0028%	0.490	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.00059%	1.33	224,047
Hospital Admissions, All Respiratory [65-99]	0.0015%	2.98	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.0019%	0.00067	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.0020%	0.038	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.0019%	0.098	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.0019%	0.176	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.0018%	0.724	40,966

<sup>1</sup> Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

## 2.2 Ozone Health Effects

As noted above, although a larger number of health endpoints could be evaluated, Ramboll selected the health endpoints based on recent USEPA risk assessments (USEPA, 2010; USEPA, 2014). The health endpoints and associated C-R functions examined in this study are presented in **Table 2-4**. Each C-R function is associated with a certain age range for the given health endpoint depending on the epidemiological study on which it is based.

**Table 2-4. Summary of Ozone Health Endpoints Used in this Study.**

Health Endpoint	Age Range	Daily Metric	Seasonal Metric	Annual Metric	C-R Function Selected
Hospital Admissions, All Respiratory	65 - 99	MDA8	-	-	Katsouyanni et al., 2009 <sup>1</sup>
Mortality, Non-Accidental	0 - 99	MDA8	-	-	Smith et al., 2009 <sup>1</sup>
Emergency Room Visits, Asthma	0 - 17	MDA8	-	-	Mar and Koenig, 2009 <sup>1</sup>
Emergency Room Visits, Asthma	18 - 99	MDA8	-	-	Mar and Koenig, 2009 <sup>1</sup>

<sup>1</sup> C-R function available in BenMAP (USEPA, 2018).

**Unmitigated Project Ozone Health Effects**

Increases in the BenMAP-estimated annual health effect incidences and percent of background health incidence associated with the unmitigated Project emissions are presented in **Table 2-5**. These values reflect the total health effects across the Southern California model domain.

For this project, asthma related emergency room visits are associated with the highest health effects associated with the unmitigated project emissions in the Southern California domain (8.20 increase for adults ages 18 to 99 and 6.93 increase for children ages 0 to 17). Hospital admissions due to respiratory issues for adults age 65-99 and non-accidental mortality have lower incidence increases (1.46 and 0.69 respectively).

It should be noted, however, that the estimated increases in those health effect incidences are quite minor compared to the background health incidence (shown in Table 2-5 as Percent of Background Health Incidence). For example, the increase in asthma emergency room visits represents 0.014% of the total asthma-related emergency room visits for children.

<b>Table 2-5. BenMAP-Estimated Annual Mean Ozone Health Effects of the Unmitigated Project Emissions Across the Southern California Model Domain<sup>1</sup></b>			
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Potential Incidences (Annual, Mean)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00075%	1.46	193,354
Mortality, Non-Accidental [0-99]	0.00033%	0.69	210,692
Emergency Room Visits, Asthma [0-17]	0.014%	6.93	50,722
Emergency Room Visits, Asthma [18-99]	0.010%	8.20	80,084
<sup>1</sup> Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.			

**Mitigated Project Ozone Health Effects**

Increases in the BenMAP-estimated annual health effect incidences and percent of background health incidence associated with the mitigated Project emissions are presented in **Table 2-6**. These values reflect the total health effects across the Southern California model domain.

For this project, asthma related emergency room visits are associated with the highest health effects associated with the mitigated project emissions in the Southern California domain (6.84 increase for adults ages 18 to 99 and 5.80 increase for children ages 0 to 17). Hospital admissions due to respiratory issues for adults age 65-99 and non-accidental mortality have lower incidence increases (1.20 and 0.56 respectively).

It should be noted, however, that the estimated increases in those health effect incidences are quite minor compared to the background health incidence (shown in Table 2-6 as Percent of Background Health Incidence). For example, the increase in asthma emergency room visits represents 0.011% of the total asthma-related emergency room visits for children.

**Table 2-6. BenMAP-Estimated Annual Mean Ozone Health Effects of the Mitigated Project Emissions Across the Southern California Model Domain<sup>1</sup>**

<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Potential Incidences (Annual, Mean)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.00062%	1.20	193,354
Mortality, Non-Accidental [0-99]	0.00027%	0.56	210,692
Emergency Room Visits, Asthma [0-17]	0.011%	5.80	50,722
Emergency Room Visits, Asthma [18-99]	0.009%	6.84	80,084

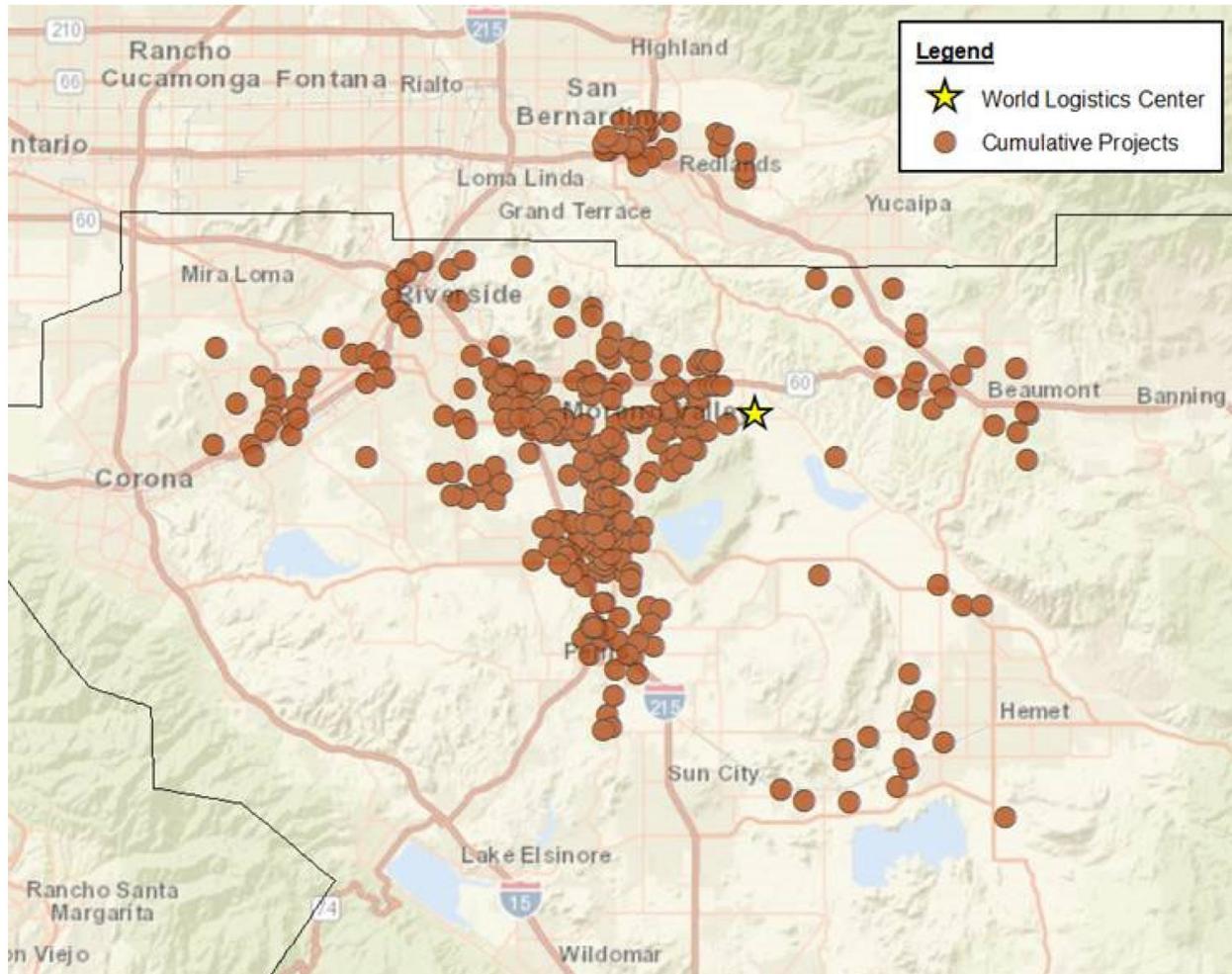
<sup>1</sup> Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Southern California model domain.

<sup>2</sup> Affected age ranges are shown in square brackets.

### 3. CUMULATIVE HEALTH EFFECTS

Potential health effects from the cumulative project emissions can be generally characterized using the Project level modeling results and a comparison of overall emissions. Cumulative project locations are shown in **Figure 3-1** below and would be subject to the similar meteorological and photochemical reaction conditions as the Project assessment. The application of an overall scaling factor based on emissions, as presented here, is likely conservative since the cumulative projects are unlikely to have the same distribution of mobile emissions to the Los Angeles area as the Project.

**Figure 3-1. Cumulative Project Locations**



Concentrations changes, and thus health effects, from PM<sub>2.5</sub> are driven by primary PM<sub>2.5</sub> components (see Appendix B), with smaller contributions from NO<sub>x</sub>, VOC, and SO<sub>2</sub> on secondary PM<sub>2.5</sub> formation. Based on a ratio of total PM<sub>2.5</sub> emissions from the cumulative projects to the unmitigated Project PM<sub>2.5</sub> emissions, approximate health effect results from PM<sub>2.5</sub> were calculated. Combined estimated health effects from the cumulative projects and from the modeled unmitigated Project are shown in **Table 3-1** below.

<b>Table 3-1. Estimated Annual PM<sub>2.5</sub> Health Effects of Cumulative Project Emissions</b>			
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Potential Incidences (Annual, Estimated)</b>	<b>Background Health Incidence (Annual)</b>
Emergency Room Visits, Asthma [0-99]	0.16%	204	130,805
Mortality, All Cause [30-99]	0.14%	467	325,048
Hospital Admissions, Asthma [0-64]	0.09%	16	17,730
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions) [65-99]	0.02%	44	224,047
Hospital Admissions, All Respiratory [65-99]	0.05%	98	193,354
Acute Myocardial Infarction, Nonfatal [18-24]	0.06%	0.02	36
Acute Myocardial Infarction, Nonfatal [25-44]	0.07%	1	1,904
Acute Myocardial Infarction, Nonfatal [45-54]	0.06%	3	5,241
Acute Myocardial Infarction, Nonfatal [55-64]	0.06%	6	9,226
Acute Myocardial Infarction, Nonfatal [65-99]	0.06%	24	40,966
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.			

Concentration changes, and thus health effects, from ozone are driven primarily by emissions of VOC and NOx, with some contribution from CO. Based on a ratio of total VOC and NOx emissions from the cumulative projects to the unmitigated Project VOC and NOx emissions, approximate health effect results from ozone were calculated. Combined estimated health effects from the cumulative projects and from the modeled unmitigated Project are shown in **Table 3-2** below.

<b>Table 3-2. Estimated Annual Ozone Health Effects of Cumulative Project Emissions</b>			
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Potential Incidences (Annual, Estimated)</b>	<b>Background Health Incidence (Annual)</b>
Hospital Admissions, All Respiratory [65-99]	0.02%	33	193,354
Mortality, Non-Accidental [0-99]	0.01%	16	210,692
Emergency Room Visits, Asthma [0-17]	0.31%	159	50,722
Emergency Room Visits, Asthma [18-99]	0.23%	188	80,084

<b>Table 3-2. Estimated Annual Ozone Health Effects of Cumulative Project Emissions</b>			
<b>Health Endpoint<sup>2</sup></b>	<b>Annual Percent of Background Health Incidence (%)</b>	<b>Potential Incidences (Annual, Estimated)</b>	<b>Background Health Incidence (Annual)</b>
<sup>1</sup> Estimated health effects are compared to the base (2035 base year health effect incidences) values across the Southern California model domain. <sup>2</sup> Affected age ranges are shown in square brackets.			

## 4. CONCLUSION

The PM<sub>2.5</sub> and ozone concentration changes modeled by CAMx for unmitigated and mitigated Project emissions were converted to health effects on various health endpoints including premature mortality, hospitalizations, and emergency room visits, using the BenMAP health effects assessment model and USEPA defaults for health endpoints. Estimated changes in the health effect incidences are presented across the grids in the Southern California model domain. Across the board, the estimated increases in those health effect incidences are quite minor compared to the background health incidence values, with the largest PM<sub>2.5</sub> health effect from unmitigated Project emissions (all-cause mortality) representing only 0.0047% of the background health incidence across the Southern California model domain. When taken into context, the small increase in incidences and the very small percent of the number of background incidences indicate that these health effects are minimal in a developed, urban environment.

Similarly, for estimated cumulative health effects, the estimated increases in those health effect incidences are quite minor compared to the background health incidence values, with the largest PM<sub>2.5</sub> health effect from all-cause mortality representing only 0.14% of the background health incidence across the Southern California model domain.

### **Uncertainty**

The approach and methodology of this analysis ensures that the uncertainty is of a conservative nature. In addition to the conservative assumptions built into the emissions noted above, there are a number of assumptions built into the application of C-R functions in BenMAP that may lead to an overestimation of health effects. For example, for all-cause mortality health effects from PM<sub>2.5</sub>, these estimates are based on a single epidemiological study that found an association between PM<sub>2.5</sub> concentrations and mortality.<sup>6</sup> While similar studies suggest that such an association exists, there remains uncertainty regarding a clear causal link. This uncertainty stems from the limitations of epidemiological studies, such as inadequate exposure estimates and the inability to control for many factors that could explain the association between PM<sub>2.5</sub> and mortality such as lifestyle factors like smoking. Several reviews have evaluated the scientific evidence of health effects from specific particulate components (e.g., Rohr and Wyzga 2012; Lippmann and Chen, 2009; Kelly and Fussell, 2007). These reviews indicate that the evidence is strongest for combustion-derived components of PM including elemental carbon (EC), organic carbon (OC) and various metals (e.g., nickel and vanadium), however, there is still no definitive data that points to any particular component of PM as being more toxic than other components. The USEPA has also stated that results from various studies have shown the importance of considering particle size, composition, and particle source in determining the health effects of PM (USEPA, 2009). Further, the USEPA (2009) found that studies have reported that particles from industrial sources and from coal combustion appear to be the most significant contributors to PM-related mortality, consistent with the findings by Rohr and Wyzga (2012) and others. This is particularly important to note here, as the majority of PM emissions generated from the Project are from entrained roadway dust, breakwear, and tirewear (see Appendix A), and not from combustion. Therefore, because they do not consider the relative toxicity of PM components, the results presented here are conservative.

---

<sup>6</sup> For PM<sub>2.5</sub> mortality estimates, BenMAP relies on the study by Krewski et al. (2009). This study conducted multiple sensitivity analyses using different statistical model specifications. For all-cause mortality, the authors reported positive associations between exposures to PM<sub>2.5</sub> and all-cause mortality that ranged from a 3% to a 6% increase in mortality per increase in 10 ug/m<sup>3</sup> of PM<sub>2.5</sub>, depending on the model used and the exposure data considered. The default USEPA value in BenMAP is the 6% increase, or double the low end of the range.

Air pollution epidemiology studies are ecological studies. This means that they are population-based, observational epidemiological studies that look for patterns between population exposure and population disease rates. They do not use data at the individual level (e.g., correlations between regional mortality rates and community air pollution levels). Epidemiologists generally consider relative risks (RRs, a measure of the association between exposures and health effects) from these types of studies that are greater than 3 to 4 to reflect strong associations and to be supportive of a causal link, while smaller RRs (1.5 to 3) are considered to be weak, and require other lines of evidence (e.g., toxicological evidence, plausible biological mechanism) to demonstrate causality (Taubes 1995). For example, the RR of lung cancer for heavy smokers is in the range of 10 to 20, whereas PM associations with mortality yield RRs in the range of 1.01 to 1.05, i.e., very close to the RR = 1.0, which indicates little to no association.

Aside from the uncertainty as to the causal basis of the statistical associations in air pollution epidemiology studies of PM and mortality, some epidemiological studies have found no correlation between mortality and increased PM (Enstrom, 2005; 2017; Lipfert et al., 2000; Murray and Nelson, 2000; Greven et al., 2011; You et al., 2018; Zhou et al., 2015). Although there are a greater number of publications reporting a positive PM association for mortality compared to those reporting no association.

Another uncertainty highlighted by the USEPA (2012) that applies to potential health effects from both PM<sub>2.5</sub> and ozone, is the assumption of a log-linear response between exposure and health effects, without consideration for a threshold below which effects may not be measurable. The issue of a threshold for PM<sub>2.5</sub> and ozone is highly debatable and can have significant implications for health effects analyses as it requires consideration of current air pollution levels and calculating effects only for areas that exceed threshold levels. Without consideration of a threshold, any incremental contribution to existing ambient air pollution levels, whether below or above the applicable threshold for a given criteria pollutant, is assumed to adversely affect health. Although the USEPA traditionally does not consider thresholds in its cost-benefit analyses, the NAAQS itself is a health-based threshold level that the USEPA has developed based on evaluating the most current evidence of health effects.

As noted above, the health effects estimation using this method presumes that effects seen at large concentration differences can be linearly scaled down to (i.e., correspond to) small increases in concentration, with no consideration of potential thresholds below which health effects may not occur. This methodology of linearly scaling health effects is broadly accepted for use in regulatory evaluations and is considered as being health protective (USEPA, 2010), but potentially overstates the potential effects. In summary, health effects presented in this report are conservatively estimated, and the actual effects may be zero.

## 5. REFERENCES

- /1/ Enstrom, JE. 2005. "Fine particulate air pollution and total mortality among elderly Californians, 1973-2002." *Inhal. Toxicol.* 17 (14) :803-816.
- /2/ Enstrom, J. E. (2017). Fine Particulate Matter and Total Mortality in Cancer Prevention Study Cohort Reanalysis. *Dose-Response*.
- /3/ Greven, S., Dominici, F., and Zeger, S. (2011). An approach to the estimation of chronic air pollution 1 effects using Spatio-Temporal information. *Journal of the American Statistical Association*, 2 106(494):396-406.
- /4/ Kelly, F.J., J.C. Fussell, 2007. Particulate Toxicity Ranking Report. Report Number 2/07. Environmental Research Group, Kings College, London.
- /5/ Lipfert FW, Morris SC, Wyzga RE. 2000. "Daily mortality in the Philadelphia metropolitan area and size-classified particulate matter." *J Air Waste Manag Assoc.* 50(8):1501-13.
- /6/ Lippmann, M., L.C. Chen, 2009. Health effects of concentrated ambient air particulate matter (CAPs) and its components. *Crit. Rev. Toxicol.*, 39, 865e913.
- /7/ Murray C.J.; Nelson, C.R. 2000, "State-Space Modeling of the Relationship between Air Quality and Mortality." *Journal of the Air & Waste Management Association* 50: 1075-1080.
- /8/ Rohr A.C., R.E. Wyzga, 2012. Attributing Health Effects to Individual Particulate Matter Constituents. *Atmos Environ.*, 62, 130-152. doi:10.1016/j.atmosenv.07.036.
- /9/ Taubes, G. 1995. "Epidemiology faces its limits." *Science* 269:164-169.
- /10/ USEPA, 2009. Integrated Science Assessment (ISA) For Particulate Matter (Final Report, Dec 2009). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/139F, 2009. <https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=216546>
- /11/ USEPA, 2010. Quantitative Health Risk Assessment for Particulate Matter. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency. EPA-452/R-10-005. June 2010. Available: [https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM\\_RA\\_FINAL\\_June\\_2010.pdf](https://www3.epa.gov/ttn/naaqs/standards/pm/data/PM_RA_FINAL_June_2010.pdf)
- /12/ USEPA, 2012. Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter. U.S. Environmental Protection Agency, Washington, DC, EPA-452/R-12-005. [https://www3.epa.gov/ttn/ecas/docs/ria/naaqs-pm\\_ria\\_final\\_2012-12.pdf](https://www3.epa.gov/ttn/ecas/docs/ria/naaqs-pm_ria_final_2012-12.pdf).
- /13/ USEPA, 2014. Health Risk and Exposure Assessment for Ozone Final Report. Risk and Benefits Group, Health and Environmental Impacts Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency. EPA-452/R-14-004a.
- /14/ USEPA, 2018. BenMAP Environmental Benefits Mapping and Analysis Program – Community Edition User’s Manual. United States Environmental Protection Agency. Available at: <https://www.epa.gov/benmap/benmap-ce-manual-and-appendices>.
- /15/ You, C., Lin, D. K. J., and Young, S. S. (2018). and ozone, indicators of air quality, and acute deaths in 39 california, 2004-2007. *Regulatory Toxicology and Pharmacology*, 96:190-196.
- /16/ Zhou, M., He, G., Fan, M., Wang, Z., Liu, Y., Ma, J., Ma, Z., Liu, J., Liu, Y., Wang, L., and Liu, Y. 4 (2015). Smog episodes, fine particulate pollution and mortality in china. *Environmental Research*, 5 136:396-404.

# Appendix E

## Energy



# **E-1 Vehicle Energy Technical Report**



# WORLD LOGISTICS CENTER

## Transportation Energy Technical Study

Prepared for  
City of Moreno Valley  
14177 Frederick Street  
Moreno Valley, California 92552

November 2019



Prepared by:  
ESA, with contributions from CALSTART



# WORLD LOGISTICS CENTER

## Transportation Energy Technical Study

Prepared for  
City of Moreno Valley  
14177 Frederick Street  
Moreno Valley, California 92552

November 2019

Prepared by:  
ESA, with contributions from CALSTART

80 South Lake Avenue  
Suite 570  
Pasadena, CA 91101  
626.204.6170  
[www.pcrnet.com](http://www.pcrnet.com)



Irvine	Sacramento
Los Angeles	San Diego
Oakland	San Francisco
Orlando	Santa Monica
Pasadena	Seattle
Petaluma	Tampa
Portland	Woodland Hills

**OUR COMMITMENT TO SUSTAINABILITY** | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

---

# WORLD LOGISTICS CENTER (WLC)

## *Transportation Energy Technical Study*

---

### TABLE of CONTENTS

	<u>Page</u>
<b>1. Project Background.....</b>	<b>1</b>
Project Design Features and Sustainable Development Standards .....	1
Relevant Policies and Regulations .....	3
2017 Scoping Plan Update.....	3
California Cap and Trade Program .....	4
Renewable Energy .....	4
Transportation Energy .....	4
<b>2. Project Transportation Energy Demand .....</b>	<b>7</b>
Trips and Vehicle Counts.....	7
Vehicle Fuel Use Estimates .....	8
Electric Vehicle (EV) Forecasts and Electricity Loads.....	9
Vehicle Scenario A: Low EV Penetration .....	9
Vehicle Scenario B: Medium EV Penetration .....	11
Vehicle Scenario C: High EV Penetration .....	13
<b>3. Transportation Energy Best Practices and Emerging Technologies .....</b>	<b>14</b>
Zero Emission Vehicles .....	14
Electric Vehicle Charging Infrastructure.....	16
Charging Stations.....	16
Road-Connected Power .....	18
Plug-in All-Electric Vehicles (BEV).....	19
Passenger BEVs .....	19
Truck BEVs.....	20
Hybrid Electric Vehicles (HEVs) and Plug-in Hybrid Electric Vehicles (PHEV) ...	21
Range Extended Electric Vehicle (REEV) – Fuel Cell .....	23
Cost and Availability of Zero Emission Trucks .....	24
Zero Emission Truck Technology Demonstration Projects .....	25
Countywide Zero-Emission Trucks Collaborative .....	25
Advanced Technology for Truck Corridors .....	26
I-710 Corridor Zero-Emission Truck Commercialization Study .....	27
Additional Zero Emission Truck Demonstration Projects.....	29
Low Carbon Fuels .....	29
Biodiesel Fuel .....	29
Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) .....	32
<b>4. References.....</b>	<b>35</b>



---

# 1. Project Background

Environmental Science Associates (ESA) is providing this Transportation Energy Technical Report in support of the California Environmental Quality Act (CEQA) document development for the World Logistics Center (WLC) Project being considered by the City of Moreno Valley. This report assesses the feasibility of implementing available technologies and other measures for improving energy performance and/or reducing harmful air pollutants emissions from transportation sources resulting from implementation of the Project, based on Project applicability, relative cost, commercial readiness, funding availability, policy and regulatory support, potential industry partners, and other factors.

The proposed Project as evaluated by the May 2015 Draft Environmental Impact Report (DEIR) is the World Logistics Center Specific Plan (WLCSP), a master plan covering 2,610 acres and proposing a maximum of 40.4 million square feet of “high-cube logistics” warehouse distribution uses (approximately 99.5 percent of the total building area) classified as “Logistics Development” (LD) and 200,000 square feet (approximately 0.5 percent) of warehousing-related uses classified as “Light Logistics” (LL).

High cube logistics warehouses are characterized by a high level of automated material handling systems and truck activities that typically occur outside of the peak traffic hour. High cube logistics warehouses are generally used for the storage of manufactured goods prior to their distribution to retail outlets. High-cube warehouse and logistics facilities include ancillary office and maintenance space along with the outdoor storage of trucks, trailers, and shipping containers.

The WLCSP describes warehousing and logistics activities consistent with the storage and processing of manufactured goods and materials prior to their distribution to other facilities and retail outlets. Refrigerated warehouse space is not an allowed use within the Specific Plan area (see Mitigation Measure 4.3.6.3E in the DEIR). LD land uses provide a location for businesses to sort, organize, and transfer products from one shipping process to another.

## **Project Design Features and Sustainable Development Standards**

The WLCSP requires sustainable development standards be implemented so that new development within the Project area minimizes energy consumption, conserves water, and uses recycled or sustainable building materials, where feasible (WLCSP September 2014, Section 1.3.2, Green Building-Sustainable Development). It provides developers with a specific framework for identifying and implementing a variety of practicable and measurable green building design, construction, operations, and maintenance. All new development within the project area will be required to meet the California Building Energy Standards in effect at the time construction commences. In addition, buildings within the Specific Plan will be structurally upgraded to be “solar ready” (i.e., allow the installation of solar photovoltaic systems on the roof of each building) (WLCSP Section 1.3.2, Green Building – Sustainable Development). The WLCSP will require extensive energy conservation measures, solar energy systems, and underground utilities to be installed on future development.

The sustainability guidelines for the World Logistics Center serve the following functions to:

- Assist in meeting California’s greenhouse gas reduction targets as set forth through Executive Order S-3-05 and Assembly Bill 32 and its amendment Assembly Bill SB 32 (also known as the Global Warming Solutions Act of 2006);
- Assist in the region’s development of a Sustainable Communities Strategy pursuant to Senate Bill 375;
- Assist in meeting other state and local goals and requirements, including Assembly Bill 1385, The Complete Streets Act;
- Establish practical and innovative solutions for the developer, business, and residential community to improve resource efficiency and reduce consumption of energy, water, and raw materials; and
- Support waste management reduction identified in AB 341.

Building Design and Construction Features:

- Achieve applicable elements of certification from the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED)<sup>1</sup>, and encourages LEED certification best practices for use of recycled materials and products, such as recycled steel, and crushed concrete and pavement materials;
- Install electric vehicle charging stations per the local building code (6 percent of parking spaces);
- Construct “Solar ready” buildings;
- Implement design and construction techniques will be employed to reduce the heat island effect, including the use of materials that have a low solar reflectance index such as white roofs and light-colored pavements;
- Develop waste management plan and a comprehensive recycling and management program to divert at least 50 percent of waste from landfill, including storage and collection of recyclables, building and material reuse, and careful construction waste management;
- Incorporate the use of passive heating and cooling into the design or modification of the high-cube warehouse development (e.g., white building colors and roof insulation to minimize heat gain, and landscaping to help shade buildings);
- Install outdoor electric outlets to accommodate the use of electrical property maintenance equipment (Section 12.4 of the WLCSP);
- Install advanced irrigation systems, drought-tolerant plants, the use of mulch, recycled and other permissible alternative sources of water, and turfless plantings with alternative landscaping materials such as rock and other materials that do not require potable water sources.

Transportation Features:

- Construct sidewalks and a multiuse trail for pedestrian circulation; and
- RTA will determine if and when bus service will be provided by RTA.
- All streets are designed to accommodate bus services (WLCSP Section 3.2.4)

Solid Waste Diversion Features:

---

<sup>1</sup> Section 1.3.2 of the WLCSP state that all buildings of at least 500,000 square feet shall be designed to meet or exceed the LEED Certified Building Standards

- 
- Require that all development within the project provide enclosures or compactors for trash and recyclable materials per Specific Plan (Section 5.1.6).

## Relevant Policies and Regulations

The following plans, policies and regulations support the state’s long-term energy policies and goals, including GHG reduction targets as expressed by SB 32 and Governor’s Executive Order S-3-05 (40 percent below 1990 levels and 80 percent below 1990 levels, respectively).<sup>2</sup> These policy and regulatory developments are driving investments in technologies, infrastructure, and new markets that represent California’s transition to a more energy-efficient, low carbon economy. They are an important consideration in assessing the costs and benefits of new transportation energy technologies as they apply to the Project and to the state’s larger energy goals.

## 2017 Scoping Plan Update

On December 14, 2017, the California Air Resources Board (CARB) approved the final version of *California’s 2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels.<sup>3</sup> The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target Statewide 2030 emissions limit is 260 MMTCO<sub>2e</sub>, and that further commitments will need to be made to achieve an additional reduction of 50 MMTCO<sub>2e</sub> beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by Executive Order B-30-15.

The Scoping Plan strategy for meeting the 2030 GHG target includes the full range of measures developed or required by legislation with 2030 as their target date and include: extending the low carbon fuel standard (LCFS) to an 18 percent reduction in carbon intensity beyond 2020; the requirements of SB 350 to increase renewables to 50 percent and to double energy efficiency savings of existing buildings; the Mobile Source Strategy targets for more zero emission vehicles and much cleaner trucks and transit; the Sustainable Freight Action Plan to improve freight efficiency and transition to zero emission freight handling technologies; and the requirements under SB 1383 to reduce anthropogenic black carbon 50 percent and hydrofluorocarbon and methane emissions by 40 percent below 2013 levels by 2030, and the Cap-and-Trade Program that extends through 2030.

California’s climate stabilization strategy relies on contributions from all sectors of the economy, which includes continued investment in renewable energy such as solar photovoltaics (Solar PV), wind, and other types of distributed generation. In addition to being an integral factor in meeting GHG reduction goals, shifting to clean, local, and efficient use of energy also reinvests energy expenditures on local economies and reduces risks associated with exposure to volatile global and national oil and gas commodity prices (CARB, 2017).

---

<sup>2</sup> The majority of California’s energy use generates GHG emissions. Increasing renewable energy and energy efficiency are key components to California’s overall strategy to reduce energy sector GHG emissions, as described in the 2017 Scoping Plan Update

<sup>3</sup> CARB, *California’s 2017 Climate Change Scoping Plan: The strategy for achieving California’s 2030 greenhouse gas target*, November, 2017, [https://www.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf); accessed December 18, 2017.

## California Cap and Trade Program

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is a core strategy in the Scoping Plan for the state to meet its reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed “covered entities”) by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32’s emission-reduction mandate of returning to 1990 levels of emissions by 2020.<sup>4</sup> Under the Cap-and-Trade program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 metric tons CO<sub>2</sub>e per year) and declines over time, and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the Program’s duration.<sup>5</sup> On July 17, 2017 the California legislature passed Assembly Bill 398, extending the Cap-and-Trade program through December 31, 2030.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions to occur in any discrete location or by any particular source. Rather, GHG emissions reductions are assured on a State-wide basis.

## Renewable Energy

A core component of the state’s climate stabilization strategy, as described in the 2017 Scoping Plan Update, is widespread electrification of buildings, appliances, and transportation in conjunction with decarbonization of the electricity sector (CARB, 2017). The California Renewable Portfolio Standard (RPS), as updated by SB 350, requires utilities and electric service providers to procure at least 50 percent of total electricity from eligible renewable energy resources by 2030.

Statewide, solar and wind installations have grown exponentially in recent years. With renewables increasingly serving the state’s electricity demand there is a growing need for storage solutions that increase grid reliability in the face of variable demand combined with the inherent seasonal and diurnal fluctuations in solar and wind generation.

Additional challenges facing expansion of renewable energy include overcoming electric equipment performance, cost-effectiveness, and consumer acceptance.

## Transportation Energy

### ***Pavley Regulation and the California Mobile Source Strategy***

Assembly Bill 1493 (2002) requires CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In setting these standards, CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The federal Clean Air Act ordinarily preempts state regulation of motor vehicle emission standards; however, California is allowed to set its own standards with a

---

<sup>4</sup> 17 CCR §§ 95800 to 96023.

<sup>5</sup> See generally 17 CCR §§ 95811, 95812.

---

federal waiver from the USEPA, granted in 2009. Known as the Pavley Clean Car Standards, AB 1493 regulated GHG emissions from new passenger vehicles (light duty automobiles and medium duty vehicles) from 2009 through 2016.

In January 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for model years 2015 through 2025. The program includes components to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. The zero emissions vehicle (ZEV) program acts as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEV) in the 2018 to 2025 model years (CARB, 2017).

In May 2016, CARB released the updated Mobile Source Strategy that demonstrates how the State can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next fifteen years, through a transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of vehicle miles traveled. The Mobile Source Strategy calls for 1.5 million ZEVs (including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles) by 2025 and 4.2 million ZEVs by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for class 3 – 7 “last mile” delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels (CARB, 2016).

### ***Transportation Electrification***

Complementing the Mobile Source Strategy and the state’s push toward zero carbon electricity, SB 350 orders the CPUC to direct the six investor-owned electric utilities in the state to file Applications for programs that “accelerate widespread transportation electrification.” These programs are required to reduce dependence on petroleum, increase the adoption of zero-emission vehicles, help meet air quality standards, and reduce GHG emissions.

On January 11, 2018, the CPUC approved the first transportation electrification applications under SB 350 from the three large investor-owned utilities. The decision approves 15 projects with combined budgets of \$42 million. In SCE territory, \$16 million was approved for projects that help expand residential and transit bus EV charging infrastructure, including in or adjacent to disadvantaged communities, as well as crane and heavy duty vehicle electrification at the Port of Long Beach. In PG&E and San Diego Gas and Electric territories, projects are similar but also include electrification of delivery vehicles and commercial shuttle fleets, and demonstration projects for electrification of school buses and medium- or heavy-duty vehicles fleets (CPUC, 2018).

In January 2018, Governor Brown signed Executive Order B-48-18, setting targets of 200 hydrogen fueling stations and 250,000 electric vehicle chargers to support 1.5 million ZEVs on California roads by 2025, on the path to 5 million ZEVs by 2030. The initiative is designed to focus multi-stakeholder efforts on deploying charging and fueling infrastructure as well as making ZEVs increasingly affordable to own and operate.

Title 24, Part 11, of the California Code of Regulations (California Building Energy Standards) includes construction requirements for non-residential projects that are designed to facilitate installation of future electric vehicle supply equipment (EVSE) to support electric vehicle (EV) charging. Under the current regulation (2016),

section 5.106.5.3 requires construction plans and specifications for large project (those with more than 200 total parking spaces) to include raceways for future EVSE at a minimum of 6 percent of the total parking spaces.

### ***Low Carbon Fuel Standard***

The overall goal with the low carbon fuel standard is to lower the carbon intensity of California transportation fuel. The standard initially required a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. With adoption of the 2017 Scoping Plan, the standard has been changed to a reduction of at least 18 percent. Recent proposed amendments by CARB indicate that the program will be extended to 2030 with a greenhouse gas reduction target of 20 percent. A significant expansion of the renewable fuel market has been included in the CARB staff proposal.

### ***CARB Low NOx Regulation***

Shifting away from fossil fuels is especially important for heavy duty vehicles because while they comprise just 7 percent of all vehicles in California, they account for 33 percent of NOx emissions from all sources (Chandler, Espino, and O'Dea 2017). CARB has identified that reductions of up to 90 percent are needed for heavy-duty trucks to meet NOx reduction targets. In 2013, California established an optional low-NOx standard to pave the way for a future mandatory standard. A more stringent low-NOx regulation is expected in the 2021/2023 timeframe. When implemented, this regulation will continue to drive the deployment of zero or near-zero emissions truck solutions. This development has been taken into consideration in estimating the number of zero emission trucks projected in this study.

### ***CARB Advanced Clean Local Truck Rule***

The goal with the Advanced Clean Local Truck Rule is to accelerate the early market adoption of zero emission trucks that are usually centrally fueled, have duty cycles with low average speed and stop-and-go operation. The rule focuses on urban, mostly vocational trucks, but includes class 7-8 urban goods movement trucks as well. The proposed regulatory schedule begins with the 2023 vehicle model year with early action credits given for pre-2023 vehicle models. The regulation is scheduled for CARB board consideration in November 2018.

### ***The Clean Port Plan 2.0 for Ports of Long Beach and Los Angeles***

The ports of Long Beach and Los Angeles have set goals to drastically reduce air pollution over the next decades and move towards zero emissions solutions. It is anticipated that new fee structures will be implemented in 2021 that favors low-NOx engine and zero emission solutions.

### ***SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)***

In April, 2016, the Southern California Association of Governments (SCAG) adopted the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which provides a vision for transportation throughout the region for the next 25 years. It considers the role of transportation in the broader context of economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address mobility needs. The 2016 RTP/SCS describes how the region can attain the GHG emission-reduction targets set by CARB by achieving an 8 percent reduction by 2020, 18 percent reduction by 2035, and 21 percent reduction by 2040 compared to the 2005 level on a per capita basis.

The 2016 RTP/SCS includes \$70.7 billion in goods movement strategies, and a Goods Movement Appendix that addresses the region’s challenges in moving freight while reducing harmful emissions generated by trucks and other goods movement sources.

**SCAG Comprehensive Regional Goods Movement Plan and Implementation Plan**

This report from SCAG, issued in 2012, presents a long-range comprehensive plan for the goods movement system in Southern California. The Plan is designed to ensure that the region continues to play a vital role in the global supply chain while meeting regional economic goals, addressing critical mobility challenges, preserving the environment, and contributing to community livability and quality of life goals. The Plan is the final product of the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy, a four-year effort to collect data, conduct analyses, and engage with regional, statewide and national stakeholders covering various aspects of the region’s goods movement system

**California Sustainable Freight Action Plan (2016)**

California Sustainable Freight Action Plan includes strategies to improve freight efficiency and transition to zero emission freight handling technologies. It includes goals to achieve 25 percent improvement of freight system efficiency by 2030, and to deploy over 100,000 freight vehicles and equipment capable of zero emission operation, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.

## 2. Project Transportation Energy Demand

### Trips and Vehicle Counts

Table 1 provides estimates of daily vehicle forecasts for the project derived from the revised traffic model output and based on the assumption that two vehicle trips represents one vehicle on site. Table 1 shows the project vehicle forecasts estimates for each vehicle category modeled in the traffic analysis (WSP, 2018) and indicates how the categories correlate with the vehicle types used by the Emission FACTors (EMFAC) model, which is the standard tool used in CEQA analysis to calculate emission rates from motor vehicles operating on highways, freeways and local roads in California.

**Table 1: Project Vehicle Forecasts (daily):**

Project Category	EMFAC Category	2025	2035
Passenger Vehicles	LDA, LDT1, LDT2, MCY	11,766	20,299
Light Trucks (2axle)	MDT	875	1,532
Medium Trucks (3 axle)	LHDT1, LHDT2	1,113	1,964
Heavy Trucks (4+ axle)	MHDT, HHDT	3,261	5,605
<b>TOTAL</b>		<b>17,015</b>	<b>29,400</b>

Note: Assumes 2 trips = 1 vehicle

# Vehicle Fuel Use Estimates

Table 2 shows the breakdown of vehicle fuels forecasted by EMFAC 2017 for the vehicle fleet in the South Coast AQMD for the years 2025 and 2035. By 2025, 2.5 percent of passenger vehicles and 1.6 percent of light trucks are projected to be EVs. By 2035, 4.7 percent of passenger vehicles and 3.9 percent of light trucks are expected to be EVs. EMFAC projects zero electric trucks in these future years.

**Table 2: Fleet Mix by Fuel Type**

Air Quality Vehicle Type	% Gas	% Diesel	% Electric	% Natural Gas
<b>Interim Year 2025</b>				
Passenger cars	96.6%	0.9%	2.5%	0.0%
Light trucks	95.9%	2.5%	1.6%	0.0%
Medium Trucks	51.5%	48.5%	0.0%	0.0%
Heavy Trucks	9.6%	88.2%	0.0%	2.2%
<b>Horizon Year 2035</b>				
Passenger cars	94.3%	1.0%	4.7%	0.0%
Light trucks	93.0%	3.1%	3.9%	0.0%
Medium Trucks	44.3%	55.7%	0.0%	0.0%
Heavy Trucks	8.9%	88.6%	0.0%	2.5%
Source: EMFAC2017, South Coast Air Basin, Calendar Year 2025 & 2035				

Table 3 provides annual fuel use estimates for the vehicles associated with project operation in 2025 and 2035, based on the traffic modeling results and the EMFAC 2017 fuel mix data.

**Table 3: Projections of Annual Fuel and Electricity Use by WLC Fleet**

Vehicle Category	Gasoline (gal)	Diesel (gal)	Electricity (MWh)	Natural Gas (MMBtu)
2025				
Passenger Vehicles	14,494	84	4,206	0
Light Trucks	1,131	22	173	0
Medium Trucks	2,487	1,249	0	0
Heavy Trucks	3,345	31,109	0	612
2035				
Passenger Vehicles	21,460	154	27,351	0
Light Trucks	1,520	41	793	0
Medium Trucks	3,045	2,020	0	0
Heavy Trucks	4,303	43,131	0	1,094

Note: Based on 2018 WLC traffic modeling results and the EMFAC 2017 fuel mix data

## Electric Vehicle (EV) Forecasts and Electricity Loads

Theoretically, each vehicle that visits the WLC site represents an EV charging opportunity. However, the fueling station and convenience market are quick stops and not considered good candidates for locating EV charging stations. Table 4 provides a summary of vehicles trips by EMFAC vehicle category, with trips to the fueling station and convenience market subtracted from the totals. Table 4 provides a summary of the project’s vehicle forecasts in 2025 and 2035 that represent EV charging opportunities.

**Table 4: Project Trip Generation (average daily trips):**

Phase 1 - 2025	Average daily trips	gas station and convenience mkt trips	Net trips	Max vehicles with EV charging potential
Passenger vehicles	23,532	669	22,863	11,431
Light Trucks (2 axle)	1,751	296	1,455	727
Medium Trucks (3 axle)	2,226	0	2,226	1,113
Heavy Trucks	6,143	379	6,143	3,072
<b>Total</b>	<b>34,031</b>	<b>1,344</b>	<b>32,687</b>	<b>16,343</b>
<b>Full Build-Out - 2035</b>				
Pass vehicles	40,598	669	39,929	19,964
Light Trucks (2 axle)	3,064	296	2,768	1,384
Medium Trucks (3 axle)	3,928	0	3,928	1,964
Heavy Trucks	10,831	379	10,831	5,415
<b>Total</b>	<b>58,800</b>	<b>1,344</b>	<b>57,456</b>	<b>28,728</b>

Note: assumes 2 trips = 1 vehicle

Using the daily vehicle forecasts provided in Table 4, anticipated EV counts and the corresponding average and peak electricity loads were estimated for three different EV penetration scenarios as described below.

### Vehicle Scenario A: Low EV Penetration

Scenario A reflects the requirements of current state building code (Title 24, part 11), stipulating that 6 percent of parking spaces be constructed to accommodate the future installation of electric vehicle supply equipment (EVSE) for future electric vehicle charging. Scenario A assumes that EV charging stations will be installed at 6 percent of the parking spaces by the completion of Phase 1. This Scenario assumes no increase in the stringency of the requirement, as any change in the regulatory minimums would be purely speculative at this time. Scenario A also assumes that the code-compliant charging stations would be used only for charging passenger vehicles and light duty truck EVs, and there would be no charging of medium-duty or heavy-duty truck EVs. Table 5 indicates the number of EV charging stations needed for 2025 and 2035 based on these assumptions.

**Table 5: EV Charging Station Requirements at WLC**

Stage of Development	WLC WAREHOUSE BUILDINGS			WLC PARKING REQUIREMENTS		
	Total Bldg SF	Avg Bldg SF (approximate)	# Bldgs	Avg per Bldg	WLC Total	EV Charging Equipped (6%)
Phase 1 - 2025	22,946,000	1,500,000	15	584	8,781	527
Full build out - 2035	40,600,000	1,500,000	27	575	15,536	932

For determining the breakdown of vehicle types and fuels powering the fleet, Scenario A relies on EMFAC 2017<sup>6</sup>. As shown in Table 6, EMFAC 2017 forecasts approximately 619,000 passenger EVs (2.5 percent of total) and 59,000 light truck EVs (1.4 percent of total) statewide by 2025, and approximately 1.4 million passenger EVs (4.7 percent of total) and 172,000 light truck EVs (3.7 percent of total) statewide by 2035.<sup>7</sup> For the South Coast Air Basin, EMFAC 2017 forecasts the same percentages of passenger EVs and 1.6 percent of light truck EV populations by 2025, and slightly higher percentages by 2035. Based on the percentages for the South Coast Air Basin, the number of passenger EVs estimated to access the Project area on any day under Scenario A were determined to be 300 for Phase 1 (2025) and 991 for full build-out in 2035.

**Table 6: EMFAC 2017 EV Forecasts for State of California and South Coast Air Basin <sup>a</sup>**

		Passenger Vehicles			Light Trucks		
		Total	EVs	% EVs	Total	EVs	% EVs
<b>South Coast Air Basin</b>	2020	9,125,366	103,722	1.1%	1,539,990	3,852	0.3%
	2025	10,034,980	252,889	2.5%	1,627,185	26,375	1.6%
	2030	10,907,401	417,413	3.8%	1,733,368	51,603	3.0%
	2035	11,642,018	546,208	4.7%	1,849,556	72,433	3.9%
<b>Statewide</b>	2020	22,409,020	262,338	1.2%	4,131,850	8,393	0.2%
	2025	24,876,417	619,462	2.5%	4,207,663	59,187	1.4%
	2030	27,344,052	1,038,403	3.8%	4,367,848	119,836	2.7%
	2035	29,511,582	1,380,703	4.7%	4,600,339	172,291	3.7%

Notes:

a: reflects EMFAC 2017 assumptions based on Governor’s Order calling for 1.5 million ZEVs statewide by 2025

<sup>6</sup> The Emission FACTors (EMFAC) model is the standard method used in CEQA analysis to calculate emission rates from motor vehicles operating on highways, freeways and local roads in California.

<sup>7</sup> As interpreted by the project traffic modeling, passenger vehicles include all LDA, LDT1, and LDT2 category vehicles in EMFAC

Scenario A energy demand calculations assume that passenger EVs would have an average battery size of 100 kWh in the year 2025, equating to an average charge capacity of 80 kWh (80 percent). Passenger cars in 2035 would have an average battery size of 200 kWh, equating to an average charge capacity of 160 kWh (80 percent).

Scenario A assumes that half of the passenger EV population on site each day would charge their batteries to full capacity. If Level 2 AC chargers with a minimum charging rate of 19.2 kW (highest rate currently available) were provided, it would take approximately 4 hours to fully charge a vehicle with a 100 kWh battery. If the site was served by DC power blocks that spread the power delivery across multiple vehicles simultaneously in response to site energy management requirements, the charging time could be much faster. DC power blocks provide power at up to 500 kW, but it is reasonable to assume an average charging rate would be 100 kW, resulting in a charging time of approximately 48 minutes for a vehicle with a 100 kWh battery.

Peak electricity loads for servicing the EVs were provided by WSP in their World Logistics Center *Sustainable Energy Plan* (WSP, 2018).<sup>8</sup>

The EV numbers and electricity loads for Scenario A, using the methods and assumptions outlined above, are presented in Table 7.

**Table 7: Scenario A Charging Loads (Low EV Penetration)**

Vehicle Type	2025			2035		
	Population	Peak Rate (MW)	Avg Daily (MWh)	Population	Peak Rate (MW)	Avg Daily (MWh)
Passenger Vehicles	288	0.7	11.5	937	5.7	74.9
Light Trucks (2 axle)	12	0.03	0.5	54	0.2	2.2
Medium Trucks (3 axle)	0	0	0	0	0	0
Heavy Trucks (4+ axle)	0	0	0	0	0	0
<b>Total</b>	<b>300</b>	<b>0.7</b>	<b>12.0</b>	<b>991</b>	<b>5.9</b>	<b>77.1</b>

## Vehicle Scenario B: Medium EV Penetration

This scenario reflects the same assumption regarding electric vehicle charging infrastructure as used in Scenario A (EV charging stations will be installed at 6 percent of parking spaces by the completion of Phase 1) but with higher electric vehicle populations consistent with the goals of California’s 2017 Scoping Plan Update and 2016 Mobile Source Strategy, which are both designed to enable statewide attainment of the SB 32 GHG Target of 40 percent below 1990 levels by 2030. As with Scenario A, Scenario B includes passenger and light truck EVs, but

<sup>8</sup> As explained in the WSP report, peak EV charging rate was estimated by allocating the annual electricity consumption of EVs according to the building operating schedules. The resulting peak electric load imposed by EV charging is about 25 percent of the aggregate nameplate capacity of all charging stations. This result is in line with industry expectations that charging blocks managed with automated ‘smart’ controls will reduce the coincident peak demand to 20-25 percent of the aggregate capacity of the individual charging stations.

no charging of medium-duty or heavy-duty truck EVs. The higher numbers of passenger and light truck EVs result in a higher vehicle charging load for the project.

Table 8 summarizes EV population estimates that are aligned with Governor Brown’s Executive Order calling for 1.5 million ZEVs by 2025, and the Mobile Source Strategy calling for 4.2 million ZEVs by 2030, which works out to approximately 5.2 percent of combined vehicles (passenger + light trucks) in 2025 and 13.2 percent in 2030. The EV population estimates (21 percent of passenger vehicles and 22.5 percent of light trucks) for 2035 are based on the conservative assumption that the EV population increase from 2025 to 2030 due to the Mobile Source Strategy is repeated over the five year period from 2030 to 2035. Based on that rate, as shown in Table 8, there would be approximately 7.2 million ZEVs in operation statewide by 2035. Assuming the EV percentages would be the same for the proposed Project located in the South Coast Air Basin, the Project would be visited by 627 EVs per day by 2025 and 4,509 EVs by 2035.

**Table 8: EV Forecasts Based on Mobile Source Strategy <sup>a</sup>**

		Passenger Vehicles			Light Trucks		
		Total	EVs	% EVs	Total	EVs	% EVs
<b>South Coast Air Basin</b>	2020	9,125,366	103,722	1.1%	1,539,990	3,852	0.3%
	2025	10,034,980	517,550	5.2%	1,627,185	83,921	5.2%
	2030	10,907,401	1,444,602	13.2%	1,733,368	229,571	13.2%
	2035 <sup>b</sup>	11,642,018	2,447,659	21.0%	1,849,556	416,980	22.5%
<b>Statewide</b>	2020	22,409,020	262,338	1.2%	4,131,850	8,393	0.2%
	2025	24,876,417	1,282,991	5.2%	4,207,663	217,009	5.2%
	2030	27,344,052	3,621,512	13.2%	4,367,848	578,488	13.2%
	2035 <sup>b</sup>	29,511,582	6,204,620	21.0%	4,600,339	1,037,141	22.5%

Notes:

a: reflects Mobile Source Strategy calling for 4.2 million ZEVs statewide by 2030

b: assumes the 2025-2030 EV population increase trend (over EMFAC 2017 forecast) continues through 2035

Charging loads for the light truck category were determined using the daily mileage estimates and average kWh/mile consumption for each vehicle category, using data from the U.S. Department of Energy’s Alternative Fuels Data Center.<sup>9</sup>

Like Scenario A, Scenario B assumes that EVs in 2025 would have an average battery size of 100 kWh, and by 2035 they would have an average battery size of 200 kWh. Due to the higher EV populations the demand for fast charging will be higher, and it is reasonably assumed that DC power blocks, which manage power delivery across multiple vehicles simultaneously in response to site energy requirements, would be used at the site to handle the increased loads. Like Scenario A, it is assumed that the average charging rate for DC power block chargers would be 100 kW. At that rate a 200 kWh battery (160 kWh capacity) would take approximately 96 minutes to charge.

Scenario B assumes 100 percent of the charging stations at the site would be served by DC charging blocks that can charge up to 500 kW per vehicle and can spread the power delivery across multiple vehicles simultaneously in response to site energy management requirements. The average charging rate for these stations is assumed to be 100 kW.

Peak electricity loads for servicing the EVs were provided by WSP in their World Logistics Center *Sustainable Energy Plan* (WSP, 2018).

The EV numbers and electricity loads for Scenario B, using the methods and assumptions outlined above, are presented in Table 9.

**Table 9: Scenario B Charging Loads (Medium EV Penetration)**

Vehicle Type	2025			2035		
	Population	Peak Rate (MW)	Avg Daily (MWh)	Population	Peak Rate (MW)	Avg Daily (MWh)
Passenger Vehicles	590	1.4	23.6	4,197	25.6	336
Light Trucks (2 axle)	38	0.2	1.5	312	0.8	12.8
Medium Trucks (3 axle)	0	0	0	0	0	0
Heavy Trucks (4+ axle)	0	0	0	0	0	0
<b>Total</b>	<b>627</b>	<b>1.6</b>	<b>25.1</b>	<b>4,509</b>	<b>26.4</b>	<b>349</b>

## Vehicle Scenario C: High EV Penetration

Scenario C is the same as Scenario B with respect to passenger and light truck EVs, but includes estimates for medium duty and heavy duty EV trucks based on CALSTART’s zero-emission transformation model that takes into account how nascent zero emission solutions, namely technologies from the transit bus segment, evolve and transition into other medium- and heavy-duty categories. As with the light duty truck estimates, the projections take into account funding programs, sales trends, technology development, and upcoming regulations. In addition,

<sup>9</sup> <https://www.afdc.energy.gov/>

the estimates consider regulatory and commercialization studies completed by CALSTART, including potential regulations related to zero emission drayage trucks and access by zero emission trucks to city centers.

CALSTART’s zero emission transformation model indicates that 10 percent of medium-duty and 20 percent of heavy-duty trucks servicing the South Coast Air Basin could feasibly be EVs by 2025; by 2035, the forecasts indicate conservatively that 20 percent of medium-duty and 30 percent of heavy-duty trucks could be EVs. Charging loads for the light truck category were determined using the daily mileage estimates and average kWh/mile consumption for each vehicle category, using data from the U.S. Department of Energy’s Alternative Fuels Data Center.<sup>10</sup>

The EV numbers and electricity loads for Scenario C, using the EV truck population forecasts for the South Coast Air Basin and the methods and assumptions outlined above, are presented in Table 9.

**Table 9: Scenario C Charging Loads (High EV Penetration)**

Vehicle Type	2025			2035		
	Population	Peak Rate (MW)	Avg Daily (MWh)	Population	Peak Rate (MW)	Avg Daily (MWh)
Passenger Vehicles	590	1.4	24	4,197	26	336
Light Trucks (2 axle)	38	0.2	1.5	312	0.8	12.5
Medium Trucks (3 axle)	111	0.5	6.0	393	1.6	21
Heavy Trucks (4+ axle)	614	18	229	1,625	46	607
<b>Total</b>	<b>1,353</b>	<b>19.6</b>	<b>261</b>	<b>6,527</b>	<b>74</b>	<b>976</b>

### 3. Transportation Energy Best Practices and Emerging Technologies

#### Zero Emission Vehicles

Zero emission vehicle (ZEV) technology is developing rapidly for both light-duty and heavy-duty vehicles. ZEVs can be powered by grid electricity stored in a battery, by electricity produced onboard the vehicle through a fuel cell, or through electricity provided by sources outside the vehicle such as overhead catenary wires that are currently used for light rail and some transit buses. ZEVs achieve zero tailpipe emissions by utilizing electric drive to power the vehicle instead of fuel combustion, and achieve higher system efficiency compared to fossil fuel powered vehicles. The GHG emissions associated with a ZEV are generally lower than GHG emissions associated with an equivalent vehicle powered by fossil fuel, with the difference dependent on the carbon footprint of the electricity or fuel cell energy used to power the ZEV.

<sup>10</sup> <https://www.afdc.energy.gov/>

---

ZEVs discussed here include plug-in battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV) and hybrid electric vehicles (HEV), fuel cell electric vehicles (FCEV), and Range Extended Electric Vehicles (REEV) with a fuel cell or fossil-fuel powered engine.

Overall, electric engines result in lower PM and NO<sub>x</sub> emissions when compared to conventional diesel engines, and can greatly reduce GHG emissions if the electricity is supplied by renewable sources. However, electric equipment can cost 20 to 40 percent more than its internal combustion counterpart. Electric equipment has a downtime for recharging. The batteries typically provide enough power for approximately 6 hours of constant use. After that, 8 to 16 hours are required to recharge batteries, followed by 8 hours for batteries to cool before using. Faster charging batteries can restore batteries from 20 to 100 percent in 60 to 90 minutes, though more expensive than a standard battery. In addition, battery charging stations and battery transporters are required. Although PHEVs are generally more expensive than similar conventional and hybrid vehicles, some cost can be recovered through fuel savings, a federal tax credit, or state incentives. Plug-in EVs and PHEVs use electricity from the grid to run some or all of the time reducing operating costs and petroleum consumption, relative to conventional vehicles and PHEVs. PHEVs typically produce lower levels of emissions, depending on the electricity source. PHEVs generally have larger battery packs than HEVs, which makes it possible to drive moderate distances using just electricity (approximately 10 to 40-plus miles in current models). The PHEV fuel consumption depends on the distance driven between battery charges. PHEV batteries can be charged by an outside electric power source, by the internal combustion engine, or through regenerative braking. HEVs combine the benefits of high fuel economy and low emissions with the power and range of conventional vehicles, without requiring a plug-in to charge the batteries.

As highlighted by the CEC in an annual Progress Report (CEC, 2017d), ZEV technology and supporting infrastructure is advancing rapidly in California:

- Nearly 300,000 ZEVs have been sold in California (predominantly light duty vehicles).
- Battery technology has improved, and the costs of batteries and other components have fallen dramatically. Based on manufacturer announcements, available models of PHEVs and BEVs are expected to increase nearly three-fold over the next five model years from the 25 models offered today.
- Due to substantial investments in the past several years, ZEV electric infrastructure in California has grown substantially. This trend is expected to accelerate as new infrastructure developments emerge. More than 10,000 Level 2<sup>11</sup> and 1,500 direct current fast charger (DCFC) connectors have been deployed across California.
- California is developing the first major fuel cell electric vehicle (FCEV) market and hydrogen fueling network in the United States. Three FCEV models are for sale in California, and 28 retail hydrogen refueling stations are open in California with an additional 32 stations proposed or already in development. Toyota and Honda have also announced partnerships with private companies for financial support of additional stations in California and the Northeast.

---

<sup>11</sup> Level 2 chargers use 208/240 volts, up to 19.2 kW (80 amps), whereas Level 1 chargers use 110/120 volts, 1.4 to 1.9 kW (12 to 16 amps).

CEC's 2017 Progress Report outlines the state's Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP), funded by vehicle and vessel registration, vehicle identification plates, and smog-abatement fees (per Assembly Bill 118), is providing up to \$100 million per year to fund ZEV technology development and readiness planning, EV charging infrastructure, hydrogen refueling stations, clean vehicle rebate programs, and standards development. More than \$129 million has been provided by the ARFVTP to date for California companies to demonstrate advanced ZEV technologies for medium- and heavy-duty trucks, buses, and freight movement.

Another more recent report by Next 10 concludes that California will meet or exceed its 1.5 million by 2025 ZEV goal, but that the state's charging infrastructure is not keeping pace with the growth of its electric vehicle fleet. Through October 2017, more than 337,000 ZEVs had been sold in California, and ZEV sales increased 29.1 percent in California over the previous year. Meanwhile, California has 16,549 public and nonresidential private-sector charging outlets - most in the nation by far but only 0.05 public charging outlets per ZEV. Studies show that California will need 125,000 to 220,000 charging ports from private and public sources by 2020 in order to provide adequate infrastructure (Next 10, 2018).

## Electric Vehicle Charging Infrastructure

### Charging Stations

Many plug-in electric vehicle owners may do the majority of their charging at home (or at fleet facilities, in the case of fleets). Some employers offer access to charging at the workplace. In many states, plug-in electric vehicle drivers also have access to public charging stations at libraries, shopping centers, hospitals, and businesses. The charging infrastructure is rapidly expanding, providing drivers with the convenience, range, and confidence to meet more of their transportation needs with plug-in vehicles. PHEVs have added flexibility, because they can also refuel with gasoline or diesel (or possibly other fuels in the future) when necessary (U.S. Department of Energy, 2016).

Charging equipment for plug-in electric vehicles (PHEVs or EVs) is classified by the rate at which the batteries are charged. Note that, in addition to the charging station itself, charging times vary based on how depleted the battery is, how much energy it holds, the type of battery, and the type of EV. The charging time can range from 15 minutes to 20 hours or more, depending on these factors.

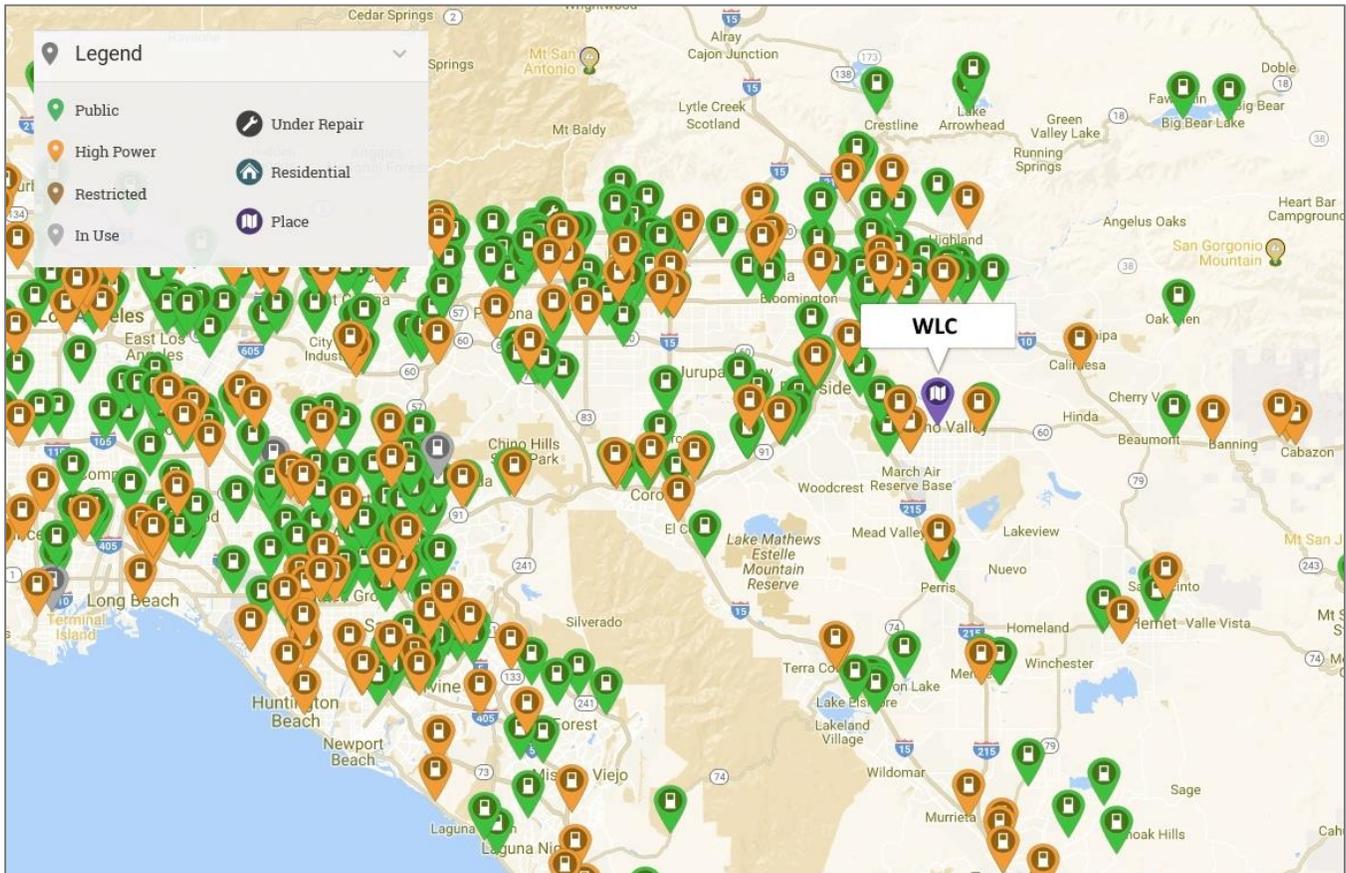
- **Level 1 chargers:** Operating on 120-volts, Level 1 chargers offer the slowest type of charging. For plug-in hybrids with smaller battery packs (i.e., a typical passenger PHEV), it may be enough to recharge the vehicle in a few hours to overnight.
- **Level 2 chargers:** Most dedicated home and public charging stations use Level 2 chargers, which operate at 240 Volts and are at least twice as fast as Level 1 charging due to the higher amperage of the circuit. BEVs like the Nissan Leaf typically require a Level 2 charger to provide overnight charging.
- **DC Fast Chargers:** A direct current fast charger (DCFC) uses direct current (DC) rather than household alternating current (AC) and is very high-powered. DCFCs are generally practical only at public sites, such as along highways, given the higher cost of the electric utility having to install dedicated high-power lines. Unlike Level 1 and Level 2 chargers, which use a standard "J-1772" type connector for plugging in the vehicle, there are three different kinds of DC quick charging connectors:

- 
- CHAdeMO: This is currently the most popular standard, used by the Nissan Leaf, Mitsubishi i-MiEV, and Kia Soul EV.
  - CCS (Combined Charging Standard): All U.S. makers except Tesla and all German makers use this standard, including cars from BMW, Chevrolet, Ford, Mercedes-Benz, Volkswagen, and Volvo that are fitted with quick-charging ports.
  - Tesla Supercharger: As usual, Tesla has gone its own way and created a dedicated network of free, high-powered fast-charging stations that can only be used by Tesla owners.
  - Modular DC Power Blocks: With these systems, the maximum charging power can be dedicated to just one vehicle or spread between several vehicles depending on the demand. They address the ever-growing demands of increased current and power densities in networked applications while providing maximum flexibility for system configuration. An example of a scalable modular architecture that can grow as the charging demand grows is the ChargePoint Express Plus station with an accompanying Power Cube, and a solution by ABB that includes Power Converter modules and Charge-Boxes.

The cost of charging stations is variable depending upon the type of charging station and location (curbside or garage). Component cost of charging stations vary based on hardware, electrical materials and labor, other materials and labor, transformer, mobilization, and permitting. (Greenbiz.com 2016).

Public charging stations are not as ubiquitous as gas stations, but charging equipment manufacturers, automakers, utilities, Clean Cities coalitions, municipalities, and government agencies are establishing a rapidly expanding network of charging infrastructure. Almost all public sites offer Level 2 charging, with a few providing DCFCs, increasingly with both CHAdeMO and CCS cables. Plug-in electric vehicles can be recharged at stations available within close distance of the WLC site, as shown in **Figure 1**, *Electric Vehicle Charging Stations near World Logistics Center Site*, below.

**Figure 1 Electric Vehicle Charging Stations near WLC**



Source: [www.plugshare.com](http://www.plugshare.com)

**Applicability to Proposed Project:**

The adoption of ZEV passenger vehicles by WLC employees is beyond the direct control of the Proposed Project. However, providing on-site EV charging stations for employees to use as they park their vehicles would help incentivize the use of such vehicles, helping to reduce the GHG emissions associated with commuting. By 2025, it is expected that modular DC power blocks will be the preferred EV charging solution for the WLC site, given the projected EV population and the anticipated need for power load management.

**Road-Connected Power**

This technology, well established in the transit industry (e.g., electric trolley-bus), is used widely in mining with extremely heavy equipment and is now being demonstrated for heavy haul trucks in Europe and the United States. Power is transferred to the vehicle from an overhead catenary wire to an apparatus mounted on the roof of the vehicle known as a pantograph. Roadway power infrastructure is typically complicated and expensive, and may be appropriate only in certain areas or applications.

---

### **Applicability to Proposed Project:**

For passenger vehicles and light duty trucks, road-connected power is not a feasible technology for passenger vehicles at this time.

For medium and heavy-duty trucks, despite there being demonstration projects at ports and other sites with heavy truck traffic, installing road connected power at a site like the WLC would only be effective if a critical mass of vehicles visiting the site were fitted with special equipment to connect with the overhead catenary line used to transmit electrical energy. For effective charging, vehicles would have to do most or all of their driving on site. This technology does not represent a feasible approach to supporting the Project's use of zero emission trucks.

## **Plug-in All-Electric Vehicles (BEV)**

All-electric vehicles (EVs), sometimes referred to as battery electric vehicles (BEVs), use a battery to store the electrical energy from a plug-in source that powers the electric motor (there is no internal combustion motor). EV batteries are charged by plugging the vehicle into an electric power source. Although most U.S. electricity production contributes to air pollution, the USEPA categorizes all-electric vehicles as zero-emission vehicles because they produce no direct exhaust or emissions. Because EVs use no fuel, widespread use of these vehicles could dramatically reduce petroleum consumption.

The efficiency and driving range of BEVs varies substantially based on vehicle size, driving conditions and driving habits. Extreme outside temperatures tend to reduce range, because more energy must be used to heat or cool the cabin. High driving speeds reduce range because of the energy required to overcome increased drag. Compared with gradual acceleration, rapid acceleration reduces range. Hauling heavy loads or driving up significant inclines also reduces range.

### **Passenger BEVs**

As described above, there is strong momentum in California in growing the fleet of passenger EVs to meet or exceed the state's ZEV targets of 1.5 million by 2025 and 4.2 million by 2030. A high percentage of these are expected to be BEVs, but charging infrastructure is not keeping pace, and more public and nonresidential private-sector charging outlets are needed (Next 10, 2018).

Currently available passenger BEVs have a shorter driving range per charge than most conventional vehicles have per tank of gas. BEV manufacturers typically target a range of more than 200 miles on a fully charged vehicle. According to the U.S. Department of Transportation, Federal Highway Administration, 100 miles is sufficient for more than 90 percent of all household vehicle trips in the United States. For longer trips, it is necessary to recharge the vehicle or swap the battery.

### ***Applicability to Proposed Project:***

As outlined in the Electric Vehicle Scenarios above, a significant population of passenger EVs is expected to visit the site at Phase 1 (2025) and full buildout of the project (2035). Developing the supporting infrastructure (i.e., cable raceways) for installing EV charging stations will enable WLC to more readily and cost effectively provide this service to future tenants if and when demand dictates. For a project the size of WLC, the current Title 24 building code requires that 6 percent of parking spaces be constructed to accommodate electric vehicle supply equipment (EVSE) for future electric vehicle charging.

## Truck BEVs

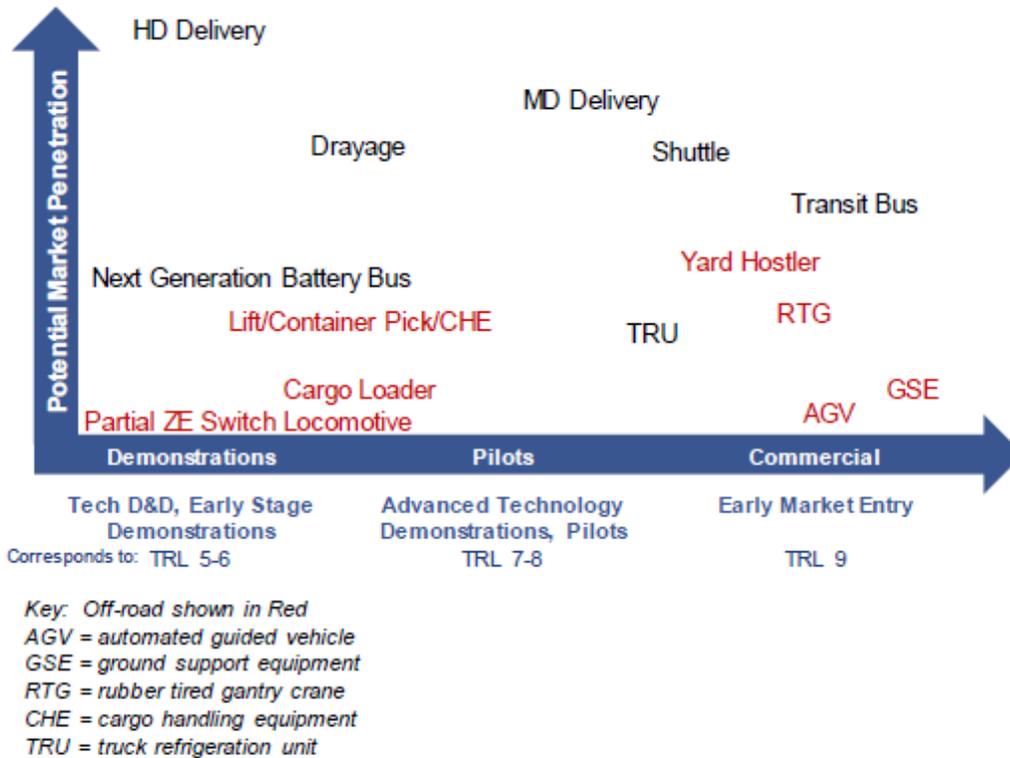
CARB has recently assessed the five- to ten-year outlook for BEV technology in the medium-duty (8,501 to 14,000 pounds (lbs.) Gross Vehicle Weight Rating (GVWR)) and heavy-duty (14,001 lbs. and above GVWR) truck and bus market (CARB, 2015). The study found that battery electric transit buses and shuttle buses are increasingly available from a variety of manufacturers, as are other medium-duty BEVs, primarily delivery vehicles. BEV trucks currently in the marketplace typically use lithium-ion battery chemistries. BEVs are just beginning to penetrate the heavy-duty vehicle market. To date, most medium- and heavy-duty BEV truck deployments in California have been in the urban vocational work truck category, focusing on urban transit buses and intracity delivery with daily ranges of generally 100 miles or less.

Heavy duty and medium duty delivery trucks, drayage trucks all have large potential for market penetration but lag transit buses and shuttles in terms of technology development. While transit buses have already been commercialized, medium duty BEVs are undergoing pilots and advanced demonstration projects, while drayage heavy duty BEVs are still in the early demonstration phase.

### ***Applicability to Proposed Project:***

Figure 2 provides a snapshot of the market penetration and technology development status for BEV trucks. BEV solutions for heavy duty applications are in the early phases of commercial market deployment. BEV applications in the medium duty delivery and work truck segments are also in the early market or late pilot deployment stage. As the project gets built out, several truck BEV options may become feasible for the tenants depending on the specific distances traveled and duty cycles of the vehicles deployed. Recognizing that the timeline for market penetration and technology development is currently speculative, developing the supporting infrastructure for charging these vehicles (i.e., cable raceways to support EV supply equipment) will enable WLC to provide future EV charging capabilities to future tenants as truck BEVs become commercially available.

**Figure 2 Technology and Commercialization Status – Battery Electric Trucks**



Source: Based on CARB technology assessments, interviews with manufacturers, and other studies and publications. These may be adjusted before being finalized based on further conversations and gathering additional information.

Source: CALSTART, 2018

## Hybrid Electric Vehicles (HEVs) and Plug-in Hybrid Electric Vehicles (PHEV)

Hybrid electric vehicles (HEVs) are powered by an internal combustion engine or other propulsion source that can be run on conventional or alternative fuel, and an electric motor that uses energy stored in a battery (but not recharged from a plug-in source). Electric drive is typically used at low speeds for shorter distances, while blended electric-fuel mode is used at higher speeds and longer distances. The extra power provided by the electric motor allows for a smaller combustion engine. Additionally, the battery can power auxiliary loads like sound systems and headlights, and reduce engine idling when stopped. Together, HEVs combine the benefits of high fuel economy and low emissions with the power and range of conventional vehicles.

A HEV cannot plug into off-board sources of electricity to charge the battery. Instead, the HEV uses regenerative braking and the internal combustion engine to charge the battery. The HEV captures energy normally lost during braking by using the electric motor as a generator, and storing the captured energy in the battery. The energy from the battery provides extra power during acceleration.

Plug-in hybrid electric vehicles (PHEVs) are powered by both an electric motor using electricity stored in batteries, or an internal combustion engine or other propulsion source, using a fuel such as gasoline or diesel. Electric drive is typically used at low speeds for shorter distances, while blended electric-fuel mode is used at higher speeds and longer distances. Using electricity from the grid to run the vehicle some or all of the time reduces operating costs and petroleum consumption, relative to conventional vehicles. PHEVs might also produce lower levels of emissions, depending on the electricity source.

PHEVs generally have larger battery packs than non-plug-in hybrid electric vehicles (discussed below). This makes it possible to drive moderate distances using just electricity (about 10 to 40-plus miles in current models), commonly referred to as the "all-electric range" of the vehicle.

During urban driving, most of a PHEV's power comes from stored electricity, if the battery is charged. For example, a light-duty PHEV driver might drive to and from work on all-electric power, plug in the vehicle to charge it at night, and be ready for another all-electric commute the next day. The internal combustion engine powers the vehicle when the battery is mostly depleted, during rapid acceleration, or when intensive heating or air conditioning is required. Some heavy-duty PHEVs work the opposite way, with the internal combustion engine used for driving to and from a job site and electricity used to power the vehicle's equipment or control the cab's climate while at the job site. The PHEV fuel consumption depends on the distance driven between battery charges. For example, if the PHEV is never plugged in to charge, the fuel economy will be about the same as a similarly sized non-plug-in hybrid electric vehicle. If the PHEV is driven a shorter distance than its all-electric range, and plugged in to charge between trips, it may be possible to use only electric power.

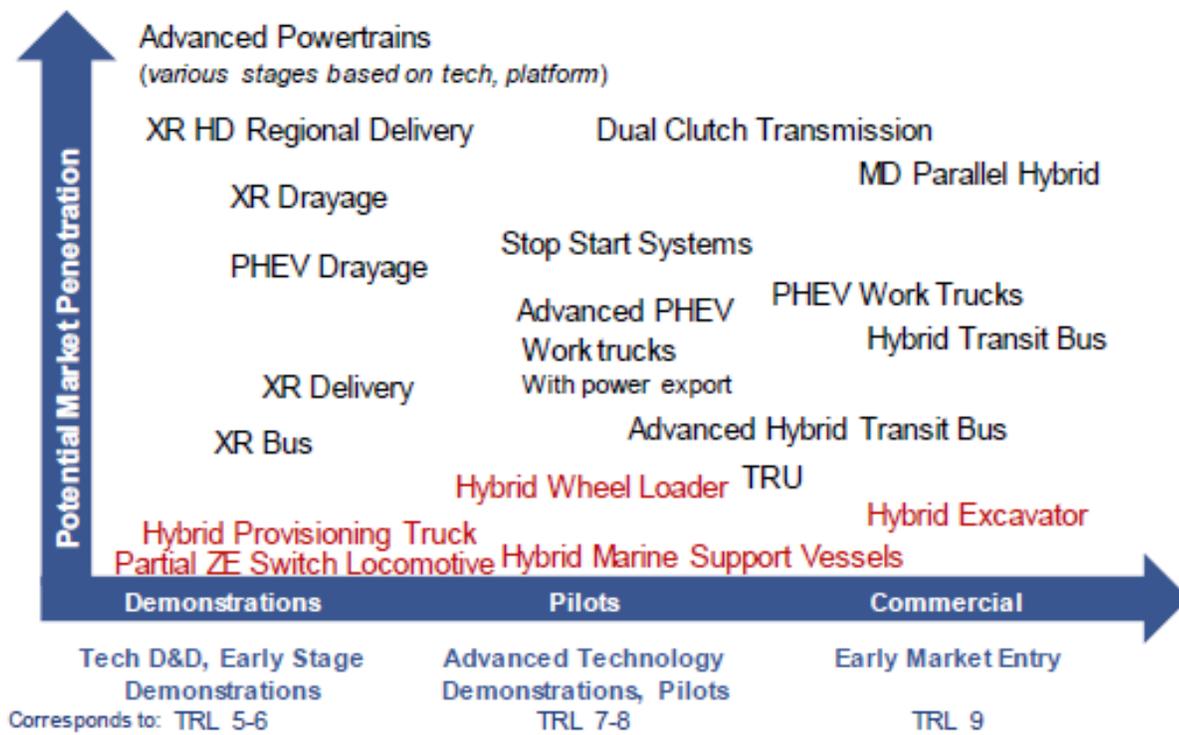
PHEV batteries can be charged by an outside electric power source, by the internal combustion engine, or through regenerative braking. During braking, the electric motor acts as a generator, using the energy to charge the battery (U.S. Department of Energy, 2016).

### ***Applicability to Proposed Project:***

California's growing the fleet of passenger EVs includes BEVs, HEVs, and PHEVs, all contributing the state's ZEV targets of 1.5 million by 2025 and 4.2 million by 2030. The full range of EV types should be expected in the fleet mix visiting the WLC in 2025. It is speculative to state what the fleet mix will be in 2035, but the all three EV types should be anticipated in designing the charging infrastructure.

There are currently early market offerings in the medium-duty delivery and work truck categories that are applicable to this project. Hybrid systems show promise to enable the electrification of the driveline of heavy duty trucks by augmenting the range with a secondary power system. Figure 3 provides a snapshot of the market penetration and technology development status for HEV and PHEV trucks.

**Figure 3 Technology and Commercialization Status – Hybrid Electric Trucks**



Key: Off-road shown in Red

Hybrid = electric hybrid

PHEV = Plug In Hybrid Electric Vehicle; can allow for some zero emission range

XR = Extended Range; series electric drive with power generator to allow longer range driving

Marine Support Vessels = tugs, tenders, ferries

TRU = truck refrigeration unit

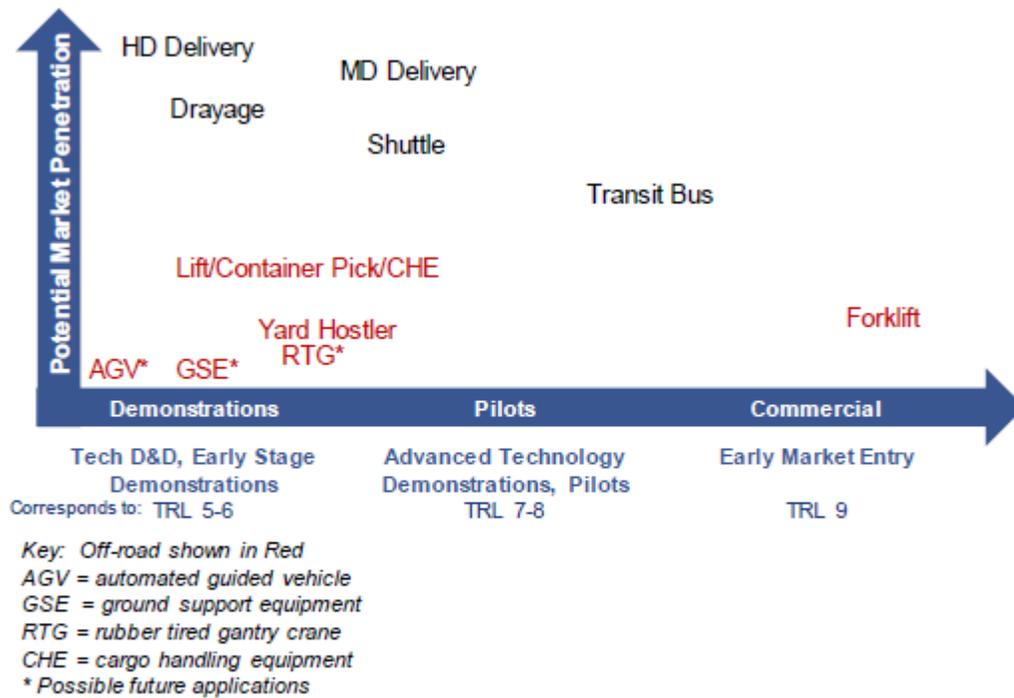
Source: Based on CARB technology assessments, interviews with manufacturers, and other studies and publications. These may be adjusted before being finalized based on further conversations and gathering additional information.

Source: CALSTART, 2018

## Range Extended Electric Vehicle (REEV) – Fuel Cell

Range extended electric vehicles that utilize a fuel cell as an additional energy source are promising and deserve attention. In particular, medium-duty delivery vehicles have been identified as a viable vehicle category in the near term. In on road applications fuel cell buses are approaching commercial technology readiness levels. Advancements in the commercialization of both battery electric trucks and fuel cell electric buses have the potential to expedite the commercialization of fuel cell electric trucks. Figure 4 provides a snapshot of the market penetration and technology development status for fuel cell electric trucks.

**Figure 4 Technology and Commercialization Status – Fuel Cell Electric Trucks**



Source: Based on CARB technology assessments, interviews with manufacturers, and other studies and publications. These may be adjusted before being finalized based on further conversations and gathering additional information.

Source: CALSTART, 2018

## Cost and Availability of Zero Emission Trucks

Medium-duty and heavy-duty zero emission trucks currently cost significantly more than conventionally fueled trucks and buses, but funding exists to help offset the higher cost. This includes CARB’s Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), which is funded by Low Carbon Transportation investments and the Air Quality Improvement Program (AQIP), offers a purchase voucher on a first-come, first-served basis. Vouchers are available for electric, hybrid, fuel cell, and low-NOx natural gas trucks and buses. The program has been operating for over eight years and over 4000 vouchers have been issued. Base voucher amounts range from \$20,000 to \$315,000 depending on vehicle size and technology.<sup>12</sup> In addition, the California State Transportation Agency/Caltrans funds transit expansion and capital improvement projects with Greenhouse Gas Reduction Fund monies, some of which have gone to EV transit buses. The Goods Movement Emission Reduction Program funded by Proposition 1B provides funds to existing truck owners who wish to upgrade to EVs (CARB, 2015).

<sup>12</sup> Examples of current eligible vehicles can be found at: <https://www.californiahvip.org/eligible-technologies/>

Ongoing pilot projects and demonstration projects for emerging ZEV technologies are being funded by CARB, the California Energy Commission (CEC), and local air control districts including the South Coast Air Quality Management District (SCAQMD), some of which are described below under “Technology Demonstration Projects.”

As indicated in Table 10, there were very few heavy duty EV trucks operating in California in 2015, but there were hundreds of medium-duty EVs on the road, and the number has grown. Many of these vehicles are being used for urban delivery. CARB expects widespread penetration of such medium duty EV trucks into the market place in the next 5 to 10 years. UPS recently received 17 fully electric EVI delivery vans purchased with CEC demonstration funds, with each van costing around \$143,000, including the purchase of the chassis and decommissioning of the existing powertrain (CARB, 2015).

**TABLE 10  
SUMMARY OF MEDIUM-DUTY AND HEAVY-DUTY EV POPULATIONS IN 2015**

Vehicle	Technology Readiness	Number in Service	Notes
Transit Bus	Commercially Available	Approximately 40 in California, and > 2,500 worldwide	3 models commercially available in U.S.
School Bus	Limited Commercial Availability	4 in California	3 new buses ordered in SCAQMD 6 repowers underway with V2G
Medium-Duty (8,501 to 14,000 lbs. GVWR) <sup>a</sup>	Limited Commercial Availability	300+	Focused on delivery service
Heavy-Duty (> 14,000 lbs. GVWR)	Demonstration Phase	2 Drayage 1 Refuse	13 Class-8 Trucks under construction

Source: CARB, 2015

Notes:

a. GVWR = Gross Vehicle Weight Rating

Zenith Motors offers an electric delivery/work van that can also be configured as a 12-passenger shuttle. The vans offer a range option of 90 or 120 miles, using LiPO4 batteries, with around 6 hours required to recharge. With the available HVIP vouchers, Zenith is offering the 120 mile 350 cargo van configuration for a net cost of \$40,400, which is comparable to the analogous Ram ProMaster gasoline unit (CARB, 2015).

## Zero Emission Truck Technology Demonstration Projects

A number of zero emission truck technologies are being tested and demonstrated in the South Coast Air Basin and throughout California that aim to advance their commercial development goods movement.

### Countywide Zero-Emission Trucks Collaborative

At the request of partner agencies, the Los Angeles County Metropolitan Transportation Authority (Metro) has taken the lead in forming a Countywide Zero-Emission Trucks Collaborative to promote development and deployment of zero-emission trucks in Los Angeles County. The Collaborative will include ports of Long Beach and Los Angeles, Caltrans, Southern California Association of Governments (SCAG), and SCAQMD. The Collaborative is currently developing pilot projects as well as demonstration projects for zero-emission trucks.

Advancing zero-emission truck technology and implementation will help achieve the air quality objectives of Metro's Long Range Transportation Plan, goods movement program, and the agency's over-arching goal of creating a more sustainable transportation system. The collective efforts will be critical to meeting the stringent, federal health-based air standards proposed by the USEPA. The SDAQMD believes that should the new standards be adopted by USEPA, then a significant percentage of vehicles will need to achieve zero or near-zero-emissions by 2023. However, to date, the focus has been on dedicated zero-emission electric truck technology along the I-710 (see "I-710 Corridor Zero-Emission Truck Commercialization Study" below). As part of the I-710 Corridor Project EIR/EIS, Metro has explored the feasibility of zero-emission trucks, including an Alternative with a 17-mile zero-emission, dedicated freight corridor in response to community air quality concerns. Metro has been investigating vehicle technologies that could meet the zero-emission requirement of the corridor. However, there are a series of challenges to overcome and critical stages in the development process to be completed before commercialization of zero-emission trucks will be realized. Establishing a coalition focused on technology advancement and implementation will help align Metro's policies and leverage its investments with those of partner agencies to realize our common vision for zero-emission trucks, clean air, and sustainable communities (Metro 2016).

## **Advanced Technology for Truck Corridors**

The Advanced Technology for Truck Corridors pilot project being led by CalTrans brings together Integrated Corridor Management, Active Traffic Management, Freight Advanced Traveler Information System, and Connected Vehicle advanced technology platforms as an integrated strategy to improve system efficiency and support the goals of the California Sustainable Freight Action Plan (CalTrans, 2016):

- Increase freight system efficiency of freight operations at specific facilities and along freight corridors such that more cargo can be moved with fewer emissions.
- Accelerate use of clean vehicle and equipment technologies and fuels of freight through targeted introduction of zero emission or near-zero emission (ZE/NZE) technologies, and continued development of renewable fuels.
- Encourage State and federal incentive programs to continue supporting zero and near-zero pilot and demonstration projects in the freight sector.
- Accelerate use of clean vehicle, equipment, and fuels in freight sector through targeted introduction of ZE/NZE technologies, and continued development of renewable fuels. This includes developing policy options that encourage ZE/NZE vehicles on primary freight corridors (e.g., Interstate-710); examples of such policy options include a separated ZE/ NZE freight lane, employing market mechanisms such as favorable road pricing for ZE/NZE vehicles, and developing fuel storage and distribution infrastructure along those corridors.

The Advanced Technology for Truck Corridors Pilot Project Work Plan (CalTrans, 2017) describes the project occurring in phases. The first phase will mainly involve advance technology deployment along I-710 and nearby arterials, the second phase will involve State Route 60 and I-10, and the third phase will involve improvements along I-15. The components include

- 
- **Integrated Corridor Management** where Intelligent Transportation Systems (ITS) will incorporate Vehicle-to-Infrastructure (V2I) communications using the latest Connected Vehicle (CV) technology. New ITS infrastructure will allow for the collection of truck-specific data on all freeways, including lane-by-lane information, freight vehicle classification, and truck length data. Data from these systems will be transmitted to the Caltrans Advanced Traffic Management System and others through the Regional Integration of Intelligent Transportation Systems network.
  - **Active Traffic Management** incorporating a series of advanced Active Traffic Management (ATM) strategies that address congestion using various methods to manage and control traffic in real-time based on prevailing conditions, and to make informed, performance-driven decisions regarding traffic management.
  - **Connected Vehicle Technology**, which has the potential to transform transportation through the creation of safe, interoperable wireless communications networks among passenger cars, buses, commercial trucks, trains, traffic signals, smart phones, and other connected devices. This technology aims to address some of the biggest challenges in surface transportation with respect to safety, mobility, and the environment.
  - **Support for Zero and Near-Zero Emission Trucks:** The Pilot supports the region's efforts to increase the number of ZE and NZE trucks operating within and around the San Pedro Bay Port Complex by setting a target for deploying ZE charging stations and other alternative fueling stations along the I-710 south corridor. The objective of SCAQMD's program is to deploy up to 500 ZE and low Nitrogen Oxide (NOx)/NZE trucks on the I-710 Corridor between 2018 and 2025 (Phase 1) and another 500 ZE and NZE trucks between 2026 and 2035 (Phase 2) for a total of 1,000 ZE and NZE trucks. The program is intended to help build a fleet of ZE and NZE trucks that would utilize the I-710 Corridor as the I-710 Project comes online. It is envisioned that incentive funding for vehicle replacements, vehicle conversions, and/or purchase subsidies will develop.

## **I-710 Corridor Zero-Emission Truck Commercialization Study**

CALSTART recently completed a zero emission truck commercialization study to support the I-710 Corridor Project (CALSTART, 2013). CALSTART reviewed a number of reports and studies to evaluate which zero-emission truck technologies could potentially meet the needs of the I-710 Corridor Project and drayage users, developing a preliminary business case for the more feasible technology alternatives, and describing a commercialization plan for these zero-emission capable trucks based on the technologies recommended. The study concludes that zero-emission capable drayage trucks can be developed, demonstrated, and commercially deployed (roughly 10,000 trucks) by 2025.

Through user surveys and interviews with drayage operators, CALSTART determined a market need for at least 100 miles in range capability, before refueling is needed (one-tank range), and preferably 200 miles. Additional performance requirements identified that are independent of fuel technology include:

- The vehicle must have sufficient power for operation (400 horsepower; 1,200 to 1,800 foot-pounds of torque);

- The vehicle must have at least 100 miles in range capability, before refueling is needed (one-tank range), and preferably 200 miles; and
- The vehicle must have the capability to be used on all delivery routes.

Key findings of the CALSTART study include:

- BEV designs can deliver 100+ miles of range but based on their analysis have a challenging business case.
- REEV with Fuel Cell designs can deliver more than 100 miles of zero emission range, and offer a reasonable business cases when utilization is high. Electrical infrastructure needs are lower than BEVs, and hydrogen infrastructure needs should be manageable in the I-710 region.
- REEV with Engine (CNG) can deliver 50 miles of ZE range and up to 250 more miles of “very low emissions” range. CALSTART concludes that this option has the best business case of the examined alternatives, provided CNG costs are low and utilization is high. Electrical infrastructure needs are lower than BEVs, and CNG infrastructure is already under development.
- The optimal technology for a zero-emission capable Class 8 drayage truck depends upon the zero-emission range required:
  - 20 miles ZE range: HEV, PHEV, REEV, and BEV architectures are all suitable;
  - 50 miles ZE range: Both REEV and BEV designs are optimal;
  - 100 miles ZE range: Both REEV and BEV designs are optimal; and
  - Over 100 miles ZE range: REEV with Fuel Cell is the primary viable option.

The CALSTART study emphasizes supporting infrastructure as a key to the successful deployment of any zero-emission truck implementation. First, and foremost, sufficient refueling and/or recharging stations are needed. Infrastructure development should proceed concurrently with the development and deployment of zero-emission trucks for operations to be successful. As with any scaling up of zero emission truck operations, additional studies are required to determine infrastructure needs for the I-710 Corridor Project. Full commercialization will require several paths of parallel activity, including focused vehicle and infrastructure development; demonstration projects; a supportive regulatory framework; enhanced operational and business case assessment; and fleet training, maintenance training, and decision support.

The CALSTART study found that the current cost of a zero emission truck is approximately double the cost of a conventional diesel truck. However, costs of the key components of batteries and fuel cells are expected to fall dramatically as technology advances and volumes increase. Future operating costs (i.e., primarily fuel costs) can be reasonably estimated based on fuel consumption and predicted fuel costs but maintenance costs will remain difficult to estimate until enough zero emission trucks are in operation for long enough to collect data and ascertain maintenance needs.

---

## Additional Zero Emission Truck Demonstration Projects

Recently, the South Coast Air Quality Management District (SCAQMD) submitted comments to the California Department of Toxic Substances Control (DTSC) regarding the air quality impacts analyzed in the Draft Program EIR for the Santa Susana Field Laboratory Project, describing several zero emission truck demonstration projects underway in the South Coast Air Basin (SCAQMD, 2017). For each of these projects, the SCAQMD memo provides details on technology development, funding information and incremental vehicle cost:

- **CARB Zero Emission Drayage Truck Demonstration Project** – SCAQMD received an award of approximately \$23.6 million in 2016 to develop and demonstrate zero emission drayage trucks under CARB’s Low Carbon Transportation Greenhouse Gas Reduction Fund Investments Program.
- **2012 DOE Zero Emission Drayage Truck Demonstration Project (ZECT I)**
- **DOE Zero Emission Cargo Transport Demonstration Project (ZECT II)**
- **CEC Sustainable Freight Transportation Project**
- **Overhead Catenary Truck Project**

## Low Carbon Fuels

### Biodiesel Fuel

Biodiesel is a cleaner burning diesel replacement fuel, produced from a renewable diverse mix of resources including agricultural oils, recycled cooking oil, and animal fats. Meeting strict technical fuel quality and engine performance specifications (American Society of Testing & Materials (ASTM) D6751), biodiesel can be used in existing diesel engines without modification, and is covered by all major engine manufacturers’ warranties, most often in blends of 5 percent up to 20 percent (known as B20) biodiesel. Biodiesel is produced in nearly every state in the country. Biodiesel is the only alternative fuel to have fully completed the health effects testing requirements of the 1990 Amendments to the federal Clean Air Act. Health testing was performed based on inhalation of biodiesel exhaust at different concentrations. Results of the testing concluded that biodiesel exhaust concentrations expected to be observed on the field would not pose a threat to human health (Sharp, 1998)

Biodiesel that meets ASTM D6751 and is legally registered with the USEPA, is a legal motor fuel for sale and distribution (Biodiesel.org 2016). The use of biodiesel in a conventional diesel engine, not equipped with new diesel after treatment, results in substantial reduction of unburned hydrocarbons, carbon monoxide (CO), and PM compared to emissions from diesel fuel. In addition, the exhaust emissions of sulfur oxides and sulfates (major components of acid rain) from biodiesel are essentially eliminated compared to higher sulfur diesel (Biodiesel.org 2016).

Of the major exhaust pollutants, both unburned hydrocarbons and NO<sub>x</sub> are ozone (or smog) forming precursors. The use of biodiesel in a conventional diesel engine results in substantial reduction of unburned hydrocarbons, CO, and PM. However, emissions of NO<sub>x</sub> are either slightly reduced or slightly increased depending on the duty cycle of the engine and testing methods used. Biodiesel further enhances the advantages of diesel by reducing vehicle emissions. B20, a 20 percent blend of biodiesel and conventional diesel, reduces emissions of hydrocarbons by 20 percent and CO and PM emissions by 12 percent. Based on engine testing, using the most

stringent emissions testing protocols required by USEPA for certification of fuels or fuel additives in the U.S., the overall ozone forming potential of the hydrocarbon emissions from biodiesel was nearly 50 percent less than that measured for diesel fuel. New Technology Diesel Engines (NTDE) (i.e. those with PM traps and selective catalytic reduction, SCR, technology required for on-road applications in the US after 2010) reduce emissions of both PM and NO<sub>x</sub> with B20 by over 90 percent compared to a conventional diesel engine based on model year 2004 emissions standards. This makes NTDEs as clean as or cleaner than either gasoline or natural gas fueled engines (Biodiesel.org 2016).

### ***Biodiesel Availability***

Biodiesel is available nationwide, and can be purchased directly from biodiesel producers and marketers, petroleum distributors, or at a few public retailers throughout the nation (Biodiesel.org 2016). Biodiesel fuel is available at fueling stations within \_\_\_\_\_ miles of the WLC site, as shown in **Figure 5**, *Biodiesel Fueling Stations near World Logistics Center Site*, below.

### ***Biodiesel Usage***

Biodiesel usage is growing rapidly in every market segment where conventional diesel fuel is used. Some of the leading types of consumers of biodiesel fuels include state and municipal governments, school districts, U.S. Department of Defense, agriculture, cruise ships, mining, commercial trucking and truck stop operators. Many cities and states have started to require that their trucks and buses use biodiesel fuels. Notable examples of municipal users in California include the cities of San Francisco, San Jose, and Santa Monica. Some states such as Washington, Louisiana and Minnesota now also mandate that a certain percentage of all diesel fuel sold must be biodiesel.

Use of biodiesel is diverse, with a variety of users (e.g., municipalities, agencies, and utilities) and equipment and vehicle fleets, such as the following examples (Berkeleybiobiodiesel.org 2016):

- New common rail engines use biodiesel fuel, B5 or B20, depending on manufacturer.
- Automobile manufacturer acceptance and vehicular usage of biodiesel fuel began when Chrysler released the Jeep Liberty CRD diesels into the American market with B5, which was an indication of at least partial acceptance of biodiesel fuel usage in the automotive industry.
- The City of Halifax, Nova Scotia updated its bus system to allow the fleet of city buses to run completely on a fish-oil based biodiesel fuel.
- The McDonalds Corporation in United Kingdom produced biodiesel from the waste oil of its restaurants and use as biodiesel fuel to run its vehicle fleet. The British Train Operating Company, Virgin Trains was transformed to run on B20. The Royal Train runs on B100.
- The Disneyland Theme Park operates its park trains on B98 biodiesel blends.
- Caterpillar Corporation uses blends up to B20 in its off-road Tier 4 938K wheel loader. Caterpillar has approved the use of B20 biodiesel across its range of compact and mid-range engines.
- Komatsu Corporation announced that an acceptable biodiesel fuel blend of up to B20 can be used for all Komatsu engines.
- The Volvo Corporation warranty statement for Volvo Trucks' D11, D13, and D16 engines that the use of biodiesel up to a maximum of B20 in and of itself, will not affect the manufacturer's mechanical warranty as to engine and emissions system related components, provided the bio fuel used in the blend conforms to ASTM standards.

- 
- The John Deere Corporation announced that all John Deere engines can use biodiesel blends. B5 blends are preferred, but concentrations up to B20 can be used providing the biodiesel used in the fuel blend meets the ASTM standards.

Applications of biodiesel fuel can also be seen as a heating fuel in domestic and commercial boilers, using a blend of heating oil and standardized biofuel, known as "bio heat" (Berkeleybioddiesel.org 2016).

As of 2015, the annual U.S. production of biodiesel was 1,263 million gallons (U.S. Energy Information Administration (EIA 2016), and 32 million gallons in California (California Biodiesel Alliance 2016).

The USEPA has set a target of 18.8 billion (bn) gallons blended into the U.S.' fuel supply in 2017, up 4 percent from the 18.1 bn gallons set for this year, which includes 14.8 bn for conventional biofuels, mainly ethanol, up from 14.5 bn for this year. This figure is still far below the 24 bn gallon target in the Renewable Fuel Standard set in 2007 by Congress, which was aimed at cutting US oil imports and increasing renewable fuel use. In addition:

- Total renewable fuel volumes would grow by nearly 700 million gallons between 2016 and 2017.
- Biomass-based biodiesel, which must achieve at least 50 percent lifecycle emissions reductions, would grow by 100 million gallons between 2017 and 2018.
- Cellulosic biofuel, which requires 60 percent lifecycle carbon emissions reductions, would grow by 82 million gallons, or 35 percent, between 2016 and 2017.

### ***Biodiesel Benefits and Drawbacks***

The use of biodiesel has benefits and drawbacks. According to a USEPA study, the use of B20 can reduce emissions of hydrocarbons by 20 percent, CO by 11 percent, and PM by 10 percent; however it can increase NO<sub>x</sub> emissions by 2 percent. The use of biodiesel does not contribute substantial amounts of GHGs to the global climate change problem since they only emit back to the environment the CO<sub>2</sub> that their source plants absorbed from the atmosphere as part of the natural carbon cycle. A benefit of biodiesel is that it can be used in existing diesel engines with no physical changes needed.

Many producers have been unable to produce biodiesel that meets ASTM 6751 quality due primarily to their inability to remove all impurities and water during the washing and refining processes. The USEPA found that the use of B20 can reduce fuel efficiency by 1 to 2 percent. B100, and other diesel/biodiesel blends, are more expensive to consumers than standard diesel fuel, as a result of the rapidly rising feedstock prices and production problems of producers.

### **Applicability to Proposed Project:**

Future tenants and suppliers of the WLCSP warehouses may choose to use biodiesel. Given that buildout of the WLC will result in daily emissions of NO<sub>x</sub> well in excess of applicable significance levels, and NO<sub>x</sub> is the primary culprit in the Basin's ozone nonattainment status, the use of biodiesel in Project-related vehicles should not be mandated. However, because the use of biodiesel results in a reduction of hydrocarbons, CO, and PM as compared to conventional diesel, its use should not be discouraged or limited.

## Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG)

CNG and LNG are two forms of natural gas currently used in vehicles. CNG is produced by compressing natural gas to less than 1 percent of its volume at standard atmospheric pressure. To provide adequate driving range, CNG is stored onboard a vehicle in a compressed gaseous state within cylinders at a pressure of 3,000 to 3,600 pounds per square inch. CNG is used in light-, medium-, and heavy-duty applications. A CNG-powered vehicle gets about the same fuel economy as a conventional gasoline vehicle on a gallon of gasoline equivalent (GGE) basis. GGE is the typical way CNG is sold at public fueling stations. One GGE equals about 5.66 pounds of CNG.

LNG is natural gas that has been converted to liquid form for easier storage and transport. LNG is produced by purifying natural gas and super-cooling it to approximately -260 °F to turn it into a liquid. During the process known as liquefaction, natural gas is cooled below its boiling point, removing most of the compounds found in the fuel. The remaining natural gas is primarily methane with small amounts of other hydrocarbons. LNG must be kept at cold temperatures and stored in double-walled, vacuum-insulated pressure vessels. Because of LNG's relatively high production cost as well as the need to store it in expensive cryogenic tanks, the fuel's widespread use in commercial applications has been limited. One GGE equals about 1.5 gallons of LNG (U.S. Department of Energy, 2016).

There are three types of natural gas vehicles (NGVs):

- **Dedicated:** designed to run only on natural gas.
- **Bi-fuel:** have two separate fueling systems that enable them to run on either natural gas or gasoline.
- **Dual-fuel:** traditionally limited to heavy-duty applications have fuel systems that run on natural gas, and use diesel fuel for ignition assistance.

Light-duty vehicles are typically equipped with dedicated or bi-fuel systems, while heavy-duty vehicles use dedicated or dual-fuel systems. On the vehicle, natural gas is stored in tanks as CNG. Dedicated NGVs only have one fuel tank, and are not as heavy as bi-fuel NGVs and can offer more cargo capacity. The driving range of NGVs is generally less than that of comparable conventional vehicles because of the lower energy density of natural gas. Extra storage tanks can increase range, but the additional weight may displace cargo capacity.

LNG, a more expensive option, is used in some heavy-duty vehicles. The form of natural gas used is typically chosen based on the range an application needs. Because it is a liquid, the energy density of LNG is greater than CNG, so more fuel can be stored onboard the vehicle. As a result, LNG is more suitable than CNG for trucks that require longer ranges because liquid is more dense than gas, and, therefore, more energy can be stored by volume in a given tank. LNG is typically used in medium- and heavy-duty vehicles, such as Class 7 and 8 trucks requiring a greater range.

### **CNG/LNG Availability**

Natural gas powers approximately 150,000 vehicles in the United States and approximately 15.2 million vehicles worldwide. Both CNG and LNG are domestically produced, relatively low priced, and commercially available. Considered alternative fuels under the Energy Policy Act of 1992, CNG and LNG are sold in units of GGEs or diesel gallon equivalents (DGEs) based on the energy content of a gallon of gasoline or diesel fuel. A CNG/LNG fueling station is planned for the WLC site, as described in the WLC Specific Plan. It would service smaller on-

---

site CNG vehicles (e.g., forklifts) associated with the warehouses and would also be publically available for refueling.

### ***CNG/LNG Usage***

CNG and LNG usage has been supported by various companies in the past for off-road construction trucks and on-road heavy duty trucks, such as the following:

- With regard to off-road construction trucks, Caterpillar is developing large CNG powered mining trucks that would be used mainly for hauling mining ore, debris, and soil.
- For on-road trucks, Volvo offers two CNG-powered on-road heavy duty day cabs (Model VNL and VNM) equipped with a factory-installed Cummins ISL G engine (available 2013). The larger, more robust VNL model features a 12-liter Cummins- Westport ISX12 G gas engine. As of November 2016, Volvo VNL models are commercially available with the ISX12 natural gas engine.
- Terex introduced its first natural-gas-fueled mixer truck -- the front-discharge FD5000 “Great Lakes” --with a new 12-liter Cummins ISX12G engine available in ratings up to 400 hp and 1450 ft. lb. of torque, in 2014.
- Freightliner Trucks showcased its first 114SD concrete mixer with CNG technology at the 2013 World of Concrete in Las Vegas. In addition, there are other Freightliner trucks that run off of natural gas.

These engines discussed above are also incorporated into a number of mass transit uses. CNG/LNG is used in a variety of heavy-duty sources, such as school buses, transit buses, capacity trucks, tractors, and freightliners.

### ***CNG/LNG Benefits and Drawbacks***

Natural gas vehicles are good choices for centrally fueled fleets. CNG tank technology and safety are improving, and in many cases CNG can provide operators with adequate range (less than 250 miles/day) for their operations. For vehicles needing to travel long distances (greater than 250 miles/day), LNG is a better choice. The advantages of natural gas as a transportation fuel include its domestic availability, widespread distribution infrastructure, low cost, and inherently clean-burning qualities.

The horsepower, acceleration, and cruise speed of NGVs are comparable to those of equivalent conventional vehicles. However, torque levels are slightly lower compared to diesel fueled engines. The Cummins ISL G natural gas engine has a diesel counterpart, the ISL 9 engine. The ISL G (natural gas) provides torque levels of up to 1,000 lb-ft, while the ISL 9 (diesel) provides torque levels of up to 1,300 lb-ft. Although the ISL G and ISL 9 engines are rated for 80,000 lb line haul applications, the deficiency in torque result in trucks travelling slower to the receiver destination. As torque is required for hauling heavy loads upgrade, use of natural gas engines may not be feasible for hauling heavy loads.

Compared with conventional diesel and gasoline vehicles, NGVs can produce some emissions benefits. When used as a vehicle fuel, natural gas can offer life cycle GHG emissions benefits over conventional fuels, depending on vehicle type, drive cycle, and engine calibration. In addition, using natural gas may reduce some types of tailpipe emissions from fuel combustion in a vehicle's engine. The emissions of primary concern include the regulated emissions of hydrocarbons, NO<sub>x</sub>, CO, as well as CO<sub>2</sub>. Due to increasingly stringent emissions regulations, the gap has narrowed between tailpipe emissions benefits from NGVs and conventional vehicles with modern emissions controls. USEPA is requiring all fuels and vehicle types to meet increasingly lower, near zero, thresholds for tailpipe emissions of air pollutants. Still, NGVs continue to provide emissions benefits, especially when replacing older conventional vehicles or when considering life cycle emissions (ADFC 2016).

There are many heavy-duty NVGs—as well as a number of light-duty NGVs—available from original equipment manufacturers. Qualified system retrofitters can also economically, safely, and reliably convert many vehicles for natural gas operation.

However, unlike biodiesel, which is a fuel which can be used interchangeably with conventional diesel with no physical alteration of the engine needed, powering heavy duty equipment with CNG or LNG requires a major engine retrofit or for new equipment to be purchased with a CNG/LNG compatible engine to be installed by the original engine manufacturer (OEM). Thus, the use of CNG or LNG can prove to be costly.

California’s Low Carbon Fuel Standard (LCFS) is starting to drive a growing preference for EVs over natural gas and other fossil-fueled vehicles. Even after accounting for the emissions associated with generating electricity (based on California’s grid mix), electric buses, for example, typically have 70 percent lower GHGs and 50 percent lower NOX emissions than diesel and natural gas buses on a life cycle basis (Chandler, Espino, and O’Dea 2017). The LCFS helps make electric trucks and buses more affordable to companies and government agencies that purchase heavy-duty vehicle fleets because they can generate and sell LCFS credits and use the proceeds however best serves their business needs.

#### **Applicability to Proposed Project:**

The WLC Specific Plan requires that smaller on-site service vehicles associated with the warehouses will (such as forklifts) use non-diesel fuels such as compressed natural gas (CNG). The Proposed Project would include a CNG/LNG fueling station on-site that would service these vehicles and would also provide refueling to the public. Environmental Analysis for the project indicates that 204 trucks could refuel at the station each day based on trip rates presented in the Project’s traffic study. The environmental analysis is conservative in that the traffic study uses a gas station with convenience store for deriving trip generation rates, which would be higher than for a CNG/LNG station.

CNG and LNG vehicles, along with a supporting refueling infrastructure, are applicable to the Proposed Project, and the Proposed Project is providing the refueling infrastructure to support their use. However, future growth of CNG/LNG trucks is speculative due to the financial incentive of the LCFS, increasingly strict NOx regulations, and market competition from BEVs and other ZEVs. Future tenants and suppliers of the WLCSP warehouses may choose to use trucks powered by natural gas. Given that buildout of the WLC will result in daily emissions of NOx well in excess of applicable significance levels, and NOx is the primary culprit in the Basin’s ozone nonattainment status, the use of natural gas in Project-related vehicles could benefit the project relative to the use of diesel-powered trucks, but it should not be mandated because ZEVs provide even more benefit.

---

## 4. References

- California Air Resources Board (CARB), 2015. *Technology Assessment Medium- And Heavy- Duty Battery Electric Trucks And Buses*, [https://www.arb.ca.gov/msprog/tech/techreport/bev\\_tech\\_report.pdf](https://www.arb.ca.gov/msprog/tech/techreport/bev_tech_report.pdf). Accessed February 2018.
- CARB, 2016, Mobile Source Strategy, May, 2016. Available at: <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm> . Accessed March 2018.
- CARB, 2017, *California's 2017 Climate Change Scoping Plan: the strategy for achieving California's 2030 greenhouse gas target*, November, 2017.
- California Department of Transportation (CalTrans) 2016. California Sustainable Freight Action Plan. <http://www.casustainablefreight.org/theplan.html> . Accessed February 2018.
- California Energy Commission (CEC) 2011, California Energy Efficiency Strategic Plan, <http://www.cpuc.ca.gov/general.aspx?id=4125>. Accessed February 2018.
- CEC, 2017a, Tracking Progress: Energy Storage. Available at: [http://www.energy.ca.gov/renewables/tracking\\_progress/](http://www.energy.ca.gov/renewables/tracking_progress/) . Accessed February 2018.
- CEC, 2017b, Tracking Progress: Renewable Energy. Available at: [http://www.energy.ca.gov/renewables/tracking\\_progress/](http://www.energy.ca.gov/renewables/tracking_progress/) . Accessed February 2018.
- CEC, 2017c, Tracking Progress: Resource Flexibility. Available at: [http://www.energy.ca.gov/renewables/tracking\\_progress/](http://www.energy.ca.gov/renewables/tracking_progress/) . Accessed February 2018.
- CEC, 2017d, Tracking Progress: Zero-Emission Vehicles and Infrastructure. Available at: [http://www.energy.ca.gov/renewables/tracking\\_progress/](http://www.energy.ca.gov/renewables/tracking_progress/) . Accessed February 2018.
- CEC, 2018. California Energy Demand 2018-2030 Revised Forecast. CEC-200-2018-002-SD. Available at: [http://www.energy.ca.gov/2017\\_energypolicy/documents/](http://www.energy.ca.gov/2017_energypolicy/documents/) . Accessed February 2018.
- California Public Utilities Commission (CPUC), 2018. *Summary of Approved SB 350 Transportation Electrification Priority Review Projects for SDG&E, SCE, and PG&E*. Available at <http://www.cpuc.ca.gov/sb350te/> . Accessed February 2018.
- CALSTART, 2013, I-710 Project Zero-Emission Truck Commercialization Study. Prepared for Gateway Cities Council of Governments and Los Angeles County Metropolitan Transportation Authority, November 20, 2013.
- CALSTART, 2018. Charts provided by Kristian Jokinen of CALSTART on April 26, 2018.
- Chandler, S., J. Espino, and J. O'Dea. 2017. *Delivering opportunity: How electric buses and trucks can create jobs and improve public health in California*. Cambridge, MA, and Berkeley, CA: Union of Concerned Scientists and The Greenlining Institute. Online at [www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf](http://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf).
- First Carbon Solutions/Michael Brandman Associates, 2015, Air Quality, Greenhouse Gas, and Health Risk Assessment Report for World Logistics Center. Included as Appendix D of the DEIR for World Logistics Center, City of Moreno Valley, California.

Next 10, with Beacon Economics, 2018, *The Road Ahead for Zero-Emission Vehicles in California: Market Trends & Policy Analysis*. Available at: <http://next10.org/zev> . Accessed March, 2018.

Oilprice.com 2016. *Alternative-Energy/Biofuels/U.S.-Military-gets-Serious-about-Biofuels.html*. Available at <http://oilprice.com/Alternative-Energy/Biofuels/U.S.-Military-gets-Serious-about-Biofuels.html>. Accessed February 2018.

South Coast Air Quality Management District (SCAQMD) 2017, Comments on the Draft Program Environmental Impact Report for the Santa Susana Field Laboratory Project, Attachment B: Zero Emission Truck Technologies. Letter to the California Department of Toxic Substances Control (DTSC), dated November 28, 2017.

United States Department of Energy, “Energy Efficiency and Renewable Energy,” <http://www.afdc.energy.gov>. Accessed February 2018.

United States Environmental Protection Agency (USEPA) 2015. *The Green Book Non-attainment Areas for Criteria Pollutants*, <https://www.epa.gov/green-book>. Accessed February 2018.

## **E-2 WSP Renewable Technology Feasibility Report**



HIGHLAND FAIRVIEW

# WORLD LOGISTICS CENTER

## COMPARISON OF RENEWABLE ENERGY TECHNOLOGIES

MAY 24, 2018







# WORLD LOGISTICS CENTER

## COMPARISON OF RENEWABLE ENERGY TECHNOLOGIES

TECHNICAL REPORT (5<sup>TH</sup> DRAFT)

PROJECT NO.: 12877B  
DATE: MAY 2018

WSP  
SUITE 300W  
4840 PEARL EAST CIRCLE  
BOULDER, CO 80301

TEL.: +1 303 551-0936

WSP.COM





---

# PRODUCTION TEAM

## CLIENT

Project Director Brian Hixson

## WSP

Project Manager Basem Muallem

Deputy Project Manager Chris Turnage

Technical Director Evan A. Evans

Deputy Technical Director Alan Davis

Lead Energy Analyst Derek Fehrer

Supporting Energy Analyst John Bynum

Supporting Energy Analyst Taylor Burdge

## OTHER CONSULTANTS

Lead Air Quality Analyst Heidi Rous, Environmental Science Associates

Supporting Air Quality Analyst Jeff Caton, Environmental Science Associates



---

# EXECUTIVE SUMMARY

## OVERVIEW

At the request of Highland Fairview, WSP has conducted a comparison of renewable energy technologies and energy efficiency strategies which could be incorporated into the World Logistics Center (WLC) project (“Project”) to reduce its energy use and energy-related environmental impacts.

The Project is a 40.6 million square foot logistics campus on the eastern side of the City of Moreno Valley. For the purposes of this analysis the project is assumed to be developed in two phases. Phase 1 consists of 15 buildings totaling 22,560,000 sf and is assumed to be completed in the year 2025. Phase 2 consists of 12 buildings totaling 18,040,000 sf and is assumed to be completed in 2040.

WSP’s approach involved first estimating the Project’s overall energy needs. This is known as the “Demand-Side Energy Analysis.” WSP then identified specific ways that these energy needs could be reduced through the incorporation of a variety of energy efficiency technologies into the project design. Once the Demand-Side Energy Analysis was complete, WSP evaluated various means for supplying renewable clean energy to meet the reduced energy needs. This is known as the “Supply-Side Energy Analysis”.

## DEMAND-SIDE ENERGY ANALYSIS

The demand-side energy analysis was conducted using the IES hourly energy simulation software. To utilize the software, an accurate model of a typical Project building was developed, which included the details of a typical building such as the type of building construction material (concrete, wood, or metal), the amount of heating, ventilation and air-conditioning (HVAC) equipment, the type and extent of interior lighting, and the type and extent of material-handling equipment that would go into a typical WLC building. This established a prototype building that would be minimally compliant with the State of California’s Title 24 building code requirements.

The Title 24-compliant prototype was then modified to incorporate the energy conservation measures (ECMs) to which the Project has committed in the WLC Specific Plan. The adjusted model represented the baseline model against which the energy performance of several additional ECMs were compared, creating a Project Building Model that took the Project well beyond Title 24 compliance.

The Demand-Side Analysis showed the package of ECMs in the Project Building Model provided a 17% improvement in energy performance and an equally impressive 18% reduction in GHG emissions over the baseline model. Key ECMs assumed in the Project Building Model were variable refrigerant flow (VRF) heat pumps providing heating and cooling to the office spaces, direct evaporative cooling as the first cooling stage and VRF as the supplemental cooling stage for any potential air-conditioned warehouse spaces, LED lighting throughout the offices and warehouses, and LED exterior and parking lot lighting.

The estimated overall energy demand for the Project assumes that all WLC buildings will incorporate the features of the Project Building Model, and will also accommodate electric vehicle (EV) energy usage at WLC, as discussed herein. While EV usage is expected to increase substantially over time, EV energy usage was not included in the

Demand-Side Analysis to highlight the effectiveness of the ECM's, which do not have any effect or offer any benefits regarding EV energy usage. A Summary of the Overall Energy Analysis Results with EV usage included is below.

### SUPPLY-SIDE ENERGY ANALYSIS

The Project Building Model incorporating the recommended ECMs provided the analytical baseline against which potential renewable clean energy options were measured. WSP evaluated the Project site, its land uses, the circulation plan and existing utilities, along with other constraints and opportunities, to compile a comprehensive list of potential energy supply options. A screening process was applied to narrow the comprehensive list down to those several options that held the greatest potential for being successfully implemented at the Project. Screening criteria that caused some of the energy supply options to be discarded involved safety considerations, regulatory barriers, air emissions concerns, and technical impracticalities. The following table summarizes the Energy Resources considered.

#### Energy Resources Screening Results

Supply Option	Screening Criteria				
	Carbon	Resiliency	Financial	Technical	Regulatory
<b>Recommended for further investigation:</b>					
Combined Cooling, Heat and Power (CCHP)	—	✓	✓	✓	—
Ground Source Heat Pump (GSHP)	✓	—	—	—	✓
Solar photovoltaic (PV)	✓	—	—	✓	✓
Solar PV + battery	✓	✓	—	✓	✓
Off-site procurement	—	—	✓	✓	—
<b>Not recommended for further investigation:</b>					
Biomass	✓	✓	—	✗	✗
Biogas/landfill gas	✓	✓	—	✗	—
District energy	✓	✓	✗	✗	—
In-line hydro	✓	✓	—	✗	—
Microgrid	✓	✓	✗	✓	✗
Natural gas pressure recovery	✓	✓	—	✗	—
Wind	✓	—	—	✗	✗

The energy supply options emerging from the screening process were then subjected to engineering analysis to develop a technical basis for identifying the single best supply-side option for use at the WLC project. Ground-source heat pumps (GSHPs); combined cooling, heat, and power (CCHP); and solar photovoltaics (PV) with and without battery storage were modeled with the HOMER Energy simulation tool and other specialized software. Purchasing of green power (offsite procurement) from renewable energy projects located away from the WLC site was also considered among the sustainable energy options.

## **SUPPLY-SIDE CONCLUSIONS**

WSP concluded in its analysis that GSHPs are not recommended for the Project due to the cooling requirements within the building being much greater than the building heating needs as a result of year-round weather conditions at the WLC site. Such an imbalance would cause the geexchange field (where excess heat removed from the building by the cooling process is transferred via piping into the ground) to grow increasingly warmer over time. This, in turn, would degrade GSHP performance in providing building space cooling.

CCHP produces air emissions, resulting from the combustion of fossil fuels, that exacerbate the poor air quality of Moreno Valley and the entire South Coast Air Quality Basin. Furthermore, CCHP increases the Project's GHG emissions since it produces more GHG emissions than California's increasingly green grid.

Moreno Valley Utilities (MVU) is the utility provider for the Project and while solar PV is a viable option, MVU has limitations in its Electric Service Rules on the amount of PV allowed for commercial and industrial projects. A system that combines PV with battery storage of excess solar generation was considered, but the MVU solar sizing limitations and the estimated WLC Project demands do not result in excess solar generation to charge a battery. In addition, MVU's Time-of-Use rate structure is not compatible with the Project's peak electrical usage (load curve) making the use of batteries to deliver any meaningful reduction an unviable option.

Considering the air emissions constraints, MVU rate structures, Project electric load curves, and MVU PV sizing rules, rooftop PV systems without energy storage were determined to be the Project's best sustainable clean energy supply option. To determine the specific allowable PV size, WSP analyzed the hourly electric loads simulated using the IES modeling software. Phase 1 building simulation produced a minimum daytime electric load of about 600 kW. The minimum daytime electric load for Phase 2 buildings was simulated to be about 1,600 kW. Thus, since MVU limits on-site PV size to one-half the minimum electric demand a building experiences during daytime hours, Phase 1 buildings can provide up to 300 kW of PV (one-half the 600 kW minimum daytime electric load) and Phase 2 buildings can provide up to 800 kW (one-half the 1,600 kW minimum daytime electric load). The combination of the recommended ECM package and allowed rooftop solar enables the Project to meet more than 50% of its annual energy requirements from renewable energy.

Utilizing the maximum permitted amount of rooftop PV would enable the Project office spaces to achieve effectively net-zero energy (NZE) operations. In Phase 1 this would amount to the equivalent of fifteen 60,000 square-foot NZE office buildings. At full build-out this would amount to the equivalent of twenty-seven 60,000 square-foot NZE office buildings. To put this in context, the entire state of California has about 30 NZE office buildings in operation, under construction, or publicly committed as of 2016.

WSP's IES computer model of the Project buildings established the following annual energy usage of the office spaces for each building and the PV generation for each building as follows. Note that advances over time in energy efficiency technologies are assumed to result in less energy usage by Phase 2 offices:

**Office Demand and PV Generation per Building**

Description	Phase 1		Phase 2	
	Annual Energy Use (kWh/yr)	Peak Demand (kW)	Annual Energy (kWh/yr)	Peak Demand (kW)
Office-only energy usage per building	474,120	280	417,230	270
PV generation per building	512,400	300	1,366,400	800
Total project office energy usage	7,111,800	4,200	5,006,707	3,240
Total project PV generation	7,686,000	4,500	16,396,800	9,600

As shown in the table above, the use of PV in each phase would cover both the peak electric load generated by the offices and the annual energy usage of the offices, thereby achieving effective NZE status for the offices. Due to the highly speculative nature of the EV penetration in Phase 2, project mitigation measures require the project to upgrade the structural integrity of the roof on each building to accommodate the possibility of future solar installation over the entire roof. At a minimum, the project will install enough solar power in both phases to meet energy needs of the Project's office spaces.

**ELECTRIC VEHICLE CHARGING LOADS**

The use of electric vehicles (EVs) by the motoring public and in industry is projected to increase substantially over the period of Project build-out. Title 24 currently requires 6% of on-site parking spaces be designed to accommodate EV charging of passenger and light-duty truck vehicle classes. These minimum Title 24 requirements were applied to estimate the additional Phase 1 electricity usage at the Project attributable to EV charging. Because Phase 2 build-out concludes in 2040, EV charging energy usage is highly speculative, but the Project analysis assumed EV projections consistent with California policy trends.

The projected EV electric needs are significant for Phase 1 of the Project, amounting to about 6% of the total energy usage. At full build-out of the Project, projected EV impact is substantial, accounting for more than one-third of total energy usage by the WLC project. The incremental EV charging needs determine the overall minimum daytime electric load on each building. This, in turn, defines MVU's allowable amount of PV on each building's roof, establishing 300 kW as the expected maximum amount of allowed PV on each Phase 1 building, and accounting for the increase to a maximum of 800 kW of PV expected to be allowed on each Phase 2 building.

## OVERALL PROJECT ELECTRICITY NEEDS

The combination of the electricity consumed by the buildings and that used by on-site EV chargers will result in a significant new load to be met by MVU's system. The table below summarizes the megawatts of peak electric demand projected to be associated with each phase of WLC development.

### Peak Electric Demand for WLC Development

Stage	Number of Buildings	Total Peak Demand (MW)
Phase 1	15	36.5
Full Build	27	83.3

## SUMMARY OF ENERGY ANALYSIS RESULTS

A summary of the projected energy performance of the Project is presented in the following tables. Phase 1 results are multiplied by the 15 buildings that are planned for the initial phase of construction. Build-out results are multiplied by 27 buildings in the total Project (15 buildings in Phase 1 plus 12 buildings in Phase 2). The first table summarizes the impact of the recommended ECM package, relative to buildings that are minimally compliant with Title 24. Note that these figures *do not include EV electricity usage or PV generation* in order to paint a clear picture of the efficacy of the recommended ECM package. The results demonstrate that the recommended ECMs are expected to deliver energy savings of 16 – 17%.

### Energy Efficiency Performance for WLC Development

Stage	Energy Savings (MWh/yr)	Energy Savings (%)	GHG Savings (tonnes CO <sub>2</sub> e/yr)	GHG Savings (%)	Renewable Energy Supply (%)*
Phase 1	34,892	16.7%	6,019	10%	49%
Full Build	57,449	16.2%	9,085	18%	55%

The second table summarizes the impact of the allowed PV capacities, relative to buildings incorporating the recommended ECM package. Note that these figures *include EV electricity usage* in order to paint a clear picture of the efficacy of on-site electricity generation via PV. This explains the much smaller values for energy savings and GHG savings.

### Solar PV Performance for WLC Development

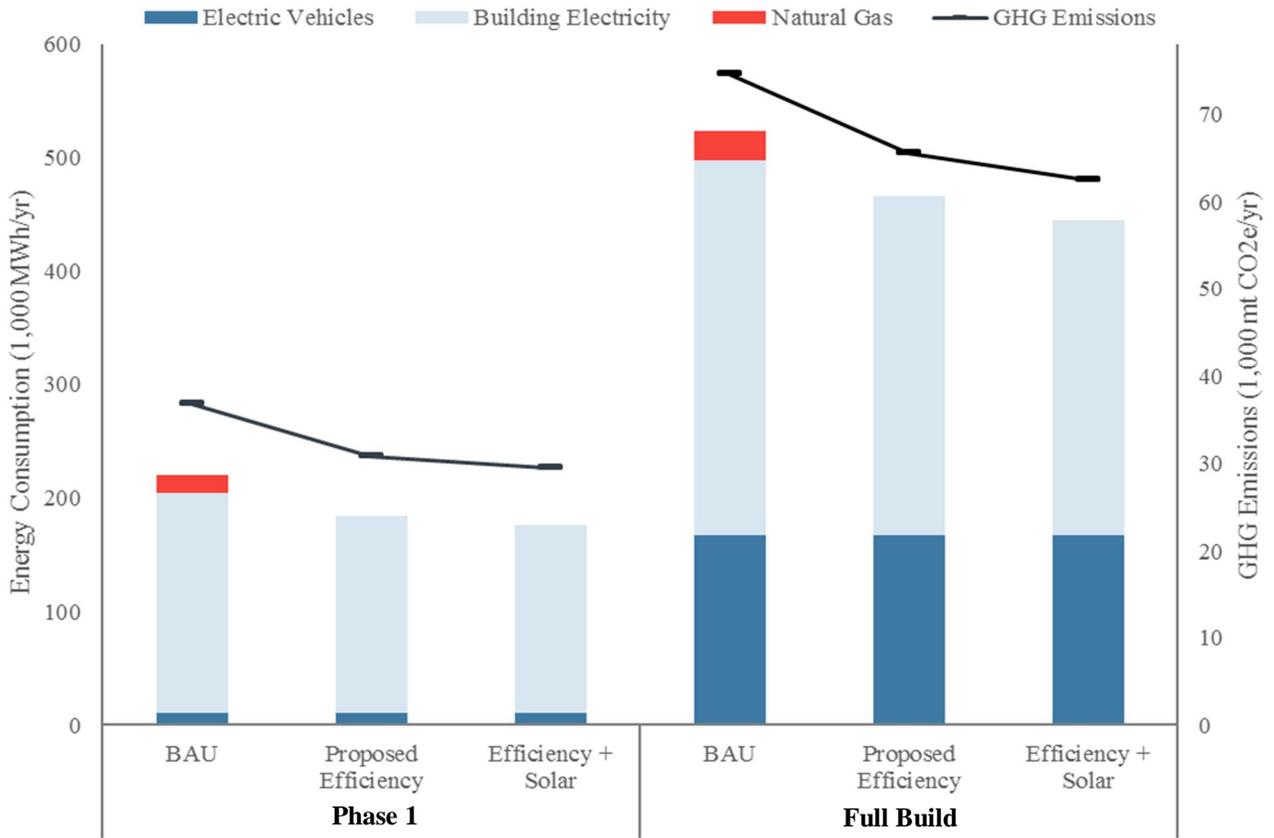
Stage	Energy Savings (MWh/yr)	Energy Savings (%)	GHG Savings (tonnesCO <sub>2</sub> e/yr)	GHG Savings (%)	Renewable Energy Supply (%)*
Phase 1	7,686	4%	1,276	4%	51%
Full Build	24,083	5%	3,386	5%	57%

\*Renewable energy fraction takes account of renewables on the California grid

The bar chart below graphically presents the projected energy usage and GHG emissions for the entire Project at the end of Phase 1 and the end of Phase 2. The business-as-usual (BAU) bar reflects minimal compliance with Title 24;

the middle bar represents the recommended ECM package; and the third bar shows the combination of the ECM package and allowable PV.

**Phase 1 and Full Build-Out Energy and GHG Results**



**OFF-SITE RENEWABLE ENERGY PROCUREMENT**

Under current regulations, WLC tenants will be able to purchase electricity only from MVU. In the interest of completeness of the discussion on the topic of renewable energy, we herein describe multiple off-site renewable electricity procurement methods that are available in many other electric utility service territories. These include:

- Unbundled renewable energy certificates (RECs);
- Power purchase agreements (PPAs);
- Community choice aggregation (CCA);
- Green tariffs.

There is no one-size-fits-all recommendation for procurement of off-site renewable energy. Each customer’s circumstances are likely to be unique, so the best off-site procurement option for one may very well not be the best option for another.

To meet the Project Objectives and the City’s Economic Development Objectives (see Section 3.6 of the Project Final EIR and Section 1.3.1 of the WLC Specific Plan), WLC must establish and maintain a competitive position in meeting these objectives. The price premium associated with off-site renewable energy procurement would increase

WLC tenant utility costs and thus run counter to the Project Objectives and the City's Economic Development Objectives. Even if regulations allowed it, it would be counterproductive to require WLC tenants to procure renewable energy from off-site sources. For these reasons, the concept of requiring a tenant to procure off-site renewable energy was not considered a viable sustainable supply option to impose on the Project. Should electricity regulations change in the future to allow procurement of off-site renewable energy, and should WLC tenants elect for corporate, marketing, or other reasons to pursue procurement of off-site renewable energy, the means of doing so via one of the means presented in this report may become available to them.







# TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	Authorization .....	1
1.2	Purpose.....	1
2	BACKGROUND.....	2
2.1	World Logistics Center.....	2
2.2	Energy Context .....	2
3	BASELINE PERFORMANCE .....	4
3.1	Project Phasing.....	4
3.2	Prototype Buildings.....	4
3.3	Electric Vehicles .....	6
3.4	Baseline Energy Performance.....	7
3.5	WLC Energy Projections .....	7
4	DEMAND-SIDE ENERGY ANALYSIS.....	9
4.1	Recommended Measures .....	9
4.2	Tenant Loads .....	11
5	SUPPLY-SIDE ENERGY STRATEGY .....	12
5.1	Energy Supply Screening.....	12
5.2	Ground-Source Heat Pump .....	15
5.3	Fuel Cell Combined Cooling, Heat, and Power.....	15
5.4	Solar PV.....	16
5.5	Energy Storage .....	17
5.6	Off-Site Renewable Energy Procurement.....	18
5.7	Recommended Path Forward.....	25
6	CONCLUSION .....	26
6.1	Summary of Opportunities.....	26

6.2	Summary of Recommendations .....	26
7	APPENDIX A: CURRENT AND FUTURE ENERGY CONTEXT .....	27
7.1	Electric Grid Projections.....	27

---

**FIGURES**

FIGURE 1: WLC MAP.....	2
FIGURE 2: BASELINE MONTHLY ENERGY CONSUMPTION .....	5
FIGURE 3: AVERAGE WEEKDAY ELECTRIC LOAD PROFILES .....	6
FIGURE 4: PROJECTED BUSINESS-AS-USUAL ANNUAL ENERGY CONSUMPTION AND GHG EMISSION FROM WLC .....	8
FIGURE 5: ENERGY AND GHG IMPACT FOR PHASE 1 .....	11
FIGURE 6: ENERGY AND GHG IMPACT OF PROPOSED ECMS + PV FOR PHASE 1.....	25
FIGURE 7: CAMX EMISSIONS FACTOR PROJECTION.....	27

---

**TABLES**

TABLE 1: GHG EMISSION FACTORS .....	3
TABLE 2: WLC PHASING SCHEDULE.....	4
TABLE 3: PROTOTYPE BUILDING SPECIFICATIONS .....	4
TABLE 4: BREAKDOWN OF ENERGY USAGE INTENSITY .....	7
TABLE 5: ECM DESCRIPTIONS.....	10
TABLE 6: EFFICIENCY SCENARIO PERFORMANCE .....	10
TABLE 7: SCREENING CRITERIA MATRIX.....	12
TABLE 8: ENERGY RESOURCES SCREENING RESULTS .....	13
TABLE 9: FUEL CELL PERFORMANCE .....	16
TABLE 10: SOLAR PV PERFORMANCE.....	17
TABLE 11: UNBUNDLED RECS .....	20
TABLE 12: VPPA EVALUATION .....	22
TABLE 13: CCA EVALUATION .....	23
TABLE 14: GREEN TARIFF EVALUATION .....	24

# 1 INTRODUCTION

---

## 1.1 AUTHORIZATION

WSP has been engaged to undertake an analysis of feasible renewable energy technologies that make sense for the World Logistics Center (WLC).

---

## 1.2 PURPOSE

The objective of this analysis is to identify potential renewable energy options for the WLC that will improve energy performance and reduce greenhouse gas (GHG) emissions of the WLC. The analysis considers Phase 1 and Phase 2 of the WLC. This document reports on analytical outcomes including:

- High level screening of all potential demand-side options to maximize the energy efficiency of the buildings and therefore minimize WLC energy consumption,
- High level screening of all potential supply-side options to deliver sustainable energy to the buildings,
- More detailed analysis of the options that show the best potential.

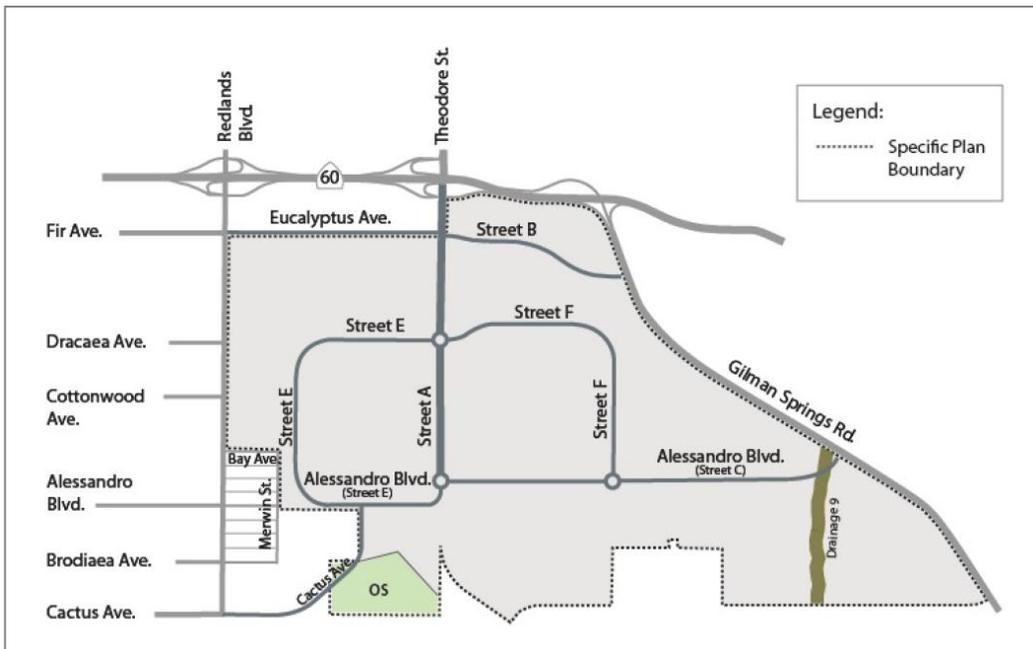
Evaluations considered the financial, energy, carbon, and technical feasibility of each option. Obviously infeasible options were screened out, including any supply-side options involving combustion of fossil fuels, due to Moreno Valley and the entire South Coast Air Quality Basin being out of compliance for NO<sub>x</sub> and other air pollutants. This analysis includes electricity consumption of mobile energy end uses, including electric forklifts used in future WLC warehouses and electric passenger vehicles and electric light-duty trucks expected to be charged in future WLC parking lots.

# 2 BACKGROUND

## 2.1 WORLD LOGISTICS CENTER

The World Logistics Center (WLC) is a master-planned development encompassing 2,610 acres in Moreno Valley California, as shown in Figure 1. At full build-out the development will include up to 40.6 million square feet of building area. The vision for the World Logistics Center is to establish a world class corporate park specifically designed to support large-scale logistics operations.

Figure 1: WLC Map



WSP has undertaken an energy analysis the results of which are presented in this report. This report is intended to guide development of an updated EIR and help determine the best path forward to incorporate renewable energy into the development.

## 2.2 ENERGY CONTEXT

### 2.2.1 ELECTRIC UTILITIES

Moreno Valley Electric Utility (MVU) is expected to provide electric services to the WLC. A report developed by Utility Specialists determined that MVU will need to construct additional substation capacity beyond already planned expansions to meet the electric needs of the WLC. Therefore, reducing peak electricity demand from the WLC can also reduce the additional substation capacity required to serve the WLC.

Tenants of the WLC will contract for utility services directly with MVU. The rate structure for each account is determined by the monthly maximum demand. WSP expects that all proposed buildings in the WLC will exceed the 20 kW demand threshold specified by MVU and will therefore be subject to *Schedule C – Large General Service*. Tenants will also be eligible for *Schedule TOU-LGS – Time of Use – Large General Service* rates. However, analysis using energy models and

15-minute interval consumption data from five existing logistics buildings in the MVU service territory determined that a time-of-use rate is not advantageous to the customer. Therefore, the WSP analysis was conducted with the assumption that tenants at the WLC will be subject to the rates specified in *Schedule C – Large General Service* for primary voltage customers. The rate structure is such that customers can decrease their energy costs by reducing monthly peak electricity demand, reducing electricity consumption, or improving the power factor of their facility. Analysis of the renewable energy options within this report considers the impact of reducing monthly peak electricity demand and reducing electricity consumption.

MVU offers a solar net energy metering program to its customers. A successor rate to net energy metering, NEM 2.0, was adopted by the City Council on April 17, 2018. Under this new rate, customers will be paid for any excess generation at the end of each billing period, and will receive a dollar-denominated credit on their bill. However, based on conversation with MVU, WSP expects that this program will not be available to the WLC because of the expected size of each of the warehouses at the development. Furthermore, MVU imposes limits on the capacity of on-site solar PV generation that can be installed by their customers. Per *Resolution No. 2017-20* the “maximum solar generating capacity that will be approved to be connected to each meter is up to 50% of the meter minimum daytime load.” This dramatically limits the amount of on-site solar generation that can be installed at WLC buildings.

## 2.2.2 NATURAL GAS UTILITIES

Southern California Gas Company (SCG) provides natural gas services in the WLC area for space heating and service water in the business-as-usual scenario. It is assumed that the tenants of the WLC will contract for natural gas services directly with SCG and be subject to the *GN-10* rates. A new natural gas distribution network at the site is required to provide natural gas services to individual buildings. In an all-electric scenario where WLC buildings do not consume natural gas, there is no need for a natural gas distribution network and capital cost savings can be realized.

## 2.2.3 GHG EMISSIONS

Electricity emissions factors for both Phase 1 and Phase 2 were calculated using 2016 eGRID factors for California-Mexico Power Area (CAMX) and changes in the energy resource mix projected by U.S. Energy Information Administration (EIA). As discussed in Appendix A: Current and Future Energy Context, the EIA projects that the California grid’s emission factor will decline 31% from current levels by 2025 and 41% by 2040.

For natural gas, an emissions factor of 117 lb CO<sub>2e</sub>/MMBTU (pounds of CO<sub>2</sub>-equivalent per million BTU) was used to calculate GHG emissions per guidance from EPA’s mandatory reporting rule. This emissions factor was held constant for both Phase 1 and Phase 2.

**Table 1: GHG emissions factors**

Phasing	Grid Electricity (lb CO <sub>2e</sub> /MWh)	Natural Gas (lb CO <sub>2e</sub> /MMBTU)
Phase 1 (2025)	366	117
Phase 2 (2040)	310	117

## 2.2.4 CRITERIA POLLUTANTS

The Moreno Valley air shed within the South Coast Air Quality Management District (SCAQMD) currently exceeds allowable NO<sub>x</sub> limits by a factor of three. Consequently, distributed energy resources that emit NO<sub>x</sub> were excluded from further analysis.

# 3 BASELINE PERFORMANCE

## 3.1 PROJECT PHASING

The WLC project will be built out over a 20-year period. For purposes of this analysis, it was assumed that there will be a total of 27 distribution centers, each of approximately 1.5 M ft<sup>2</sup>, planned for construction completion by 2040. Fifteen of the 27 buildings will be built during Phase 1 (2020-2025) with the remaining 12 buildings being constructed during Phase 2 (2025 – 2040). When complete, WLC will total approximately 40.6 M ft<sup>2</sup> of floor area.

Based on the distribution centers that currently exist within the MVU service territory, this analysis assumes that about 11% of the WLC buildings will feature air-conditioned warehouses. No refrigerated warehouses were included.

The complete phasing schedule is detailed in Table 2.

**Table 2: WLC phasing schedule**

		Unconditioned	Air-Conditioned	Total
<b>Phase 1</b> 2020 - 2025	<b>Number of Buildings</b>	13	2	15
	<b>Floor Area (ft<sup>2</sup>)</b>	19.55 M	3.01 M	22.56 M
<b>Phase 2</b> 2025 - 2040	<b>Number of Buildings</b>	11	1	12
	<b>Floor Area (ft<sup>2</sup>)</b>	16.54 M	1.5 M	18.04 M
<b>Full Buildout</b>	<b>Number of Buildings</b>	24	3	27
	<b>Floor Area (ft<sup>2</sup>)</b>	36.09 M	4.51 M	40.6 M

## 3.2 PROTOTYPE BUILDINGS

WSP developed Title 24-compliant energy models for air-conditioned and unconditioned prototype buildings. Each model contains details about building construction; lighting systems and controls; heating, ventilating, and air-conditioning (HVAC) systems and controls; and office equipment. The prototype buildings were created based on the building space usages, floor areas, and operating schedules specified in Table 3.

**Table 3: Prototype building characteristics**

Primary Usage	Area Breakdown		Operating Schedule		
	Area (ft <sup>2</sup> )	Percent	Weekdays	Saturday	Sunday/Holiday
Office	60,144	4%	8:00 AM – 6:00 PM	Not Operational	Not Operational
Warehouse	1,443,556	96%	8:00 AM – 12:00 AM	8:00 AM – 4:00 PM	Not Operational
<b>Whole Building</b>	<b>1,503,700</b>	<b>100%</b>			

As-built construction drawings and actual metered electricity usage data for the existing Skechers building and a sample of other distribution center buildings in the MVU territory were used to estimate the process loads (such as electric forklifts and conveyance systems) within the warehouses. The process loads were extracted from hourly metered data by subtracting the lighting and HVAC loads produced by the baseline building energy models. The resulting estimate of process equipment electricity usage was spot-checked against actual metered data collected by MVU on select Skechers forklift battery chargers and conveyance motors. This estimated process load data was adjusted to account for WLC’s projected operating schedule and then used as inputs to the prototype models.

The air-conditioned and unconditioned prototype models were then driven with Moreno Valley long-term average weather data to produce the baseline annual hourly building energy loads against which the energy demand-side options and the energy supply-side options were evaluated (see Sections 4 and 5).

Figure 2 details monthly energy consumption for both the air-conditioned and unconditioned warehouses. Lighting and equipment is responsible for most of the energy consumption, even in the air-conditioned warehouses. Energy usage in the air-conditioned warehouses is highest during the winter months with natural gas representing 30% of the monthly energy consumption. In contrast, the unconditioned warehouse shows little seasonal variation. *Note that the Title 24-compliant buildings use natural gas for space heating and for domestic hot water.*

**Figure 2: Baseline monthly energy consumption**

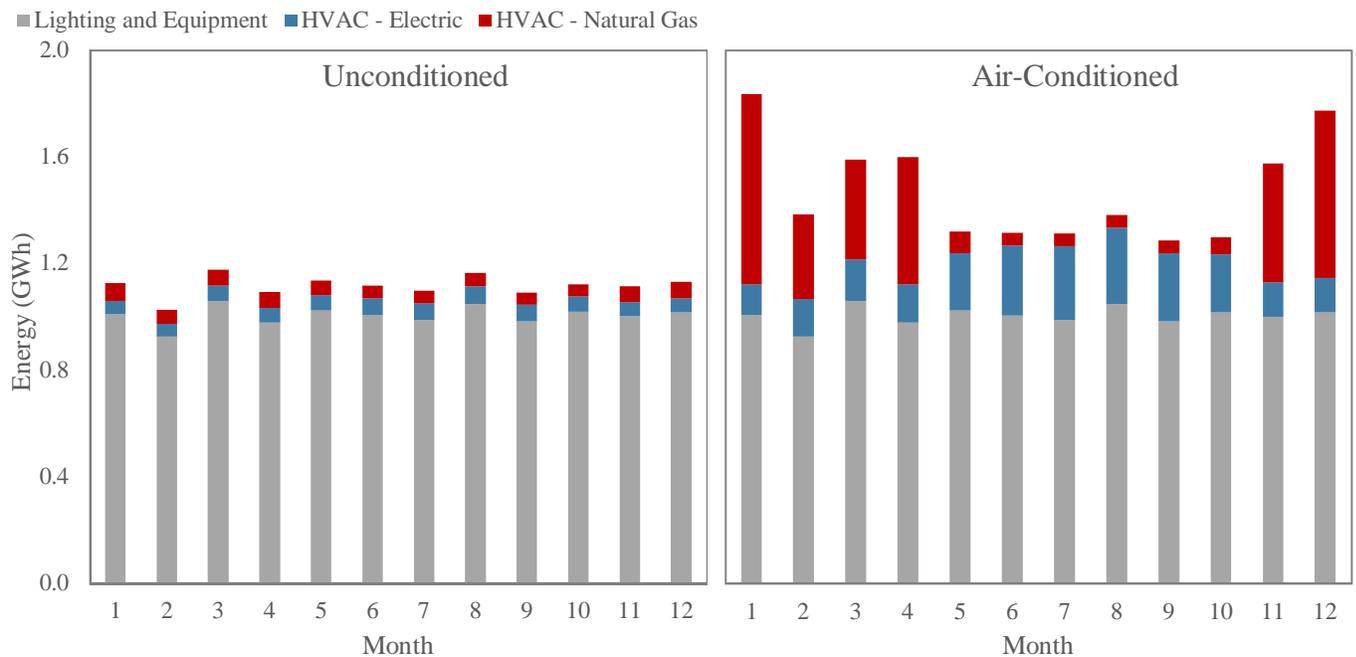
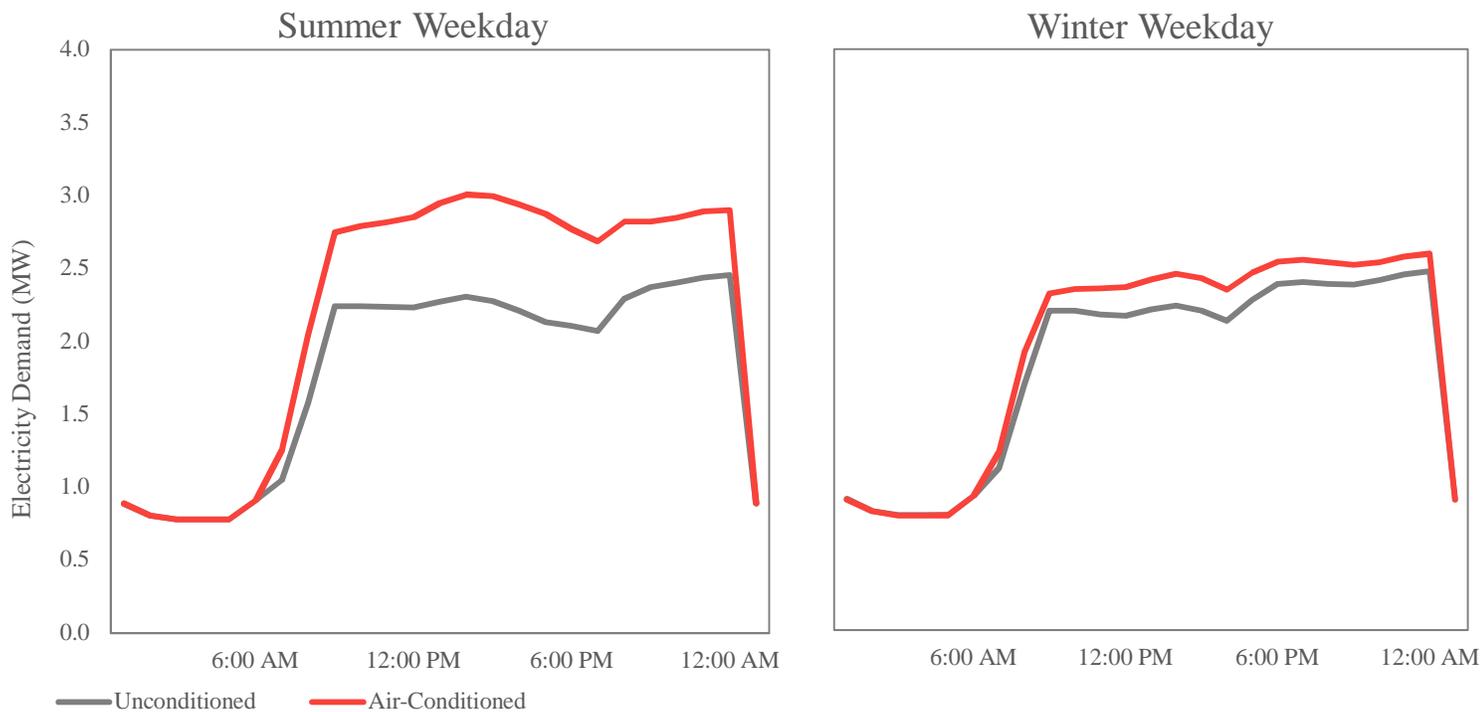


Figure 3 details an average weekday electric load profile projected for the Phase 1 unconditioned and air-conditioned WLC buildings during the summer and winter. As anticipated, the warehouse’s operating schedule determines the shape of the load profiles. Demand quickly ramps up during the start of the 8:00 AM shifts and then remains relatively flat for the rest of the day. There is a small dip around 6:00 PM when the office schedule ends but the major drop happens at 12:00 AM when the warehouse shift ends. The need for air conditioning adds to the air-conditioned warehouse demand during the summer while there is little difference between the unconditioned and air-conditioned warehouses during the winter.

**Figure 3: Average weekday electric load profiles for Phase 1 buildings**



The peak electric demand for each of the 13 Phase 1 buildings with an unconditioned warehouse is projected to be about 2.1 MW, including estimated EV charging loads. The peak for each of the two Phase 1 buildings with air-conditioned warehouses is projected to be about 4.1 MW. Total aggregated peak demand at the end of Phase 1 construction is projected to be approximately 34.9 MW across 13 buildings with unconditioned warehouses and two buildings with air-conditioned warehouses. *Note that these are peak demand values as opposed to the average demand values depicted in Figure 3.*

For Phase 2, the peak electric demand for each of the 11 Phase 2 buildings with an unconditioned warehouse is projected to be about 3.7 MW, including the substantially greater EV charging loads that are projected for the 2025 – 2040 Phase 2 period. The peak for the one Phase 2 building with an air-conditioned warehouse is projected to be about 5.4 MW. Total aggregated peak demand at full build-out is projected to be approximately 58.2 MW across 24 buildings with unconditioned warehouses and three buildings with air-conditioned warehouses.

### 3.3 ELECTRIC VEHICLES

In addition to building energy consumption, electric vehicles are expected to contribute significantly to the electricity demand and consumption at the WLC. For this analysis, electric vehicle (EV) demand and consumption were calculated based on Title 24 code requirements, vehicle traffic, battery sizes, and anticipated charging requirements. Only passenger EVs and light-duty truck EVs were considered. No medium-duty or heavy-duty trucks were included since current code is silent on these vehicle classes. The resulting hourly data was then added to the building model outputs to create combined load profiles.

Peak EV charging rate was estimated by allocating the annual electricity consumption of EVs – the average daily consumption multiplied by 365 – on an hourly basis per the building operating schedules. Specifically, EV charging was assumed to follow the same hourly schedule as that of the building interior lighting and process loads. Logically, when the lights are on and the process equipment is operating, staff are on duty and the vehicles that brought them to the building are parked in the parking lot. The annual EV electricity usage was allocated across each week day and each weekend day such that the hourly EV load shape tracked the lighting and process load shape all year long.

The resulting peak electric load imposed by EV charging is about 25% of the aggregate nameplate capacity of all charging stations. This result is in line with industry expectations that charging blocks managed with automated ‘smart’ controls will reduce the coincident peak demand to 20-25% of the aggregate capacity of the individual charging stations. So for example, when all charging stations of a 100 kW-rated charging block are plugged into EVs, the block is expected to experience a maximum power draw of only about 25 kW at any point in time.

The incremental EV charging loads projected for WLC determine the peak and the minimum daytime electric loads on each building. The daytime minimum defines the maximum amount of PV that MVU’s rules allow on each building’s roof. See Section 5.4 for details.

### 3.4 BASELINE ENERGY PERFORMANCE

Because of the anticipated improvements in building energy performance and the expected rise of electric vehicles, Phase 2 models were adjusted to 2040 conditions. The electric vehicle load is expected to increase 20-fold during Phase 2 while the average Title 24-compliant building energy consumption is expected to decrease by about 13% in Phase 2. The breakdown of energy usage intensity (kWh/ft<sup>2</sup>-yr) is shown in Table 4 for Phase 1 and Phase 2 buildings with unconditioned and air-conditioned warehouses.

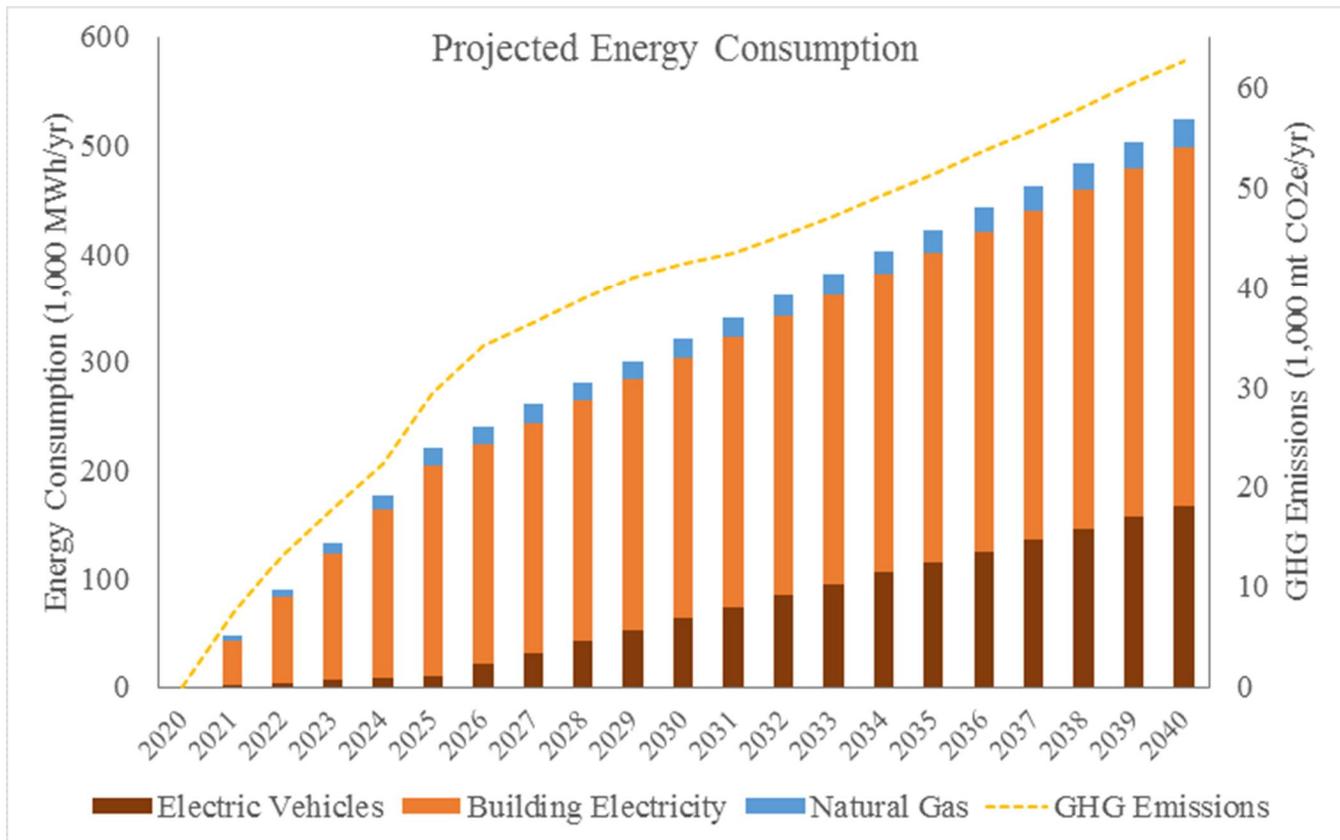
**Table 4: Breakdown of energy usage intensity (kWh/ft<sup>2</sup>-yr) for Title 24-compliant buildings**

End Use	Phase 1		Phase 2	
	Unconditioned	Air-Conditioned	Unconditioned	Air-Conditioned
Equipment and Lighting	8.02	8.02	7.08	7.08
HVAC	0.88	3.73	0.81	3.43
Building Total	8.90	11.75	7.88	10.51
Electric Vehicles	0.48	0.48	9.66	9.66
<b>TOTAL</b>	<b>9.38</b>	<b>12.23</b>	<b>17.55</b>	<b>20.17</b>

### 3.5 WLC ENERGY PROJECTIONS

Based on the results of the energy modeling and electric vehicle load definitions, the Title 24-compliant annual energy consumption and GHG emissions profile shown in the following figure were derived for the WLC over the buildout of the project. This projection considers expected changes to California’s electric grid (ever-increasing amounts of renewable electricity in the mix) as well as the estimated increased penetration of passenger EVs and light-duty truck EVs at WLC in future years.

Figure 4: Projected Title 24-compliant annual energy consumption and GHG emissions of WLC over build-out period



# 4 DEMAND-SIDE ENERGY ANALYSIS

---

## 4.1 RECOMMENDED MEASURES

Energy efficiency is often the most cost-effective method to reduce the energy and carbon impacts of a building. Regulatory constraints limiting the capacity of on-site renewables that can be implemented at the WLC, outlined further in Section 5: Supply-Side Energy Strategy, further highlight the importance of reducing energy consumption through demand-side measures.

Using the baseline energy models discussed in Section 3: Baseline Performance, WSP evaluated a wide range of energy conservation measures (ECMs) to identify the most cost-effective set for reducing building energy consumption and related emissions beyond Title 24 energy code. The engineering analysis underpinning this proposal led WSP to reject some of the evaluated demand-side options because they are duplicative with other more advantageous options or are incompatible with the most advantageous HVAC systems. The ECMs outlined in Table 5 are the best choice for the WLC based on maximizing environmental protections in the most cost-effective manner practical.

The ECMs address internal loads, such as lighting and equipment, as well as the energy required to provide heating, cooling, and domestic hot water. While most energy consumption is due to lighting and equipment loads, there is still an opportunity to reduce the amount of energy required to provide heating and cooling for the buildings. For the office space, the recommended system is underfloor air distribution coupled with water-cooled variable refrigerant flow (VRF) technology that is served by a shared water loop. The shared water loop allows for sharing of energy among zones so that if one zone requires heating while another requires cooling, energy can be transferred between zones resulting in built-in energy recovery. If additional cooling is needed during extremely warm weather, a cooling tower provides supplemental heat rejection to the atmosphere.

Air-conditioned warehouse spaces are recommended to be served by displacement ventilation whereby conditioned air is delivered at low velocity from air diffusers near floor level. Cooling of supply air is achieved via direct evaporative cooling sections that deliver sufficiently cool air at required warehouse conditions for most hours during the typical weather year. During hours that evaporative cooling doesn't meet the cooling load or doesn't maintain acceptable relative humidity in the warehouse, VRF systems are utilized for supplemental space cooling. The shared water loop of the warehouse VRF systems is connected to an air-to-water heat pump to provide supplemental cooling via heat rejection to the atmosphere. When heating requirements exceed the heat recovered within the shared water loop by the VRF units, supplemental heat for the water loop is extracted from the atmosphere by the same air-to-water heat pump running in reverse.

Because all heating and cooling in the buildings is provided via direct evaporative cooling and heat pumps, natural gas is not required. This allows the WLC to eliminate on-site fossil fuel combustion that would normally be associated with service water and space heating, thereby eliminating associated air emissions. Additionally, in all-electric buildings there is not a need for natural gas distribution infrastructure. Cleaner options could be considered by WLC tenants to fuel back-up generators, including E85 (85% ethanol, 15% gasoline), biodiesel, propane, and batteries. SCAQMD discusses permitted emergency generation at <http://www.aqmd.gov/home/permits/emergency-generators#Fact1>.

The WLC Specific Plan has previously publicly committed to certain energy efficiency features that will appear in the WLC buildings. The ECMs in Table 5 go substantially beyond that previous commitment in terms of the features of the buildings. They individually and collectively, in addition to the HVAC systems recommended above, reduce the amount of energy consumed by the various equipment that the buildings will contain. This package of ECMs delivers energy performance that exceeds minimal compliance with current Title 24 requirements by 16-17%. Table 6 summarizes the energy performance of the ECM package.

**Table 5: ECM Descriptions**

Category	ECM Description	Application Area
<b>Envelope</b>	Optimal Choice of Vertical Fenestration Construction	All
	Optimal Choice of Skylight Construction	Warehouse
	Optimal Window to Wall Ratio	All
	Optimal Skylight to Roof Ratio	Warehouse
<b>Exterior Loads</b>	LED exterior lighting	All
	Daylight sensor based exterior lighting	All
<b>Internal Equip. Loads</b>	Automatic Receptacle Control	Office
	Highest Efficiency Office Equipment	Office
	Highest Efficiency Other Internal Loads	Office
<b>Lighting</b>	Multi-Level Switching	All
	High Performance Lighting (LED)	All
	Use separate controls for lighting areas near windows	All
	Occupant sensors	Office
<b>Daylighting</b>	High-on-wall continuous daylighting windows/clerestory windows	Warehouse
	Optimal Daylighting Control	All
	Dimming daylight controls	Office
<b>HVAC</b>	Thermostat setback/setup	Office
	Shut off outdoor air and exhaust air dampers during unoccupied periods	Office
	Supply air temperature reset	Office
	High Performance Fans	All
	Variable Speed Fans	Office
	High efficiency pumps	All
	Variable Speed Pump motors	All
	Reduce service water consumption	All
	Efficient service water pumping	All
	Integrated and optimized air side economizer	Office
	Direct Evaporative Cooling	Warehouse
	Variable refrigerant flow heat pump & cooling	Office
	Dedicated Outside Air System Ventilation with Heat Recovery	Office
Demand controlled ventilation/CO <sub>2</sub> controls	Office	

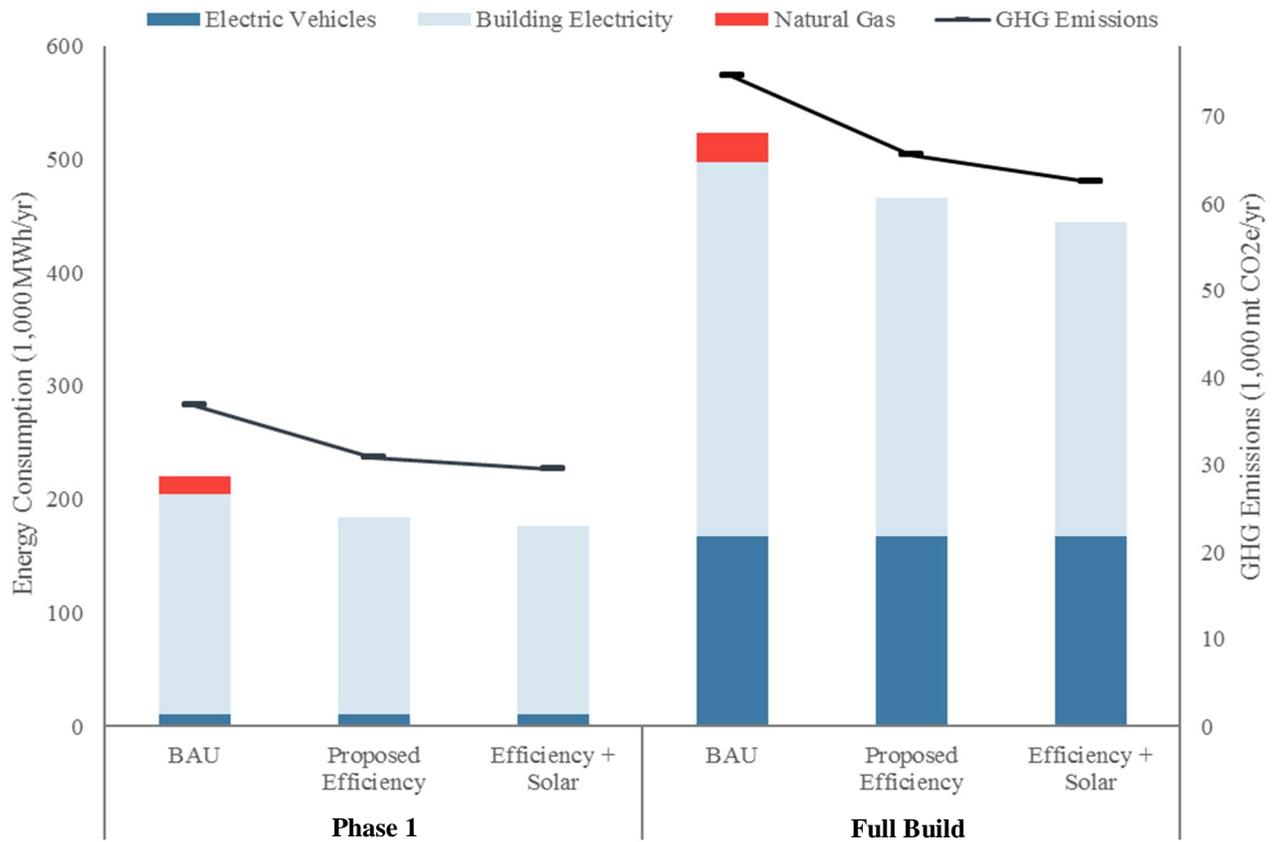
**Table 6: Efficiency Scenario Performance**

Stage	Energy Savings (MWh/yr)	Energy Savings (%)	GHG Savings (tonnes CO <sub>2</sub> e/yr)	GHG Savings (%)	Renewable Energy Supply (%)*
Phase 1	34,892	16.7%	6,019	10%	49%
Full build	57,449	16.2%	9,085	18%	55%

\*Renewable energy fraction takes account of renewables on the California grid

The impact of the recommended ECMs on the annual energy consumption and GHG emissions of the WLC at the end of Phase 1 is shown in Figure 5.

**Figure 5: Phase 1 and Full Build-Out Energy and GHG Results**



## 4.2 TENANT LOADS

It is unknown at this time who will be the tenants within the WLC buildings. Warehouse operations could vary widely, from relatively low-energy operations featuring high-pile goods storage and materials to relatively high-energy operations featuring highly automated facilities with extensive material handling equipment. WSP’s analysis assumes the typical WLC tenant will have highly automated warehouse operations. Because the WLC developer has no direct control over warehouse equipment and operations, the ECM analysis did not consider any opportunities to reduce energy usage by warehouse equipment.

# 5 SUPPLY-SIDE ENERGY STRATEGY

## 5.1 ENERGY SUPPLY SCREENING

As a preliminary step in developing a sustainable energy strategy for WLC, WSP has undertaken a high-level screening analysis of renewable energy technologies. The purpose is to identify feasible supply options. The screening criteria used in this exercise are categorized in the matrix below as Carbon, Resiliency, Financial, Technical, and Regulatory:

**Table 7: Screening Criteria Matrix**

Screening Criteria	✓	✗	—
<b>Carbon</b>	Net carbon emissions will be reduced	Net carbon emissions will not be reduced	Effect on net carbon emissions is unclear without analysis
<b>Resiliency</b>	Energy resiliency will be enhanced	Energy resiliency will not be enhanced	Effect on energy resiliency is unclear without analysis
<b>Financial</b>	Financial performance will likely be attractive	Financial performance will likely be unattractive	Financial performance is unclear without analysis
<b>Technical</b>	No anticipated technical challenges	Technical challenges are expected	Existence of technical challenges is unclear without analysis
<b>Regulatory</b>	No anticipated regulatory challenges	Regulatory challenges are expected	Existence of regulatory challenges is unclear without analysis

Incorporating high-performance energy efficiency into the WLC is the least-cost sustainable energy resource available and, thus, should be the first step in reducing energy demand and greenhouse gas (GHG) emissions. Furthermore, improving the energy efficiency of the buildings will reduce the additional electrical distribution capacity that must be built to supply the WLC, and MVU may be able to avoid associated substation, transformer, and local distribution capital costs. WLC has committed to achieve energy efficiency 10% better than 2008 Title 24 code or the most current code at the time of construction, whichever is more efficient. Additional, cost effective efficiency improvements are possible through adoption of additional available energy efficiency opportunities identified by the Energy Demand Side Analysis task (see Section 5 of this report).

In the business-as-usual (BAU) scenario, each warehouse will be served by 12 kV service from the Moreno Valley Electric Utility (MVU). Currently the WLC developer intends to own the buildings. However, under certain circumstance, the developer may wish to sell portions of an individual building or an entire building. In any case, the developer expects that the building occupants will be responsible for paying utility bills.

The figure below shows the results of the high-level qualitative screening analysis.

**Table 8: Energy Resources Screening Results**

Supply Option	Screening Criteria				
	Carbon	Resiliency	Financial	Technical	Regulatory
<b>Recommended for further investigation:</b>					
Combined Cooling, Heat and Power (CCHP)	—	✓	✓	✓	—
Ground Source Heat Pump (GSHP)	✓	—	—	—	✓
Solar photovoltaic (PV)	✓	—	—	✓	✓
Solar PV + battery	✓	✓	—	✓	✓
Off-site procurement	—	—	✓	✓	—
<b>Not recommended for further investigation:</b>					
Biomass	✓	✓	—	✗	✗
Biogas/landfill gas	✓	✓	—	✗	—
District energy	✓	✓	✗	✗	—
In-line hydro	✓	✓	—	✗	—
Microgrid	✓	✓	✗	✓	✗
Natural gas pressure recovery	✓	✓	—	✗	—
Wind	✓	—	—	✗	✗

The WLC build-out cycle will occur over 20 years. The evident trends in the decreasing capital cost and the increasing efficiency over time of PV, batteries, lighting technology, and controls technology have been considered and are reflected in the analyses underpinning the comparison of renewable energy technologies.

Energy supply options that warrant further investigation are discussed in sections 5.3 – 5.6. These investigations were conducted using the HOMER energy modeling software. Several supply options were removed from consideration and are discussed briefly described below.

**Biomass:**

Biomass systems replace conventional fuel boilers with boilers that burn biofuels, such as agricultural residues, forest and mill residues, and urban wood waste. Biomass systems can be used to generate heat only, or, generate both heat and electricity. Because WLC is expected to have minimal heating loads, the most advantageous configuration would be to use biomass to generate electricity and potentially heat for use in an absorption chiller.

An analysis using National Renewable Energy Lab’s System Advisor Model found that there are limited biomass resources available within a 50-mile radius of WLC, enough for roughly 11 MW of generating capacity, and that these resources primarily consist of urban wood waste. Due to the logistical complexity of obtaining and ensuring sufficient feedstock and concerns about criteria pollutant emissions, specifically NO<sub>x</sub> in this SCAQMD air shed, WSP has not given biomass further consideration.

### **Biogas/landfill gas:**

Biogas is a methane-rich gas, similar to natural gas, that can be generated from wastewater treatment plants, landfills, and anaerobic digesters. Biogas could potentially be sourced from the Badlands Landfill, which is less than a mile north of the planned site of WLC. However, the amount of gas presently being captured at the landfill is relatively small – 1.3 million cubic feet per day, which is sufficient to generate roughly 2 MW of electricity. Much of the gas is already being used to generate electricity at the Badlands Landfill<sup>1</sup>. Therefore, WSP has not given further consideration to the direct use of biogas.

### **District energy:**

District energy distribution is a common approach for supplying both heating and cooling energy to universities, medical and military campuses, and urban areas. District energy can be a tool for achieving GHG and energy use reductions by serving buildings with centralized, high-efficiency equipment instead of distributed, less efficient systems. District energy systems can open the opportunity to recover heat rejection from one building to be used as a heat source in another building. Lastly, district energy systems can reduce the overall plant equipment installed in the district, since diversity (not all buildings peak at the same time) and back-up systems can be centralized.

However, the benefits mentioned above are best realized by dense development with a large building diversity, i.e. a mixture of commercial, community, residential, and retail space. In the WLC, it is expected that the buildings will have similar loads, therefore reducing the potential for capital savings to be unlocked by a district energy system's ability to exploit high demand diversity on the customer side. While there are no technical constraints to district energy, most of the warehouses are unconditioned and so the distance between air-conditioned spaces in the WLC makes the cost of installing a district energy distribution system prohibitively expensive.

In addition, SCAQMD air quality standards are greatly exceeded by current air pollution levels in the WLC air shed. District energy systems that are energized by the combustion of fuels will exacerbate the already untenable local air quality and so are not given further consideration. District energy energized by electrically driven heat pumps are discussed in Section 5.2 below.

### **In-line hydro:**

WSP understands that a 145-inch diameter water transmission pipeline, owned by the California Aqueduct/Metropolitan Water District, crosses the project area. In-line turbines can be used to generate electricity from water flowing through transmission pipelines. While this offers the opportunity for zero-carbon electricity to be generated at WLC, the generation potential is expected to be small and complexity relatively high. Therefore, WSP did not give further consideration to in-line hydro.

### **Microgrid:**

Microgrids are local electricity distribution systems that can be “islanded”, ie, they can operate independently of the regional grid when the latter experiences a failure. The resiliency provided by microgrids can sustain operations that are mission-critical. Such resilience can also greatly benefit operations that value the ability to continue operating in the face of a grid interruption. However, electricity distribution regulations preclude delivery of electric power across public rights-of-way by any entity besides the utility. Furthermore, MVU is currently precluded from owning/operating generation assets. Finally, the extra expense of the specialized microgrid equipment causes microgrid economics to favor high-density collections of buildings, such as urban districts and campuses. The layout of WLC and MVU restrictions only accommodate small clusters of buildings, perhaps two or three buildings. At this scale, a microgrid is impractical and so WSP has not given microgrids further consideration.

### **Natural gas pressure recovery:**

Several high-pressure natural gas pipelines cross the property. These can be used to generate electricity by dropping the high pressure in the pipes down to local distribution pressure through expansion turbines. There are strict rules and safety standards governing the natural gas transmission facilities. While this offers the opportunity for zero-carbon electricity to be

---

<sup>1</sup> EPA's LMOP database, *Landfill- and project-level data (2018).xlsx*, February 2018.

generated at WLC, the generation potential is expected to be small and complexity relatively high. Therefore, WSP has not given further consideration to natural gas pressure recovery.

#### **Wind:**

The annual average wind speed in Moreno Valley is relatively low<sup>2</sup>. In addition, while utility-scale wind farms are very cost competitive, smaller-scale wind technology deployments are less so. Furthermore, on-site deployment of wind turbines would likely face opposition by regulators and the public over safety and noise concerns. For these reasons, WSP has not given further consideration to on-site wind.

---

## 5.2 GROUND-SOURCE HEAT PUMP

A ground-source heat pump (GSHP) plant uses a reversible chiller (heat pump) to provide both heating and cooling to the building(s) being served. Typically, a ground loop consisting of a field of vertical geo-exchange boreholes (300-600 ft deep) is drilled below the lowest parking level of the site. Other configurations, such as foundation- and slab-integrated exchange fields, have been used successfully in numerous locations.

Under the right conditions, these systems can provide improved heating and cooling performance seasonally compared to an air-source heat pump or traditional natural gas or electric resistance heating. Furthermore, they can eliminate noise, rooftop equipment, and cooling towers and associated water use. GSHP heating and cooling is one means to make the transition to an all-electric energy profile, thereby creating a possible pathway for WLC to eventually offer buildings with the potential to be powered by 100% renewable energy.

However, GSHP is not recommended in the WLC location due to building space cooling requirements being much greater than space heating needs. Such an imbalance would cause the geo-exchange field to grow increasingly warmer over time. This, in turn, would degrade GSHP performance in providing building space cooling. For this reason, VRF reversible heat pumps are recommended for offices and air-conditioned warehouses. These systems also create a possible pathway for WLC to eventually offer buildings with the potential to be powered by 100% renewable energy.

---

## 5.3 FUEL CELL COMBINED COOLING, HEAT, AND POWER

CCHP plants generate electricity and useful thermal energy through the capture of waste heat. Combined heat and power plants (CHP) supply thermal energy as heat and combined cooling heat and power plants (CCHP) provide thermal energy as both heating and cooling, the latter by means of an absorption chiller. Making use of waste heat from electricity generation increases the overall efficiency of the plant.

WSP evaluated the suitability for CCHP – using a fuel cell as primary plant equipment – to reduce lifetime GHG emissions from the WLC. While fuel cells are costlier than combustion turbines and reciprocating engines (the CCHP primary equipment alternatives), they have the advantage of dramatically lowering NO<sub>x</sub> emissions, which is an important criterion in this SCAQMD air shed.

Because the California electricity grid features so much renewable energy and is therefore so clean, and getting cleaner every year, on-site electricity generation by CCHP, energized by natural gas-fed fuel cells, actually produces more GHG emissions and requires more overall energy consumption when compared to WLC receiving all required energy from the grid.

While fuel cells offer an advantage through shifting energy usage from electricity to cheaper natural gas, they would increase site energy consumption and GHG emissions compared to the base case while decreasing the percentage of renewables in the WLC's energy supply due to decreased use of cleaner grid electricity. Because California's grid electricity already contains a high percentage of renewable electricity, it is less carbon intensive than the electricity generated by a fuel cell. While fuel cells are more efficient than the natural gas-fired power plants that operate during periods of peak power demand on the

---

<sup>2</sup> Wind resource estimates developed by AWS Truepower, LLC for windNavigator . Web: <http://www.windnavigator.com> | <http://www.awstruepower.com>. Spatial resolution of wind resource data: 2.5 km. Projection: UTM Zone 11 WGS84.

California grid, the long-term expectation of the California Energy Commission and EIA is that the majority of new capacity in California will come from renewables, not from gas-fired plants. Considering this, using generating capacity at WLC that relies on natural gas, even if it is efficient fuel cells, will increase WLC emissions.

Table 9 summarizes the performance of fuel cell CCHP at WLC. Negative values indicate net increases compared to baseline.

**Table 9: Fuel Cell CCHP Performance**

Stage	Energy Savings (MWh/yr)	Energy Savings (%)	GHG Savings (tonnes CO <sub>2</sub> e/yr)	GHG Savings (%)	Renewable Energy Supply (%)*
Phase 1	-95,739	-52%	-18,425	-60%	19%
Full build	-240,849	-52%	-50,888	-78%	21%

\*Renewable energy fraction takes account of renewables on the California grid

## 5.4 SOLAR PV

On-site solar PV generation is scalable, becoming more cost competitive as project size increases, and can thus be a foundational component of WLC’s sustainable energy strategy. Understanding available options and trade-offs is important to optimize the use of solar at WLC. WSP has analyzed the feasibility and impact of on-site solar at the WLC, considering the trade-offs between roof- and ground-mounted solar and current and future electric rate structures.

As pointed out in Section 2.2.1, MVU limits on-site PV size to one-half the minimum electric demand a building experiences during daytime hours. To determine the specific allowable PV size, WSP analyzed the hourly electric loads simulated using the IES modeling software. Phase 1 building simulation produced a minimum daytime electric load of about 600 kW. The minimum daytime electric load for Phase 2 buildings was simulated to be about 1,600 kW. Thus, to stay within all the constraints facing the WLC project, Phase 1 buildings can feature 300 kW of PV (one-half the 600 kW minimum daytime electric load) and Phase 2 buildings can feature 800 kW. At these PV system sizes, a total of 4.5 MW of PV capacity would exist at WLC at the end of Phase 1 and a total of 14.1 MW of PV capacity would exist at WLC at full build-out.

The WLC Specific Plan commits to meet the annual energy requirements of all office spaces with PV, thereby effectively achieving net-zero energy (NZE) office operations. Since each individual WLC building is expected to feature about 60,000 sqft of office space, this is the equivalent of fifteen 60,000 square-foot office buildings at WLC achieving NZE consumption by 2025. The entire state of California has about 30 NZE office buildings in operation, under construction, or publicly committed as of 2016<sup>3</sup>. Thus, the WLC Specific Plan will grow California’s NZE office population by about 50% by 2025. At full WLC build-out there will be the equivalent of twenty seven 60,000 square-foot office buildings achieving NZE status.

WSP estimates that the offices in each typical WLC building will consume about 474,120 kWh/yr and experience peak electric demand of about 280 kW. The maximum allowed amount of PV capacity/building in Phase 1 (300 kW) will generate about 512,275 kWh/yr at the WLC location. The maximum allowed amount of PV capacity/building in Phase 2 (800 kW) will generate about 1,366,400 kWh/yr. Thus, in all cases, the maximum allowed PV capacities are sufficient in both Phase 1 and Phase 2 to satisfy 100% of the office energy needs, thereby meeting the NZE objective for WLC office space.

<sup>3</sup> New Buildings Institute, 2016 List of Zero Net Energy Buildings

Table 10 summarizes the performance of solar PV at WLC in the amounts allowed by MVU.

**Table 10: Solar PV Performance**

Stage	Energy Savings (MWh/yr)	Energy Savings (%)	GHG Savings (tonnes CO <sub>2</sub> e/yr)	GHG Savings (%)	Renewable Energy Supply (%)*
Phase 1	7,686	4%	1,276	4%	51%
Full build	24,083	5%	3,386	5%	57%

\*Renewable energy fraction takes account of renewables on the California grid

## 5.5 ENERGY STORAGE

Energy storage using either Lithium-ion batteries or Vehicle-to-Grid technology (see below) is not viable under current regulatory and economic conditions. For example, MVU currently has no policies or rules that would allow WLC to use battery storage to increase usage of solar electricity. However, these conditions may change. In the future, energy storage may help:

- maximize direct use of on-site renewable electricity generation,
- optimize the building’s demand curve (“peak shaving”) to reduce strain on the electric grid and lower WLC tenant demand charges,
- shift WLC on-site electricity generation to time-of-use periods with lower electricity rates (“load shifting”).

### 5.5.1 LITHIUM-ION BATTERIES

Lithium-ion (Li-ion) batteries can connect to electrical systems and store electricity. Because of the MVU solar sizing limit, there is no excess solar generation available to charge a battery with the Phase 1 and Phase 2 300 kW and 800 kW solar systems. In addition, MVU currently disallows the use of batteries to get around the PV size limits by enabling the generation and storage of excess solar output without feeding power to MVU’s system. Consequently, greater renewable energy penetration at WLC is not currently possible. Further, MVU’s rate structures, combined with WLC’s load characteristics, make battery integration unviable – MVU’s Time-of-Use rates do not match up with WLC’s peak electric usage and WLC’s electric load profiles are not ‘spikey’ enough for batteries to deliver meaningful reductions in the electric demand charge.

### 5.5.2 VEHICLE-TO-GRID

This section is included in the report for completeness of the energy storage discussion. Vehicle-to-grid (V2G) technology is not currently available but is expected to become available at some point during WLC build-out period.

A V2G system uses the on-board battery packs of parked electric vehicles as distributed energy resources to store electricity for use during peak electricity demand periods. Smart controls on EV charging stations will enable each EV owner to decide whether or not to allow V2G charging and discharging of the EV’s battery pack. MVU rules and rate structures would need to change to accommodate V2G technology and to incentivize EV owners to make their vehicle’s batteries available while the vehicle is parked.

Vehicle manufactures currently do not enable 2-way V2G exchanges of electricity, but this is expected to change in the coming years. Like stationary Li-ion batteries, V2G could be used by WLC in the future to maximize use of on-site renewable electricity and perform peak-shaving and load-shifting functions if MVU’s rules and rate structures were to change. Electric vehicle population estimates for WLC suggest that significant amounts of potential V2G storage would be available for Phase 1 if electricity exchanges were enabled. With the anticipated proliferation of electric vehicles, V2G

storage potential will increase substantially for Phase 2. Should V2G technology be enabled in the future, it should be investigated.

---

## 5.6 OFF-SITE RENEWABLE ENERGY PROCUREMENT

Various mechanisms exist for many electricity customers to procure renewable energy from off-site projects, including renewable energy certificates, green tariffs, power purchase agreements, virtual power purchase agreements, community choice aggregation, and directed biogas. Procurement of off-site renewable energy can hedge against energy cost fluctuations, support the development of new renewable energy projects, and allow electricity consumers to claim the environmental benefits associated with the renewable energy generation. However, off-site procurement of renewable energy does not reduce the consumers' reliance on the electric grid to transport electricity nor the natural gas grid to transport biogas. Furthermore, off-site renewable energy procurement is likely to come at a cost premium to the energy end-user.

Under current regulations, WLC tenants will be able to purchase electricity only from MVU. Should electricity regulations change in the future to allow procurement of off-site renewable energy, and should WLC tenants elect for corporate, marketing, or other reasons to pursue procurement of off-site renewable energy, the means of doing so via one of the means presented in this report may become available to them.

The price premium associated with off-site renewable energy procurement would increase WLC tenant utility costs and thus run counter to the Project Objectives and the City's Economic Development Objectives (see Section 3.6 of the Project Final EIR and Section 1.3.1 of the WLC Specific Plan). Even if regulations allowed it, it would be counterproductive to require WLC tenants to procure renewable energy from off-site sources. Rather, WLC must establish and maintain a competitive position that supports achievement of the Project and City objectives. For these reasons, the concept of requiring a tenant to procure off-site renewable energy was not considered a viable sustainable supply option to impose on the Project. However, for the sake of completeness, WSP has evaluated the means for off-site procurement of renewable energy at WLC. We herein describe multiple off-site renewable electricity procurement methods that are available in many other electric utility service territories. These include:

- Unbundled renewable energy certificates (RECs);
- Power purchase agreements (PPAs);
- Community choice aggregation (CCA);
- Green tariffs.

Each option is evaluated on the following criteria:

- Market credibility;
- Relevance to future zero net energy regulations expected to be implemented in California;
- Risk profile;
- Impact on lifetime energy costs of the development.

Pricing of green power is highly variable depending on the particular circumstances surrounding each individual project or the current pricing offered by commodities markets. Thus, it is impossible to estimate with any accuracy what might be the impact on overall WLC energy costs if green power were part of the equation. The discussions below present some limited indications of possible cost considerations. It would be prudent to assume that some amount of cost premium would come with green power. To the extent this is the case, the resulting higher electricity costs would run counter to the strategic objective of the City of Moreno Valley to use low-cost electricity as an economic development tool.

---

### 5.6.1 BACKGROUND INFORMATION

#### RENEWABLE ENERGY CLAIMS

Renewable electricity generation projects produce two products of interest; physical electricity and RECs. RECs are an important characteristic of green power to understand, because they are the mechanism that allows an organization to claim the renewable benefits of a green power project. The Environmental Protection Agency ([EPA](#)) defines a REC as the

representation of the property rights to the environmental, social, and other non-power qualities of one MWh of renewable electricity generation, which can be sold as a separate commodity from the electricity being produced by the renewable energy system.<sup>4</sup>

If RECs are sold together with their associated electricity, they are known as bundled RECs. If they are sold separately, they are known as unbundled RECs.

To be able to claim and communicate the renewable energy benefits from any green power, an organization must own and retire the RECs associated with the green power, or have the RECs retired on its behalf per the [Federal Trade Commission's Green Guides](#).<sup>5</sup>

For all options evaluated herein other than unbundled RECs and Community Choice Aggregation, it is assumed the end purchaser of off-site renewable energy can claim ownership to the associated RECs per the FTC's guidelines.

## ZERO ENERGY BUILDINGS IN CALIFORNIA

Relevant to this project, the California Energy Efficiency Strategic Plan indicates that “50% of commercial buildings will be retrofitted to Zero Net Energy by 2030.”<sup>6</sup> Zero Net Energy for the commercial sector being defined as “an energy-efficient building where, on a source-energy basis, the actual annual consumed energy is less than or equal to the on-site renewable generated energy.” Source energy is all energy consumed on-site “plus the energy consumed in the extraction, processing and transport of primary fuels such as coal, oil and natural gas; energy losses in thermal combustion in power generation plants; and energy losses in transmission and distribution to the building site.”<sup>7</sup>

For the purposes of this analysis, it is assumed that the California Energy Efficiency Strategic Plan is aligned with the U.S. Department of Energy (USDOE) definition of Zero Energy Buildings and the associated guidance in relation to the use of off-site energy in achieving zero energy status. USDOE guidance indicates that net zero energy status can be achieved through the purchase of off-site renewable electricity for energy efficient buildings that have maximized the installation of on-site renewable energy. The USDOE Zero Energy Building definition does not include specific guidance on what off-site renewable energy procurement mechanisms can be used toward net zero energy status.

---

### 5.6.2 UNBUNDLED RENEWABLE ENERGY CERTIFICATES (RECS)

An organization can directly purchase RECs that are unbundled from the electricity supply. When purchased as unbundled commodities, RECs provide no physical electricity to the purchaser. Instead, the purchaser will continue to contract with their utility for electricity generated by the region's grid mix (including non-renewable fuel sources), but purchase the environmental attributes from individual green power projects.

RECs may be purchased in regulated or deregulated markets, and across markets, providing renewable attributes to electricity use at facilities of choice, regardless of geography or local green power resources. However, because unbundled RECs are typically purchased from existing renewable energy projects, their impact on the development of new green power projects is not as direct or significant as with other green power procurement options. Unbundled RECs are typically available for a price premium of about 1% of the cost of physical power.

---

<sup>4</sup> <https://www.epa.gov/greenpower/renewable-energy-certificates-recs>

<sup>5</sup> <https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguidesstatement.pdf>

<sup>6</sup> <http://www.cpuc.ca.gov/ZNE/>

<sup>7</sup> [https://www.energy.gov/sites/prod/files/2015/09/f26/bto\\_common\\_definition\\_zero\\_energy\\_buildings\\_093015.pdf](https://www.energy.gov/sites/prod/files/2015/09/f26/bto_common_definition_zero_energy_buildings_093015.pdf)

**Table 11: Unbundled RECs.**

CRITERIA	EVALUATION
Market credibility	Based on WSP’s experience in the renewable energy marketplace through memberships such as Rocky Mountain Institute’s (RMI’s) Business Renewable Center, corporate renewable energy buyers are evolving their renewable energy procurement strategies to go beyond unbundled RECs. This evolution is due to the desire to have more of an impact on development of new renewable energy generation. Unbundled RECs typically come from renewable energy generation already in operation, and thus are perceived to have a lower impact on new generation.
Relevance to future zero net energy regulations expected to be implemented in California	Per USDOE, energy efficient buildings can achieve net-zero energy status using RECs if physical limitations preclude the building from fully meeting its energy demand with on-site renewables. These buildings can achieve net zero energy status with the “REC-ZEB” qualifier. WSP’s opinion is that unbundled RECs would qualify under the current forecasted regulation only after the demand and supply side options outlined herein are implemented. It is uncertain whether the limitations on the size of on-site solar imposed by MVU would qualify the buildings in the WLC to achieve net zero status using RECs. Importantly, unbundled RECs are increasingly being considered low impact, and the leading governing bodies in the net zero energy space may require long-term contracts for such procurement. WSP is aware that market credibility is shifting away from unbundled RECs.
Risk profile	Purchasers of unbundled RECs are subject to spot pricing on an ongoing (e.g., annual) procurement cycle. There is no physical power risk associated with unbundled purchases.
Impact on lifetime energy costs of the project	There is no direct financial return on investment in purchasing unbundled RECs, nor does the purchase reduce vulnerability to future increases in electricity prices.  Regardless if WLC tenants purchase unbundled RECs, there will be an increase to the energy costs of the project. Unbundled RECs are typically available for about 1% of the cost of physical power.

### 5.6.3 POWER PURCHASER AGREEMENTS (PPAs)

PPAs are contractual agreements used in the utility power sector for the long-term purchase of electricity produced by a specific project. For electricity producers, PPAs offer long-term revenue certainty with a credit-worthy purchaser that allows the project to attract capital investment. For electricity purchasers, PPAs offer a long-term supply of green power with price stability. In California, “Direct Access” agreements offer an alternative similar to a PPA, but using the utility as an intermediary. However, the program is currently at capacity and therefore not available to WLC tenants.<sup>8</sup>

Alternatively, WLC tenants may consider a virtual power purchase agreement (VPPA), also known as a synthetic PPA or “contract for differences.” A VPPA is a financial swap that allows an electricity purchaser to provide financial and credit support to a project developer by setting a floor price for electricity sold by the project to the wholesale electricity market. If the wholesale price is below the floor price, the purchaser pays the developer the difference. If the wholesale price exceeds

<sup>8</sup> <http://www.cpuc.ca.gov/General.aspx?id=7881>

the floor price, the developer pays the purchaser. In return for guaranteeing a floor price, the purchaser may receive RECs from the project.

This option is a potential solution for customers that have electricity load distributed over many facilities or with loads in regulated electricity markets, like California. Unlike a physical PPA, synthetic PPAs do not include the physical consumption of electricity and therefore, there is no need for a purchaser's facilities to be in the same power market as the project. The combination of wholesale electricity market revenues and the floor price provides financial and credit support to the project owner sufficient to proceed with project financing and construction, thereby providing the critical support necessary for a new project to be implemented.

From an electricity purchaser's perspective, a VPPA can provide a long-term fixed supply of RECs along with potential for annual revenues on the contract. The purchaser, in a sense, is making a bet that market prices will continue to rise and that revenue from increasing prices will flow through the project to the purchaser. If properly structured, this contract can hedge against future electricity price increases or volatility. Purchasers must also understand the risk and financial exposure they face if market prices decline over the term of the agreement.

PPA pricing is highly dependent on the deal, and given the confidential, bilateral nature of the deals, pricing details are not publicly available. Moreover, VPPA deals discussed in the report, beyond a long-term contract for RECs, are often structured to be a hedge against of the price of electricity being procured by the offtaker (e.g., WLC tenants from MVU). VPPA pricing has fallen considerably over the past several years. Current publicly available estimates have VPPA prices at \$22/MWh. As to whether this would represent a price premium, be cost-neutral, or result in increased income is dependent on the deal structure and electricity market pricing forecasts. The VPPA imposes an incremental cost on top of the cost WLC tenants pay to MVU for electricity. If the VPPA yields a cost savings, this benefit would effectively reduce the net cost paid to MVU for delivered electricity. However, if the VPPA yields a cost adder, it would effectively raise the net cost of delivered electricity. See <https://www.epa.gov/greenpower/green-power-pricing> for more details.

**Table 12: VPPA Evaluation**

CRITERIA	EVALUATION
Market credibility	PPA and VPPA transactions are viewed as having a higher impact relative to development of new renewable energy generation sources when compared to purchasing unbundled RECs. Net zero energy certification through voluntary programs such as the International Future Living Institute may require the project to be located physically close to the WLC. <sup>9</sup>
Relevance to future zero net energy regulations expected to be rolled out in California	The previously referenced Department of Energy paper titled “A Common Definition for Zero Energy Buildings” dated 2015 does not specifically address PPAs or VPPAs in the context contemplated in this report. However, if the RECs are obtained through the PPA or VPPA, WSP expects that these procurement methods will qualify for achieving zero net energy status per the Department of Energy Guidance, once efficiency and on-site renewables have been maximized.
Risk profile	<p>There are several risk factors to evaluate when completing investment-grade due diligence on a PPA or VPPA contract, many of which are beyond the scope of this analysis. However, two risks germane to WLC are the typical contract length and price risk. Both are addressed just below.</p> <ul style="list-style-type: none"> <li>- Contract length: While the market is currently grappling with overcoming the length of typical deals, current structures are long-term commitments of 10-20 years. If WLC tenants are party to a PPA or VPPA, assuming the transactional complexity due to multi-party offtakers could be overcome, they would be contracting for a length of time (again, 10-20 years) that many businesses are not comfortable with. For example, this term may in fact be longer than the lease agreement at WLC.</li> <li>- Price risk: In PPAs and VPPAs, the purchaser can be exposed if future electricity prices drop below contract pricing. Contracts are typically for an electricity price forecast believed to outperform escalation of their current utility’s forecasted rate. Some purchasers find value in having price certainty, which a PPA or VPPA could provide depending on the details of the contract.</li> </ul>
Impact on lifetime energy costs of the project	<p>PPAs and VPPAs can provide a hedge or “price stability” mechanism for electricity. If structured well, there should be either minimal or, at best, an improvement on the lifetime energy costs of the project.</p> <p>The discussion on price brings up the issue of the parties at the WLC that would enter into the PPA or VPPA. There are two options: the developer of the WLC or the tenants. Due to transaction costs and complexity, it is likely the only applicable party to execute a PPA or VPPA would be the developer. However, since the developer is not responsible for purchasing electricity – the tenants are – the transaction costs and any reconciliation of the price of the energy delivered to WLC and the price of the PPA or VPPA would likely have to be incorporated into the lease agreements.</p>

<sup>9</sup> <https://living-future.org/wp-content/uploads/2017/03/Net-Zero-Energy-Offsite-Renewables-Exception.pdf>

---

#### 5.6.4 COMMUNITY CHOICE AGGREGATION (CCA)

Community Choice Aggregation (CCA) is a program that allows cities and counties to buy and/or generate electricity for residents and businesses within their areas.<sup>10</sup> Basically, CCA is intended to provide utility rate payers with more options, which are increasingly providing green power procurement options.

CCA options are not currently available in Moreno Valley.<sup>11</sup> The below evaluation is provided in the circumstance that CCA options become available to WLC in the future. CCAs in California have shown they can be competitive with local utility pricing.

**Table 13: CCA Evaluation**

CRITERIA	EVALUATION
Market credibility	Purchasing from a CCA who has a higher than the required renewable energy fuel mix by actively bringing new renewable energy projects on line as opposed to procuring unbundled RECs would be viewed as credibly procuring renewable energy.
Relevance to future zero net energy regulations expected to be rolled out in California	As highlighted in the unbundled REC section above, the current DOE definition for zero energy buildings is not clear on certain emerging renewable energy procurement options such as PPAs, CCA, and green tariffs. Based on a New Building Institute paper titled "ZNE Project Guide for State Buildings", co-sponsored by California utilities PG&E and Southern California Edison, procurement from a CCA would qualify towards a zero energy build status. <sup>12</sup>
Risk profile	CCA procurement has a similar risk profile to conventional procurement from the local utility.
Impact on lifetime energy costs of the project	CCAs in California have shown to be competitive with local utility pricing.

---

#### 5.6.5 GREEN TARIFF

Electricity markets in a growing number of states offer customers the ability to purchase green power directly from a local utility. These agreements allow the customer to contract for some or all of their purchased electricity to be attributed to existing green power projects feeding into the local grid. The utility will then retire the coinciding RECs on the customer's behalf, allowing the customer to claim the environmental benefits associated with the purchase of green power.

Variations of this mechanism are available in regulated and deregulated markets. In deregulated markets, a customer may directly choose their electricity provider (e.g., CCA programs discussed above), while customers in regulated markets may have the option to pay a premium on their electric bill to claim energy generated from the utility's renewable portfolio.

---

<sup>10</sup> [https://www.pge.com/en\\_US/residential/customer-service/other-services/alternative-energy-providers/community-choice-aggregation/community-choice-aggregation.page](https://www.pge.com/en_US/residential/customer-service/other-services/alternative-energy-providers/community-choice-aggregation/community-choice-aggregation.page)

<sup>11</sup> <https://cal-cca.org/>

<sup>12</sup> <https://newbuildings.org/wp-content/uploads/2018/04/ZneProjectGuideForStateBuildings.pdf>

Because utility products and green tariffs are typically based on existing renewable energy projects, their impact on the development of new green power projects is not as direct or significant as with other green power procurement options. MVU currently does not have a green tariff option. However, there may be an opportunity for Highland Fairview to work with MVU to develop such a tariff.

Per MVU’s Integrated Resource Plan (IRP; 2015-2016), the utility indicates a desire to contract for new renewable energy.<sup>13</sup>

*“It is important to note that, due to typical project development timelines associated with renewable generator development, most of MVU’s near-term incremental renewable energy requirements will need to be served by existing generators that have already qualified for California RPS eligibility. Looking forward, MVU may choose to contract with yet-to-be developed resources for renewable energy needs that have been identified in the medium- and long-term planning horizons. These planning horizons will allow sufficient time for necessary solicitation and contracting activities (to be completed by MVU) as well as new resource development. Based on recently completed renewable energy solicitations throughout the market, there appears to be ample renewable energy supply available for interested buyers, although prices are above the cost of conventional energy purchases. As discussed in this Plan, before making firm purchase commitments for additional renewable energy supply, MVU will continue to evaluate the cost/rate impacts that would result from additional renewable energy procurement.”*

Due to the large energy demands WLC will put on MVU, the developer of WLC may consider exploring working with MVU on the development of a green tariff similar to recent projects in regulated markets.<sup>14</sup> For example, Facebook recently worked to deliver two green tariffs with their local utilities in New Mexico and Nebraska.<sup>15</sup>

Pricing analysis for a green tariff (which is distinguished from utility green pricing products which could be the utility simply delivering unbundled RECs as part of the rate) is highly subjective to the structure of the rate. They may be cost competitive with current utility rates. See <https://www.nrel.gov/docs/fy17osti/68179.pdf> for more details.

**Table 14: Green Tariff Evaluation**

CRITERIA	EVALUATION
Market credibility	Development of a green tariff by MVU that is delivering renewable energy through an owned asset or a contract with an independent power provider would be perceived as being highly credible.
Relevance to future zero net energy regulations expected to be rolled out in California	As highlighted in the unbundled REC section above, the current DOE definition for zero energy buildings is not clear on some of emerging renewable energy procurement options such as PPAs, CCA, and green tariffs. Provided the rate payer has claim to the environmental attributes of the electricity they are procuring, it is WSP’s opinion that such purchases would qualify the building as zero net energy in that it’s a similar argument to that made by the New Buildings Institute in the aforementioned paper.
Risk profile	Given MVU would be the offtaker or owner of the renewable energy generation, this option has a similar risk profile to conventional procurement from the local utility.
Impact on lifetime energy costs of the project	Unknown at this time. The rate would be dependent on MVU’s agreements or assets. Per their IRP, MVU states <i>“Based on recently completed renewable energy solicitations throughout the market, there appears to be ample renewable energy supply available for interested buyers, although prices are above the cost of conventional energy purchases.”</i>

<sup>13</sup> [http://www.moreno-valley.ca.us/resident\\_services/utilities/pdfs/mvuAnnualReport0217.pdf](http://www.moreno-valley.ca.us/resident_services/utilities/pdfs/mvuAnnualReport0217.pdf)

<sup>14</sup> [http://www.wri.org/sites/default/files/emerging-green-tariffs-in-us-regulated-electricity-markets-sep2017\\_0.pdf](http://www.wri.org/sites/default/files/emerging-green-tariffs-in-us-regulated-electricity-markets-sep2017_0.pdf)

<sup>15</sup> <http://buyersprinciples.org/2017/04/05/facebook-implements-new-green-tariff-for-new-nebraska-data-center/>

## 5.7 RECOMMENDED PATH FORWARD

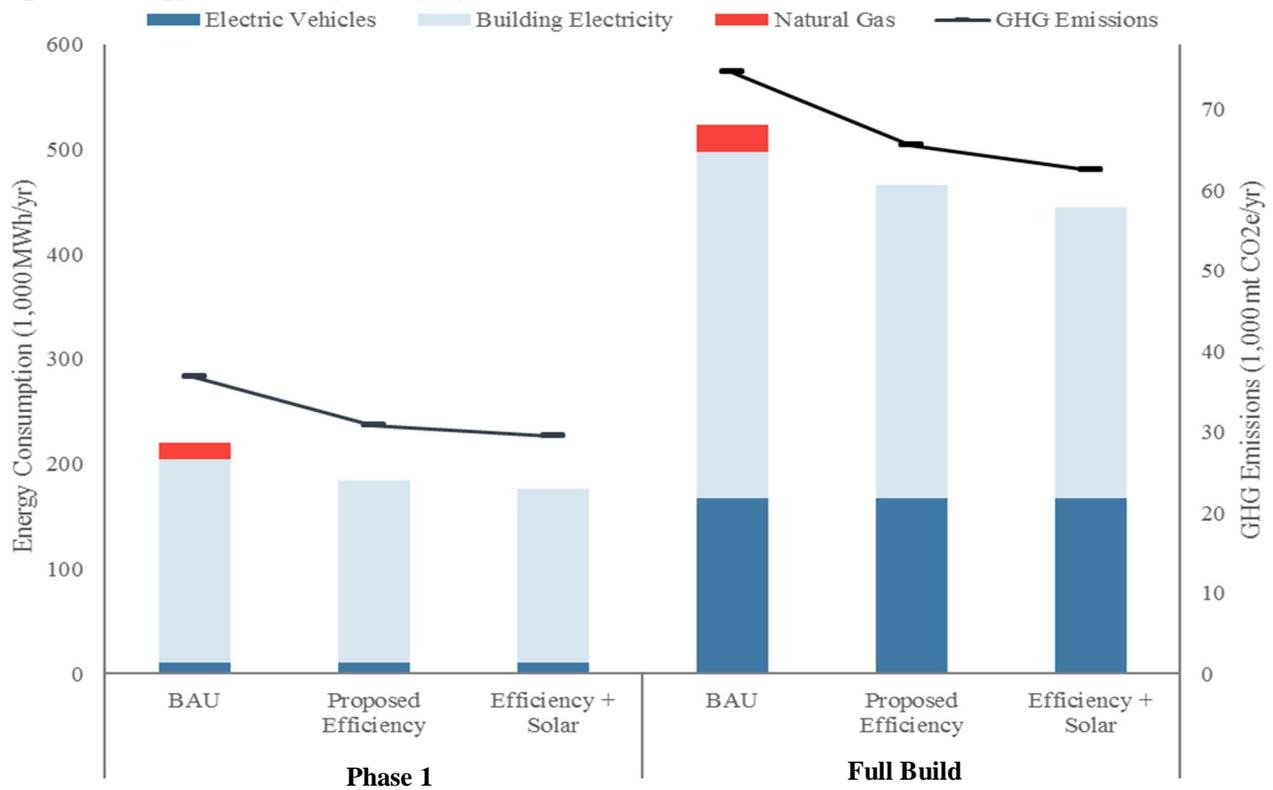
The recommended pathway does not include any on-site combustion or conversion of natural gas to electricity. Any CCHP configuration involving combustion is immediately disqualified due to the significant NO<sub>x</sub> emissions it would contribute to an air shed that is already three times over the allowed NO<sub>x</sub> limit. While fuel cells emit minimal NO<sub>x</sub> and exploit the relatively low cost of natural gas compared to electricity, they result in a net increase in site energy consumption and GHG emissions and are therefore not recommended.

The recommended path forward also does not include requiring WLC tenants to procure renewable energy from off-site sources. The price premium associated with off-site renewable energy procurement would increase WLC tenant utility costs and thus run counter to the Project Objectives and the City's Economic Development Objectives.

The recommended path includes all-electric building systems which eliminates the need for on-site natural gas usage. WLC is then positioned with the future potential to operate 100% on renewable energy. However, PV capacity of 300 kW per building in Phase 1 is the maximum allowed by MVU rules.

The impact of the recommended ECMs and the proposed on-site PV on the annual energy consumption and GHG emissions of the WLC is shown in Figure 6.

**Figure 6: Energy and GHG impact of proposed ECMs + PV for Phase 1 and Full Build-Out**



# 6 CONCLUSION

---

## 6.1 SUMMARY OF OPPORTUNITIES

The State of California is expected to implement regulations to promote net-zero energy buildings. WLC has the opportunity to proactively embrace all-electric design standards at the outset of project construction. Doing so in advance of these regulations would make WLC net-zero-ready and position it to comply with future net-zero regulations. This, combined with WLC's commitment to solar-ready roof construction, positions the development to achieve its environmental stewardship and sustainability goals.

---

## 6.2 SUMMARY OF RECOMMENDATIONS

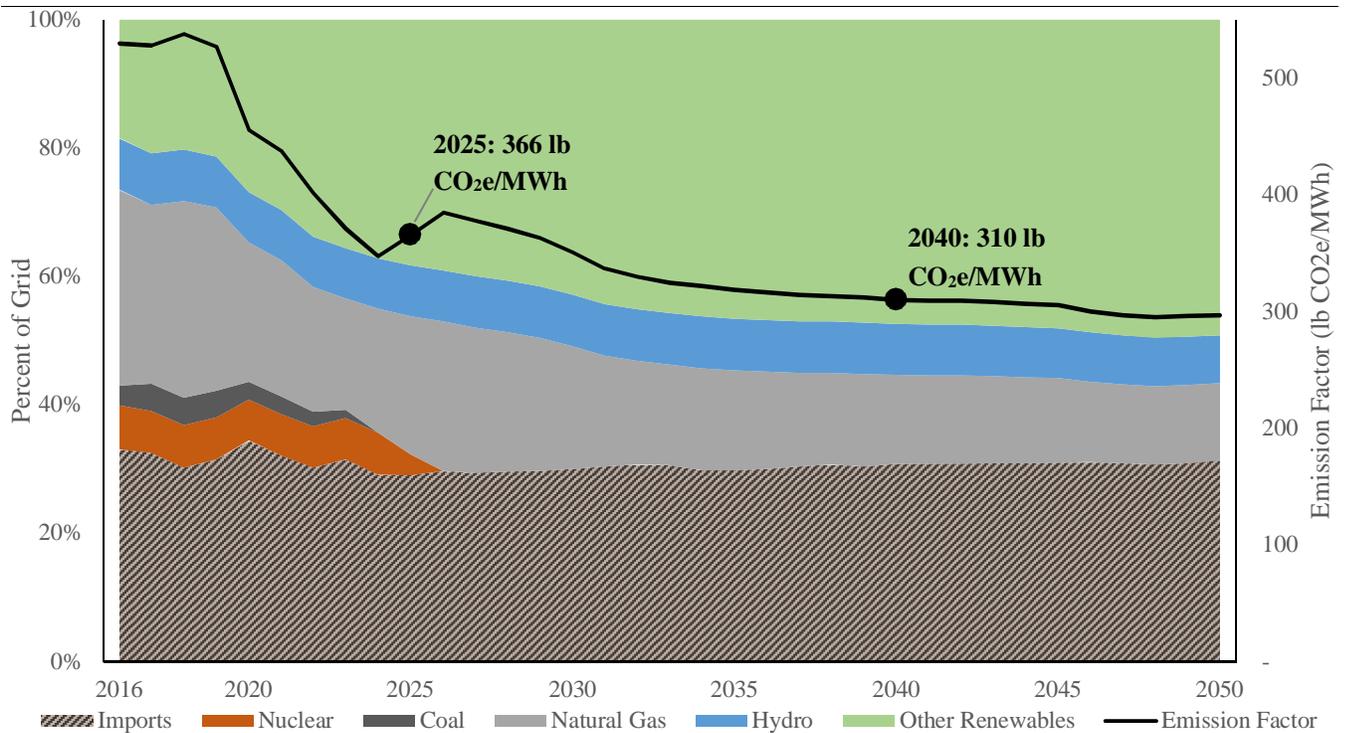
- Establish the ability of WLC to achieve net-zero energy over time by embracing all-electric design standards at the outset of project construction.
- Adopt maximum allowable solar PV capacity of 300 kW per building as a component of the Phase 1 design standards.
- Revisit this analysis with some frequency to capture inevitable changes over time in the MVU solar limit, MVU rate structures, Title 24 requirements, net-zero regulations, and changes in sustainable energy equipment costs.
- Implement recommended ECMs and maximum allowable solar PV capacity in Phase 1.

# 7 APPENDIX A: CURRENT AND FUTURE ENERGY CONTEXT

## 7.1 ELECTRIC GRID PROJECTIONS

Driven by an aggressive Renewable Portfolio Standard (RPS)<sup>16</sup> and a decreased reliance on coal, California’s grid is one of the cleanest in the country. In 2017, 25% of its electricity was derived from renewable sources and the resulting carbon intensity of 529 lb CO<sub>2</sub>e/MWh is nearly 50% below the national average of 1,000 lb CO<sub>2</sub>e /MWh. As highlighted in the graph below, rapid decarbonization of the California grid is expected to continue. The U.S. Energy Information Administration projects that that the grid’s emissions factor will decline 31% from current levels by 2025 and 41% by 2040.

**Figure 7: CAMX Emissions Factor Projection**



<sup>16</sup> California’s RPS requires retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable sources by 2030





WSP  
SUITE 300W  
4840 PEARL EAST CIRCLE  
BOULDER, CO 80301

TEL.: +1 303 551-0936

WSP.COM



## **E-3 Construction Fuel Consumption**



**World Logistics Center  
Construction Energy Analysis**

**Annual Fuel Summary**

<b>Heavy-Duty Construction Equipment</b>	
21,376,801	Total Project Consumption
1,370,308	Annual Consumption
<b>Haul Trucks</b>	
1,667,280	Total Project Consumption
106,877	Annual Consumption
<b>Vendor Trucks</b>	
1,195,386	Total Project Consumption
76,627	Annual Consumption
<b>Workers</b>	
844,012	Total Project Consumption
54,103	Annual Consumption
2,862,666	Project Consumption of diesel for Haul Trucks and Vendors
183,504	Annual Consumption
24,239,467	Total Gallons Diesel
844,012	Total Gallons Gasoline

15.6 Estimated Project Construction Duration (years)

1,553,812 Annual Average Gallons Diesel  
54,103 Annual Average Gallons Gasoline

Riverside County			Percent of Annual Project Compared to Riverside County
Source	Fuel Type	Gallons	
Workers	Gasoline	1,052,000,000	0.0051%
Off-Road/Vendor/Haul Trucks	Diesel	275,000,000	0.5650%

**Notes:**

<sup>1</sup> Gasoline and diesel amounts from CEC, 2019. Available:  
[https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html)

World Logistics Center  
Construction Energy Analysis

Off-Road Equipment

**Equipment ≤ 50 hp**

pounds fuel/hp-hr (OFFROAD2011 model, ≤ 1000 hp): 0.408 lb/hp-hr  
 diesel pounds/gallon (CARB density assumption): 7.11 lb/gal  
 diesel gallons/hp-hr: 0.0574 gal/hp-hr  
 Total <100: 72,413,316 hp-hr  
 Total diesel gallons: 4,156,006 gal

**Equipment > 50 hp**

pounds fuel/hp-hr (OFFROAD2011 model, > 100 hp): 0.367 lb/hp-hr  
 diesel pounds/gallon (CARB density assumption): 7.11 lb/gal  
 diesel gallons/hp-hr: 0.0516 gal/hp-hr  
 Total >100: 333,571,957 hp-hr  
 Total diesel gallons: 17,220,795 gal

**Total diesel gallons (off-road equipment): 21,376,801 gal**

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 2 and 4 (2020) Mass Excavation	Graders	1	10	193	0.41	262	207,321
Plots 2 and 4 (2020) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	262	398,240
Plots 2 and 4 (2020) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	262	70,006
Plots 2 and 4 (2020) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	262	70,006
Plots 2 and 4 (2020) Mass Excavation	Plate Compactors	1	10	354	0.43	262	398,816
Plots 2 and 4 (2020) Mass Excavation	Plate Compactors	1	10	354	0.43	262	398,816
Plots 2 and 4 (2020) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	262	1,215,680
Plots 2 and 4 (2020) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	262	1,215,680
Plots 2 and 4 (2020) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	262	859,360
Plots 2 and 4 (2020) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	262	319,640
Plots 2 and 4 (2020) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	262	146,720
Plots 2 and 4 (2020) Mass Excavation	Rubber Tired Dozers	3	10	85	0.4	262	267,240
Plots 2 and 4 (2020) Mass Excavation	Scrapers	6	10	550	0.48	262	4,150,080
Plots 2 and 4 (2020) Mass Excavation	Scrapers	12	10	550	0.48	262	8,300,160
Plots 2 and 4 (2020) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	262	82,399
Plots 2 and 4 (2020) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	262	17,502

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 2 and 4 (2020) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	262	17,502
Plots 2 and 4 (2020) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	262	146,720
Plots 2 and 4 (2020) Finish Grading	Rubber Tired Dozers	3	10	85	0.4	262	267,240
Plots 2 and 4 (2020) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	262	82,399
Plots 2 and 4 (2020) Utilities	Cement and Mortar Mixers	8	1	9	0.56	262	10,564
Plots 2 and 4 (2020) Utilities	Excavators	2	10	523	0.38	262	1,041,398
Plots 2 and 4 (2020) Utilities	Excavators	5	10	286	0.38	262	1,423,708
Plots 2 and 4 (2020) Utilities	Excavators	2	10	190	0.38	262	378,328
Plots 2 and 4 (2020) Utilities	Excavators	4	10	396	0.38	262	1,577,030
Plots 2 and 4 (2020) Utilities	Excavators	2	10	190	0.38	262	378,328
Plots 2 and 4 (2020) Utilities	Excavators	2	10	188	0.38	262	374,346
Plots 2 and 4 (2020) Utilities	Excavators	8	10	40	0.38	262	318,592
Plots 2 and 4 (2020) Utilities	Forklifts	4	10	89	0.2	262	186,544
Plots 2 and 4 (2020) Utilities	Other Material Handling Equipment	7	1	167	0.4	262	122,511
Plots 2 and 4 (2020) Utilities	Other Material Handling Equipment	16	1	167	0.4	262	280,026
Plots 2 and 4 (2020) Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	262	164,798
Plots 2 and 4 (2020) Utilities	Tractors/Loaders/Backhoes	8	10	90	0.37	262	697,968
Plots 2 and 4 (2020) Landscaping	Excavators	2	10	29	0.38	262	57,745
Plots 2 and 4 (2020) Landscaping	Forklifts	2	10	125	0.2	262	131,000
Plots 2 and 4 (2020) Landscaping	Other Material Handling Equipment	2	1	167	0.4	262	35,003
Plots 2 and 4 (2020) Landscaping	Other Material Handling Equipment	10	1	167	0.4	262	175,016
Plots 2 and 4 (2020) Landscaping	Rubber Tired Loaders	2	10	149	0.36	262	281,074
Plots 2 and 4 (2020) Landscaping	Skid Steer Loaders	2	10	69	0.37	262	133,777
Plots 2 and 4 (2020) Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	262	141,532
Plots 2 and 4 (2020) Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	262	151,226
Plots 2 and 4 (2020) Landscaping	Trenchers	2	10	39	0.5	262	102,180
Plots 2 and 4 (2020) Building Concrete	Cement and Mortar Mixers	15	1	9	0.56	262	19,807
Plots 2 and 4 (2020) Building Concrete	Other Material Handling Equipment	2	1	167	0.4	262	35,003
Plots 2 and 4 (2020) Building Concrete	Pumps	2	10	84	0.74	262	325,718
Plots 2 and 4 (2020) Building Concrete	Tractors/Loaders/Backhoes	4	10	78	0.37	262	302,453
Plots 2 and 4 (2020) Building-Wet Utilities	Excavators	2	10	300	0.38	262	597,360
Plots 2 and 4 (2020) Building-Wet Utilities	Excavators	2	10	179	0.38	262	356,425
Plots 2 and 4 (2020) Building-Wet Utilities	Excavators	2	10	173	0.38	262	344,478
Plots 2 and 4 (2020) Building-Wet Utilities	Other Material Handling Equipment	15	1	167	0.4	262	262,524
Plots 2 and 4 (2020) Building-Wet Utilities	Rubber Tired Loaders	6	10	152	0.36	262	860,198
Plots 2 and 4 (2020) Building-Wet Utilities	Tractors/Loaders/Backhoes	4	10	85	0.37	262	329,596
Plots 2 and 4 (2020) Building-Wet Utilities	Tractors/Loaders/Backhoes	6	10	108	0.37	262	628,171
Plots 2 and 4 (2020) Building-Electrical	Cement and Mortar Mixers	16	1	9	0.56	262	21,128
Plots 2 and 4 (2020) Building-Electrical	Excavators	4	10	40	0.38	262	159,296
Plots 2 and 4 (2020) Building-Electrical	Forklifts	4	10	89	0.2	262	186,544

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 2 and 4 (2020) Building-Electrical	Other Material Handling Equipment	6	1	167	0.4	262	105,010
Plots 2 and 4 (2020) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	262	348,984
Plots 2 and 4 (2020) Temporary Utilities	Cranes	2	10	445	0.29	262	676,222
Plots 2 and 4 (2020) Building-Landscaping	Excavators	2	10	29	0.38	262	57,745
Plots 2 and 4 (2020) Building-Landscaping	Forklifts	2	10	125	0.2	262	131,000
Plots 2 and 4 (2020) Building-Landscaping	Rubber Tired Loaders	2	10	149	0.36	262	281,074
Plots 2 and 4 (2020) Building-Landscaping	Skid Steer Loaders	2	10	69	0.37	262	133,777
Plots 2 and 4 (2020) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	262	141,532
Plots 2 and 4 (2020) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	262	151,226
Plots 2 and 4 (2020) Building-Landscaping	Trenchers	2	10	39	0.5	262	102,180
Plots 2 and 4 (2020) Paving	Other Material Handling Equipment	6	1	167	0.4	262	105,010
Plots 2 and 4 (2020) Paving	Pavers	2	10	126	0.42	262	277,301
Plots 2 and 4 (2020) Paving	Paving Equipment	2	10	131	0.36	262	247,118
Plots 2 and 4 (2020) Paving	Plate Compactors	2	10	8	0.43	262	18,026
Plots 2 and 4 (2020) Paving	Rollers	2	10	81	0.38	262	161,287
Plots 2 and 4 (2020) Paving	Scrapers	2	10	362	0.48	262	910,502
Plots 2 and 4 (2020) Paving	Tractors/Loaders/Backhoes	4	10	90	0.37	262	348,984
Plots 2 and 4 (2020) Curbing/Drive Approaches	Cement and Mortar Mixers	8	1	9	0.56	262	10,564
Plots 2 and 4 (2020) Curbing/Drive Approaches	Other Material Handling Equipment	4	1	167	0.4	262	70,006
Plots 2 and 4 (2020) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	262	93,377
Plots 2 and 4 (2020) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	262	123,559
Plots 2 and 4 (2020) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	262	53,317
Plot 4 (2021) Mass Excavation	Graders	2	10	193	0.41	261	413,059
Plot 4 (2021) Mass Excavation	Off-Highway Trucks	2	10	400	0.38	261	793,440
Plot 4 (2021) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plot 4 (2021) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plot 4 (2021) Mass Excavation	Plate Compactors	2	10	354	0.43	261	794,588
Plot 4 (2021) Mass Excavation	Plate Compactors	2	10	354	0.43	261	794,588
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	2	10	305	0.4	261	636,840
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	2	10	140	0.4	261	292,320
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	3	10	85	0.4	261	266,220
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	3	10	580	0.4	261	1,816,560
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	3	10	580	0.4	261	1,816,560
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	3	10	410	0.4	261	1,284,120
Plot 4 (2021) Mass Excavation	Rubber Tired Dozers	6	10	550	0.48	261	4,134,240
Plot 4 (2021) Mass Excavation	Scrapers	14	10	550	0.48	261	9,646,560
Plot 4 (2021) Mass Excavation	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169
Plot 4 (2021) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 4 (2021) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 4 (2021) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	261	146,160

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 4 (2021) Finish Grading	Rubber Tired Dozers	3	10	85	0.4	261	266,220
Plot 4 (2021) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plot 4 (2021) Utilities	Cement and Mortar Mixers	8	1	9	0.56	261	10,524
Plot 4 (2021) Utilities	Excavators	2	10	523	0.38	261	1,037,423
Plot 4 (2021) Utilities	Excavators	10	10	286	0.38	261	2,836,548
Plot 4 (2021) Utilities	Excavators	2	10	190	0.38	261	376,884
Plot 4 (2021) Utilities	Excavators	4	10	396	0.38	261	1,571,011
Plot 4 (2021) Utilities	Excavators	2	10	190	0.38	261	376,884
Plot 4 (2021) Utilities	Excavators	2	10	188	0.38	261	372,917
Plot 4 (2021) Utilities	Excavators	8	10	40	0.38	261	317,376
Plot 4 (2021) Utilities	Forklifts	4	10	89	0.2	261	185,832
Plot 4 (2021) Utilities	Other Material Handling Equipment	8	1	167	0.4	261	139,478
Plot 4 (2021) Utilities	Other Material Handling Equipment	18	1	167	0.4	261	313,826
Plot 4 (2021) Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169
Plot 4 (2021) Utilities	Tractors/Loaders/Backhoes	8	10	90	0.37	261	695,304
Plot 4 (2021) Building-Concrete	Cement and Mortar Mixers	30	1	9	0.56	261	39,463
Plot 4 (2021) Building-Concrete	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plot 4 (2021) Building-Concrete	Pumps	2	10	84	0.74	261	324,475
Plot 4 (2021) Building-Concrete	Tractors/Loaders/Backhoes	10	10	90	0.37	261	869,130
Plot 4 (2021) Building-Wet Utilities	Excavators	2	10	300	0.38	261	595,080
Plot 4 (2021) Building-Wet Utilities	Excavators	2	10	179	0.38	261	355,064
Plot 4 (2021) Building-Wet Utilities	Excavators	2	10	173	0.38	261	343,163
Plot 4 (2021) Building-Wet Utilities	Other Material Handling Equipment	15	1	167	0.4	261	261,522
Plot 4 (2021) Building-Wet Utilities	Rubber Tired Loaders	6	10	152	0.36	261	856,915
Plot 4 (2021) Building-Wet Utilities	Tractors/Loaders/Backhoes	4	10	108	0.37	261	417,182
Plot 4 (2021) Building-Wet Utilities	Tractors/Loaders/Backhoes	6	10	108	0.37	261	625,774
Plot 4 (2021) Building-Electrical	Cement and Mortar Mixers	18	1	9	0.56	261	23,678
Plot 4 (2021) Building-Electrical	Excavators	10	10	40	0.38	261	396,720
Plot 4 (2021) Building-Electrical	Forklifts	4	10	89	0.2	261	185,832
Plot 4 (2021) Building-Electrical	Other Material Handling Equipment	6	1	167	0.4	261	104,609
Plot 4 (2021) Building-Electrical	Tractors/Loaders/Backhoes	10	10	90	0.37	261	869,130
Plot 4 (2021) Building-Landscaping	Excavators	2	10	29	0.38	261	57,524
Plot 4 (2021) Building-Landscaping	Forklifts	2	10	125	0.2	261	130,500
Plot 4 (2021) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plot 4 (2021) Building-Landscaping	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 4 (2021) Building-Landscaping	Rubber Tired Loaders	2	10	149	0.36	261	280,001
Plot 4 (2021) Building-Landscaping	Skid Steer Loaders	2	10	69	0.37	261	133,267
Plot 4 (2021) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	261	140,992
Plot 4 (2021) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	261	150,649
Plot 4 (2021) Building-Landscaping	Trenchers	2	10	39	0.5	261	101,790

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 4 (2021) Landscaping	Excavators	2	10	29	0.38	261	57,524
Plot 4 (2021) Landscaping	Forklifts	2	10	125	0.2	261	130,500
Plot 4 (2021) Landscaping	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plot 4 (2021) Landscaping	Other Material Handling Equipment	10	1	167	0.4	261	174,348
Plot 4 (2021) Landscaping	Rubber Tired Loaders	2	10	149	0.36	261	280,001
Plot 4 (2021) Landscaping	Skid Steer Loaders	2	10	69	0.37	261	133,267
Plot 4 (2021) Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	261	140,992
Plot 4 (2021) Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	261	150,649
Plot 4 (2021) Landscaping	Trenchers	2	10	39	0.5	261	101,790
Plot 4 (2021) Temporary Utilities	Cranes	2	10	445	0.29	261	673,641
Plot 4 (2021) Curbing/Drive Approaches	Cement and Mortar Mixers	8	1	9	0.56	261	10,524
Plot 4 (2021) Curbing/Drive Approaches	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plot 4 (2021) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	261	93,020
Plot 4 (2021) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	261	123,088
Plot 4 (2021) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	261	53,114
Plot 4 (2021) Paving	Other Material Handling Equipment	6	1	167	0.4	261	104,609
Plot 4 (2021) Paving	Pavers	2	10	126	0.42	261	276,242
Plot 4 (2021) Paving	Paving Equipment	2	10	131	0.36	261	246,175
Plot 4 (2021) Paving	Plate Compactors	2	10	8	0.43	261	17,957
Plot 4 (2021) Paving	Rollers	2	10	81	0.38	261	160,672
Plot 4 (2021) Paving	Scrapers	2	10	362	0.48	261	907,027
Plot 4 (2021) Paving	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plots 4 and 9 (2022) Mass Excavation	Graders	2	10	193	0.41	260	411,476
Plots 4 and 9 (2022) Mass Excavation	Off-Highway Trucks	2	10	400	0.38	260	790,400
Plots 4 and 9 (2022) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plots 4 and 9 (2022) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plots 4 and 9 (2022) Mass Excavation	Plate Compactors	2	10	354	0.43	260	791,544
Plots 4 and 9 (2022) Mass Excavation	Plate Compactors	2	10	354	0.43	260	791,544
Plots 4 and 9 (2022) Mass Excavation	Rubber Tired Dozers	4	10	580	0.4	260	2,412,800
Plots 4 and 9 (2022) Mass Excavation	Rubber Tired Dozers	4	10	580	0.4	260	2,412,800
Plots 4 and 9 (2022) Mass Excavation	Rubber Tired Dozers	4	10	410	0.4	260	1,705,600
Plots 4 and 9 (2022) Mass Excavation	Rubber Tired Dozers	2	10	305	0.4	260	634,400
Plots 4 and 9 (2022) Mass Excavation	Rubber Tired Dozers	2	10	140	0.4	260	291,200
Plots 4 and 9 (2022) Mass Excavation	Rubber Tired Dozers	3	10	85	0.4	260	265,200
Plots 4 and 9 (2022) Mass Excavation	Scrapers	6	10	550	0.48	260	4,118,400
Plots 4 and 9 (2022) Mass Excavation	Scrapers	14	10	550	0.48	260	9,609,600
Plots 4 and 9 (2022) Mass Excavation	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plots 4 and 9 (2022) Finish Grading	Other Construction Equipment	2	10	167	0.42	260	364,728
Plots 4 and 9 (2022) Finish Grading	Other Construction Equipment	2	10	167	0.42	260	364,728
Plots 4 and 9 (2022) Finish Grading	Rubber Tired Dozers	2	10	140	0.4	260	291,200

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 4 and 9 (2022) Finish Grading	Rubber Tired Dozers	4	10	85	0.4	260	353,600
Plots 4 and 9 (2022) Finish Grading	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plots 4 and 9 (2022) Utilities	Cement and Mortar Mixers	8	1	9	0.56	260	10,483
Plots 4 and 9 (2022) Utilities	Excavators	2	10	523	0.38	260	1,033,448
Plots 4 and 9 (2022) Utilities	Excavators	10	10	286	0.38	260	2,825,680
Plots 4 and 9 (2022) Utilities	Excavators	2	10	190	0.38	260	375,440
Plots 4 and 9 (2022) Utilities	Excavators	4	10	396	0.38	260	1,564,992
Plots 4 and 9 (2022) Utilities	Excavators	2	10	190	0.38	260	375,440
Plots 4 and 9 (2022) Utilities	Excavators	2	10	188	0.38	260	371,488
Plots 4 and 9 (2022) Utilities	Excavators	8	10	40	0.38	260	316,160
Plots 4 and 9 (2022) Utilities	Forklifts	4	10	89	0.2	260	185,120
Plots 4 and 9 (2022) Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plots 4 and 9 (2022) Utilities	Other Material Handling Equipment	18	1	167	0.4	260	312,624
Plots 4 and 9 (2022) Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plots 4 and 9 (2022) Utilities	Tractors/Loaders/Backhoes	8	10	90	0.37	260	692,640
Plots 4 and 9 (2022) Building-Concrete	Cement and Mortar Mixers	30	1	9	0.56	260	39,312
Plots 4 and 9 (2022) Building-Concrete	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 4 and 9 (2022) Building-Concrete	Pumps	2	10	84	0.74	260	323,232
Plots 4 and 9 (2022) Building-Wet Utilities	Tractors/Loaders/Backhoes	10	10	90	0.37	260	865,800
Plots 4 and 9 (2022) Building-Wet Utilities	Excavators	2	10	300	0.38	260	592,800
Plots 4 and 9 (2022) Building-Wet Utilities	Excavators	2	10	179	0.38	260	353,704
Plots 4 and 9 (2022) Building-Wet Utilities	Excavators	2	10	173	0.38	260	341,848
Plots 4 and 9 (2022) Building-Wet Utilities	Other Material Handling Equipment	15	1	167	0.4	260	260,520
Plots 4 and 9 (2022) Building-Wet Utilities	Rubber Tired Loaders	6	10	152	0.36	260	853,632
Plots 4 and 9 (2022) Building-Wet Utilities	Tractors/Loaders/Backhoes	4	10	85	0.37	260	327,080
Plots 4 and 9 (2022) Building-Wet Utilities	Tractors/Loaders/Backhoes	6	10	108	0.37	260	623,376
Plots 4 and 9 (2022) Building-Electrical	Cement and Mortar Mixers	18	1	9	0.56	260	23,587
Plots 4 and 9 (2022) Building-Electrical	Excavators	10	10	40	0.38	260	395,200
Plots 4 and 9 (2022) Building-Electrical	Forklifts	4	10	89	0.2	260	185,120
Plots 4 and 9 (2022) Building-Electrical	Other Material Handling Equipment	6	1	167	0.4	260	104,208
Plots 4 and 9 (2022) Building-Electrical	Tractors/Loaders/Backhoes	10	10	90	0.37	260	865,800
Plots 4 and 9 (2022) Building-Landscaping	Excavators	2	10	29	0.38	260	57,304
Plots 4 and 9 (2022) Building-Landscaping	Forklifts	2	10	125	0.2	260	130,000
Plots 4 and 9 (2022) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plots 4 and 9 (2022) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plots 4 and 9 (2022) Building-Landscaping	Rubber Tired Loaders	2	10	149	0.36	260	278,928
Plots 4 and 9 (2022) Building-Landscaping	Skid Steer Loaders	2	10	69	0.37	260	132,756
Plots 4 and 9 (2022) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	260	140,452
Plots 4 and 9 (2022) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	260	150,072
Plots 4 and 9 (2022) Building-Landscaping	Trenchers	2	10	39	0.5	260	101,400

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 4 and 9 (2022) Landscaping	Excavators	2	10	29	0.38	260	57,304
Plots 4 and 9 (2022) Landscaping	Forklifts	2	10	125	0.2	260	130,000
Plots 4 and 9 (2022) Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 4 and 9 (2022) Landscaping	Other Material Handling Equipment	10	1	167	0.4	260	173,680
Plots 4 and 9 (2022) Landscaping	Rubber Tired Loaders	2	10	149	0.36	260	278,928
Plots 4 and 9 (2022) Landscaping	Skid Steer Loaders	2	10	69	0.37	260	132,756
Plots 4 and 9 (2022) Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	260	140,452
Plots 4 and 9 (2022) Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	260	150,072
Plots 4 and 9 (2022) Landscaping	Trenchers	2	10	39	0.5	260	101,400
Plots 4 and 9 (2022) Temporary Utilities	Cranes	2	10	445	0.29	260	671,060
Plots 4 and 9 (2022) Curbing/Drive Approaches	Cement and Mortar Mixers	8	1	9	0.56	260	10,483
Plots 4 and 9 (2022) Curbing/Drive Approaches	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plots 4 and 9 (2022) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	260	92,664
Plots 4 and 9 (2022) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	260	122,616
Plots 4 and 9 (2022) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	260	52,910
Plots 4 and 9 (2022) Paving	Other Material Handling Equipment	6	1	167	0.4	260	104,208
Plots 4 and 9 (2022) Paving	Pavers	2	10	126	0.42	260	275,184
Plots 4 and 9 (2022) Paving	Paving Equipment	2	10	131	0.36	260	245,232
Plots 4 and 9 (2022) Paving	Plate Compactors	2	10	8	0.43	260	17,888
Plots 4 and 9 (2022) Paving	Rollers	2	10	81	0.38	260	160,056
Plots 4 and 9 (2022) Paving	Scrapers	2	10	362	0.48	260	903,552
Plots 4 and 9 (2022) Paving	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 9 (2023) Mass Excavation	Graders	2	10	193	0.41	260	411,476
Plot 9 (2023) Mass Excavation	Off-Highway Trucks	2	10	400	0.38	260	790,400
Plot 9 (2023) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plot 9 (2023) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plot 9 (2023) Mass Excavation	Plate Compactors	2	10	354	0.43	260	791,544
Plot 9 (2023) Mass Excavation	Plate Compactors	2	10	354	0.43	260	791,544
Plot 9 (2023) Mass Excavation	Rubber Tired Dozers	4	10	580	0.4	260	2,412,800
Plot 9 (2023) Mass Excavation	Rubber Tired Dozers	4	10	580	0.4	260	2,412,800
Plot 9 (2023) Mass Excavation	Rubber Tired Dozers	4	10	410	0.4	260	1,705,600
Plot 9 (2023) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	260	317,200
Plot 9 (2023) Mass Excavation	Rubber Tired Dozers	2	10	140	0.4	260	291,200
Plot 9 (2023) Mass Excavation	Rubber Tired Dozers	3	10	85	0.4	260	265,200
Plot 9 (2023) Mass Excavation	Scrapers	6	10	550	0.48	260	4,118,400
Plot 9 (2023) Mass Excavation	Scrapers	12	10	550	0.48	260	8,236,800
Plot 9 (2023) Mass Excavation	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plot 9 (2023) Finish Grading	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 9 (2023) Finish Grading	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 9 (2023) Finish Grading	Rubber Tired Dozers	2	10	140	0.4	260	291,200

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 9 (2023) Finish Grading	Rubber Tired Dozers	4	10	85	0.4	260	353,600
Plot 9 (2023) Finish Grading	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plot 9 (2023) Utilities	Cement and Mortar Mixers	8	1	9	0.56	260	10,483
Plot 9 (2023) Utilities	Excavators	2	10	523	0.38	260	1,033,448
Plot 9 (2023) Utilities	Excavators	10	10	286	0.38	260	2,825,680
Plot 9 (2023) Utilities	Excavators	2	10	190	0.38	260	375,440
Plot 9 (2023) Utilities	Excavators	4	10	396	0.38	260	1,564,992
Plot 9 (2023) Utilities	Excavators	2	10	190	0.38	260	375,440
Plot 9 (2023) Utilities	Excavators	2	10	188	0.38	260	371,488
Plot 9 (2023) Utilities	Excavators	8	10	40	0.38	260	316,160
Plot 9 (2023) Utilities	Forklifts	4	10	89	0.2	260	185,120
Plot 9 (2023) Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plot 9 (2023) Utilities	Other Material Handling Equipment	18	1	167	0.4	260	312,624
Plot 9 (2023) Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plot 9 (2023) Utilities	Tractors/Loaders/Backhoes	8	10	90	0.37	260	692,640
Plot 9 (2023) Building-Concrete	Cement and Mortar Mixers	30	1	9	0.56	260	39,312
Plot 9 (2023) Building-Concrete	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 9 (2023) Building-Concrete	Pumps	2	10	84	0.74	260	323,232
Plot 9 (2023) Building-Concrete	Tractors/Loaders/Backhoes	10	10	90	0.37	260	865,800
Plot 9 (2023) Building-Wet Utilities	Excavators	2	10	300	0.38	260	592,800
Plot 9 (2023) Building-Wet Utilities	Excavators	2	10	179	0.38	260	353,704
Plot 9 (2023) Building-Wet Utilities	Excavators	2	10	173	0.38	260	341,848
Plot 9 (2023) Building-Wet Utilities	Other Material Handling Equipment	15	1	167	0.4	260	260,520
Plot 9 (2023) Building-Wet Utilities	Rubber Tired Loaders	6	10	152	0.36	260	853,632
Plot 9 (2023) Building-Wet Utilities	Tractors/Loaders/Backhoes	6	10	108	0.37	260	623,376
Plot 9 (2023) Building-Wet Utilities	Tractors/Loaders/Backhoes	4	10	85	0.37	260	327,080
Plot 9 (2023) Building-Electrical	Cement and Mortar Mixers	18	1	9	0.56	260	23,587
Plot 9 (2023) Building-Electrical	Excavators	10	10	40	0.38	260	395,200
Plot 9 (2023) Building-Electrical	Forklifts	4	10	89	0.2	260	185,120
Plot 9 (2023) Building-Electrical	Other Material Handling Equipment	6	1	167	0.4	260	104,208
Plot 9 (2023) Building-Electrical	Tractors/Loaders/Backhoes	10	10	90	0.37	260	865,800
Plot 9 (2023) Building-Landscaping	Excavators	2	10	29	0.38	260	57,304
Plot 9 (2023) Building-Landscaping	Forklifts	2	10	125	0.2	260	130,000
Plot 9 (2023) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plot 9 (2023) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plot 9 (2023) Building-Landscaping	Rubber Tired Loaders	2	10	149	0.36	260	278,928
Plot 9 (2023) Building-Landscaping	Skid Steer Loaders	2	10	69	0.37	260	132,756
Plot 9 (2023) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	260	140,452
Plot 9 (2023) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	260	150,072
Plot 9 (2023) Building-Landscaping	Trenchers	2	10	39	0.5	260	101,400

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 9 (2023) Landscaping	Excavators	2	10	29	0.38	260	57,304
Plot 9 (2023) Landscaping	Forklifts	2	10	125	0.2	260	130,000
Plot 9 (2023) Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 9 (2023) Landscaping	Other Material Handling Equipment	10	1	167	0.4	260	173,680
Plot 9 (2023) Landscaping	Rubber Tired Loaders	2	10	149	0.36	260	278,928
Plot 9 (2023) Landscaping	Skid Steer Loaders	2	10	69	0.37	260	132,756
Plot 9 (2023) Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	260	140,452
Plot 9 (2023) Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	260	150,072
Plot 9 (2023) Landscaping	Trenchers	2	10	39	0.5	260	101,400
Plot 9 (2023) Temporary Utilities	Cranes	2	10	445	0.29	260	671,060
Plot 9 (2023) Curbing/Drive Approaches	Cement and Mortar Mixers	8	1	9	0.56	260	10,483
Plot 9 (2023) Curbing/Drive Approaches	Other Material Handling Equipment	6	1	167	0.4	260	104,208
Plot 9 (2023) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	260	92,664
Plot 9 (2023) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	260	122,616
Plot 9 (2023) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	260	52,910
Plot 9 (2023) Paving	Other Material Handling Equipment	6	1	167	0.4	260	104,208
Plot 9 (2023) Paving	Pavers	2	10	126	0.42	260	275,184
Plot 9 (2023) Paving	Paving Equipment	2	10	131	0.36	260	245,232
Plot 9 (2023) Paving	Plate Compactors	2	10	8	0.43	260	17,888
Plot 9 (2023) Paving	Rollers	2	10	81	0.38	260	160,056
Plot 9 (2023) Paving	Scrapers	2	10	362	0.48	260	903,552
Plot 9 (2023) Paving	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 9 (2023) Interchange	Bore/Drill Rigs	1	10	206	0.5	260	267,800
Plot 9 (2023) Interchange	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 9 (2023) Interchange	Cranes	1	10	226	0.29	260	170,404
Plot 9 (2023) Interchange	Excavators	1	10	190	0.38	260	187,720
Plot 9 (2023) Interchange	Graders	1	10	259	0.41	260	276,094
Plot 9 (2023) Interchange	Other General Industrial Equipment	1	10	88	0.34	260	77,792
Plot 9 (2023) Interchange	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plot 9 (2023) Interchange	Rubber Tired Dozers	1	10	410	0.4	260	426,400
Plot 9 (2023) Interchange	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plot 9 (2023) Interchange	Rubber Tired Loaders	1	10	180	0.36	260	168,480
Plot 9 (2023) Interchange	Scrapers	1	10	330	0.48	260	411,840
Plot 9 (2023) Interchange	Tractors/Loaders/Backhoes	1	10	98	0.37	260	94,276
Plot 9 (2023) Interchange	Tractors/Loaders/Backhoes	1	10	90	0.37	260	86,580
Plots 9 and 1,3,20 (2024) Mass Excavation	Graders	2	10	193	0.41	261	413,059
Plots 9 and 1,3,20 (2024) Mass Excavation	Off-Highway Trucks	2	10	400	0.38	261	793,440
Plots 9 and 1,3,20 (2024) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plots 9 and 1,3,20 (2024) Mass Excavation	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plots 9 and 1,3,20 (2024) Mass Excavation	Plate Compactors	2	10	354	0.43	261	794,588

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 9 and 1,3,20 (2024) Mass Excavation	Plate Compactors	2	10	354	0.43	261	794,588
Plots 9 and 1,3,20 (2024) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plots 9 and 1,3,20 (2024) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plots 9 and 1,3,20 (2024) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	261	856,080
Plots 9 and 1,3,20 (2024) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	261	318,420
Plots 9 and 1,3,20 (2024) Mass Excavation	Rubber Tired Dozers	2	10	140	0.4	261	292,320
Plots 9 and 1,3,20 (2024) Mass Excavation	Rubber Tired Dozers	3	10	85	0.4	261	266,220
Plots 9 and 1,3,20 (2024) Mass Excavation	Scrapers	6	10	550	0.48	261	4,134,240
Plots 9 and 1,3,20 (2024) Mass Excavation	Scrapers	12	10	550	0.48	261	8,268,480
Plots 9 and 1,3,20 (2024) Mass Excavation	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169
Plots 9 and 1,3,20 (2024) Utilities	Cement and Mortar Mixers	8	1	9	0.56	262	10,564
Plots 9 and 1,3,20 (2024) Utilities	Excavators	2	10	523	0.38	262	1,041,398
Plots 9 and 1,3,20 (2024) Utilities	Excavators	10	10	286	0.38	262	2,847,416
Plots 9 and 1,3,20 (2024) Utilities	Excavators	2	10	190	0.38	262	378,328
Plots 9 and 1,3,20 (2024) Utilities	Excavators	4	10	396	0.38	262	1,577,030
Plots 9 and 1,3,20 (2024) Utilities	Excavators	2	10	190	0.38	262	378,328
Plots 9 and 1,3,20 (2024) Utilities	Excavators	2	10	188	0.38	262	374,346
Plots 9 and 1,3,20 (2024) Utilities	Excavators	8	10	40	0.38	262	318,592
Plots 9 and 1,3,20 (2024) Utilities	Forklifts	4	10	89	0.2	262	186,544
Plots 9 and 1,3,20 (2024) Utilities	Other Material Handling Equipment	8	1	167	0.4	262	140,013
Plots 9 and 1,3,20 (2024) Utilities	Other Material Handling Equipment	20	1	167	0.4	262	350,032
Plots 9 and 1,3,20 (2024) Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	262	164,798
Plots 9 and 1,3,20 (2024) Utilities	Tractors/Loaders/Backhoes	8	10	90	0.37	262	697,968
Plots 9 and 1,3,20 (2024) Building-Concrete	Cement and Mortar Mixers	30	1	9	0.56	262	39,614
Plots 9 and 1,3,20 (2024) Building-Concrete	Other Material Handling Equipment	2	1	167	0.4	262	35,003
Plots 9 and 1,3,20 (2024) Building-Concrete	Pumps	2	10	84	0.74	262	325,718
Plots 9 and 1,3,20 (2024) Building-Concrete	Tractors/Loaders/Backhoes	10	10	90	0.37	262	872,460
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Excavators	2	10	300	0.38	262	597,360
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Excavators	2	10	179	0.38	262	356,425
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Excavators	2	10	173	0.38	262	344,478
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Other Material Handling Equipment	15	1	167	0.4	262	262,524
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Rubber Tired Loaders	6	10	152	0.36	262	860,198
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Tractors/Loaders/Backhoes	6	10	108	0.37	262	628,171
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	Tractors/Loaders/Backhoes	4	10	85	0.37	262	329,596
Plots 9 and 1,3,20 (2024) Building-Electrical	Cement and Mortar Mixers	12	1	9	0.56	262	15,846
Plots 9 and 1,3,20 (2024) Building-Electrical	Excavators	10	10	40	0.38	262	398,240
Plots 9 and 1,3,20 (2024) Building-Electrical	Forklifts	4	10	89	0.2	262	186,544
Plots 9 and 1,3,20 (2024) Building-Electrical	Other Material Handling Equipment	6	1	167	0.4	262	105,010
Plots 9 and 1,3,20 (2024) Building-Electrical	Tractors/Loaders/Backhoes	10	10	90	0.37	262	872,460
Plots 9 and 1,3,20 (2024) Building-Landscaping	Excavators	2	10	29	0.38	262	57,745

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 9 and 1,3,20 (2024) Building-Landscaping	Forklifts	2	10	125	0.2	262	131,000
Plots 9 and 1,3,20 (2024) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	262	70,006
Plots 9 and 1,3,20 (2024) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	262	70,006
Plots 9 and 1,3,20 (2024) Building-Landscaping	Rubber Tired Loaders	2	10	149	0.36	262	281,074
Plots 9 and 1,3,20 (2024) Building-Landscaping	Skid Steer Loaders	2	10	69	0.37	262	133,777
Plots 9 and 1,3,20 (2024) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	262	141,532
Plots 9 and 1,3,20 (2024) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	262	151,226
Plots 9 and 1,3,20 (2024) Building-Landscaping	Trenchers	2	10	39	0.5	262	102,180
Plots 9 and 1,3,20 (2024) Landscaping	Excavators	2	10	29	0.38	262	57,745
Plots 9 and 1,3,20 (2024) Landscaping	Forklifts	2	10	125	0.2	262	131,000
Plots 9 and 1,3,20 (2024) Landscaping	Other Material Handling Equipment	2	1	167	0.4	262	35,003
Plots 9 and 1,3,20 (2024) Landscaping	Other Material Handling Equipment	10	1	167	0.4	262	175,016
Plots 9 and 1,3,20 (2024) Landscaping	Rubber Tired Loaders	2	10	149	0.36	262	281,074
Plots 9 and 1,3,20 (2024) Landscaping	Skid Steer Loaders	2	10	69	0.37	262	133,777
Plots 9 and 1,3,20 (2024) Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	262	141,532
Plots 9 and 1,3,20 (2024) Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	262	151,226
Plots 9 and 1,3,20 (2024) Landscaping	Trenchers	2	10	39	0.5	262	102,180
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	Cement and Mortar Mixers	8	1	9	0.56	262	10,564
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	Other Material Handling Equipment	6	1	167	0.4	262	105,010
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	Paving Equipment	2	10	99	0.36	262	186,754
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	Paving Equipment	2	10	131	0.36	262	247,118
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	2	10	55	0.37	262	106,634
Plots 9 and 1,3,20 (2024) Temporary Utilities	Cranes	2	10	445	0.29	262	676,222
Plots 9 and 1,3,20 (2024) Interchange	Bore/Drill Rigs	1	10	206	0.5	262	269,860
Plots 9 and 1,3,20 (2024) Interchange	Cement and Mortar Mixers	4	1	9	0.56	262	5,282
Plots 9 and 1,3,20 (2024) Interchange	Cranes	1	10	226	0.29	262	171,715
Plots 9 and 1,3,20 (2024) Interchange	Excavators	1	10	190	0.38	262	189,164
Plots 9 and 1,3,20 (2024) Interchange	Graders	1	10	259	0.41	262	278,218
Plots 9 and 1,3,20 (2024) Interchange	Other General Industrial Equipment	1	10	88	0.34	262	78,390
Plots 9 and 1,3,20 (2024) Interchange	Other Material Handling Equipment	4	1	167	0.4	262	70,006
Plots 9 and 1,3,20 (2024) Interchange	Rubber Tired Dozers	1	10	410	0.4	262	429,680
Plots 9 and 1,3,20 (2024) Interchange	Rubber Tired Dozers	1	10	140	0.4	262	146,720
Plots 9 and 1,3,20 (2024) Interchange	Rubber Tired Loaders	1	10	180	0.36	262	169,776
Plots 9 and 1,3,20 (2024) Interchange	Scrapers	1	10	330	0.48	262	415,008
Plots 9 and 1,3,20 (2024) Interchange	Tractors/Loaders/Backhoes	1	10	98	0.37	262	95,001
Plots 9 and 1,3,20 (2024) Interchange	Tractors/Loaders/Backhoes	1	10	90	0.37	262	87,246
Plots 9 and 1,3,20 (2024) Finish Grading	Other Material Handling Equipment	2	1	167	0.4	262	35,003
Plots 9 and 1,3,20 (2024) Finish Grading	Other Material Handling Equipment	2	1	167	0.4	262	35,003
Plots 9 and 1,3,20 (2024) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	262	146,720
Plots 9 and 1,3,20 (2024) Finish Grading	Rubber Tired Dozers	4	10	85	0.4	262	356,320

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 9 and 1,3,20 (2024) Finish Grading	Tractors/Loaders/Backhoes	2	10	85	0.37	262	164,798
Plots 9 and 1,3,20 (2024) Paving	Other Material Handling Equipment	6	1	167	0.4	262	105,010
Plots 9 and 1,3,20 (2024) Paving	Pavers	2	10	126	0.42	262	277,301
Plots 9 and 1,3,20 (2024) Paving	Paving Equipment	2	10	131	0.36	262	247,118
Plots 9 and 1,3,20 (2024) Paving	Plate Compactors	2	10	8	0.43	262	18,026
Plots 9 and 1,3,20 (2024) Paving	Rollers	2	10	81	0.38	262	161,287
Plots 9 and 1,3,20 (2024) Paving	Scrapers	2	10	362	0.48	262	910,502
Plots 9 and 1,3,20 (2024) Paving	Tractors/Loaders/Backhoes	4	10	90	0.37	262	348,984
Plots 5 and 10 (2025) Mass Excavation	Graders	1	10	193	0.41	261	206,529
Plots 5 and 10 (2025) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	261	396,720
Plots 5 and 10 (2025) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 5 and 10 (2025) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 5 and 10 (2025) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plots 5 and 10 (2025) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plots 5 and 10 (2025) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plots 5 and 10 (2025) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plots 5 and 10 (2025) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	261	856,080
Plots 5 and 10 (2025) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	261	318,420
Plots 5 and 10 (2025) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plots 5 and 10 (2025) Mass Excavation	Rubber Tired Dozers	3	10	85	0.4	261	266,220
Plots 5 and 10 (2025) Mass Excavation	Scrapers	2	10	550	0.48	261	1,378,080
Plots 5 and 10 (2025) Mass Excavation	Scrapers	7	10	550	0.48	261	4,823,280
Plots 5 and 10 (2025) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plots 5 and 10 (2025) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plots 5 and 10 (2025) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plots 5 and 10 (2025) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plots 5 and 10 (2025) Finish Grading	Rubber Tired Dozers	3	10	85	0.4	261	266,220
Plots 5 and 10 (2025) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plots 5 and 10 (2025) Utilities	Cement and Mortar Mixers	8	1	9	0.56	261	10,524
Plots 5 and 10 (2025) Utilities	Excavators	2	10	523	0.38	261	1,037,423
Plots 5 and 10 (2025) Utilities	Excavators	10	10	286	0.38	261	2,836,548
Plots 5 and 10 (2025) Utilities	Excavators	2	10	190	0.38	261	376,884
Plots 5 and 10 (2025) Utilities	Excavators	4	10	396	0.38	261	1,571,011
Plots 5 and 10 (2025) Utilities	Excavators	2	10	190	0.38	261	376,884
Plots 5 and 10 (2025) Utilities	Excavators	2	10	188	0.38	261	372,917
Plots 5 and 10 (2025) Utilities	Excavators	8	10	40	0.38	261	317,376
Plots 5 and 10 (2025) Utilities	Forklifts	4	10	89	0.2	261	185,832
Plots 5 and 10 (2025) Utilities	Other Material Handling Equipment	8	1	167	0.4	261	139,478
Plots 5 and 10 (2025) Utilities	Other Material Handling Equipment	18	1	167	0.4	261	313,826
Plots 5 and 10 (2025) Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 5 and 10 (2025) Utilities	Tractors/Loaders/Backhoes	8	10	90	0.37	261	695,304
Plots 5 and 10 (2025) Building-Concrete	Cement and Mortar Mixers	20	1	9	0.56	261	26,309
Plots 5 and 10 (2025) Building-Concrete	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plots 5 and 10 (2025) Building-Concrete	Pumps	2	10	84	0.74	261	324,475
Plots 5 and 10 (2025) Building-Concrete	Tractors/Loaders/Backhoes	6	10	90	0.37	261	521,478
Plots 5 and 10 (2025) Building-Wet Utilities	Excavators	2	10	300	0.38	261	595,080
Plots 5 and 10 (2025) Building-Wet Utilities	Excavators	2	10	179	0.38	261	355,064
Plots 5 and 10 (2025) Building-Wet Utilities	Excavators	2	10	173	0.38	261	343,163
Plots 5 and 10 (2025) Building-Wet Utilities	Other Material Handling Equipment	10	1	167	0.4	261	174,348
Plots 5 and 10 (2025) Building-Wet Utilities	Rubber Tired Loaders	6	10	152	0.36	261	856,915
Plots 5 and 10 (2025) Building-Wet Utilities	Tractors/Loaders/Backhoes	6	10	108	0.37	261	625,774
Plots 5 and 10 (2025) Building-Wet Utilities	Tractors/Loaders/Backhoes	4	10	85	0.37	261	328,338
Plots 5 and 10 (2025) Building-Electrical	Cement and Mortar Mixers	8	1	9	0.56	261	10,524
Plots 5 and 10 (2025) Building-Electrical	Excavators	6	10	40	0.38	261	238,032
Plots 5 and 10 (2025) Building-Electrical	Forklifts	4	10	89	0.2	261	185,832
Plots 5 and 10 (2025) Building-Electrical	Other Material Handling Equipment	6	1	167	0.4	261	104,609
Plots 5 and 10 (2025) Building-Electrical	Tractors/Loaders/Backhoes	6	10	90	0.37	261	521,478
Plots 5 and 10 (2025) Building-Landscaping	Excavators	2	10	29	0.38	261	57,524
Plots 5 and 10 (2025) Building-Landscaping	Forklifts	2	10	125	0.2	261	130,500
Plots 5 and 10 (2025) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 5 and 10 (2025) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 5 and 10 (2025) Building-Landscaping	Rubber Tired Loaders	2	10	149	0.36	261	280,001
Plots 5 and 10 (2025) Building-Landscaping	Skid Steer Loaders	2	10	69	0.37	261	133,267
Plots 5 and 10 (2025) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	261	140,992
Plots 5 and 10 (2025) Building-Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	261	150,649
Plots 5 and 10 (2025) Building-Landscaping	Trenchers	2	10	39	0.5	261	101,790
Plots 5 and 10 (2025) Landscaping	Excavators	2	10	29	0.38	261	57,524
Plots 5 and 10 (2025) Landscaping	Forklifts	2	10	125	0.2	261	130,500
Plots 5 and 10 (2025) Landscaping	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plots 5 and 10 (2025) Landscaping	Other Material Handling Equipment	10	1	167	0.4	261	174,348
Plots 5 and 10 (2025) Landscaping	Rubber Tired Loaders	2	10	149	0.36	261	280,001
Plots 5 and 10 (2025) Landscaping	Skid Steer Loaders	2	10	69	0.37	261	133,267
Plots 5 and 10 (2025) Landscaping	Tractors/Loaders/Backhoes	2	10	73	0.37	261	140,992
Plots 5 and 10 (2025) Landscaping	Tractors/Loaders/Backhoes	2	10	78	0.37	261	150,649
Plots 5 and 10 (2025) Landscaping	Trenchers	2	10	39	0.5	261	101,790
Plots 5 and 10 (2025) Temporary Utilities	Cranes	2	10	445	0.29	261	673,641
Plots 5 and 10 (2025) Curbing/Drive Approaches	Cement and Mortar Mixers	6	1	9	0.56	261	7,893
Plots 5 and 10 (2025) Curbing/Drive Approaches	Other Material Handling Equipment	6	1	167	0.4	261	104,609
Plots 5 and 10 (2025) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	261	93,020
Plots 5 and 10 (2025) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	261	123,088

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 5 and 10 (2025) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	261	53,114
Plots 5 and 10 (2025) Paving	Other Material Handling Equipment	6	1	167	0.4	261	104,609
Plots 5 and 10 (2025) Paving	Pavers	2	10	126	0.42	261	276,242
Plots 5 and 10 (2025) Paving	Paving Equipment	2	10	131	0.36	261	246,175
Plots 5 and 10 (2025) Paving	Plate Compactors	2	10	8	0.43	261	17,957
Plots 5 and 10 (2025) Paving	Rollers	2	10	81	0.38	261	160,672
Plots 5 and 10 (2025) Paving	Scrapers	2	10	362	0.48	261	907,027
Plots 5 and 10 (2025) Paving	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plots 10 and 8 (2026) Mass Excavation	Graders	1	10	193	0.41	261	206,529
Plots 10 and 8 (2026) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	261	396,720
Plots 10 and 8 (2026) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 10 and 8 (2026) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plots 10 and 8 (2026) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plots 10 and 8 (2026) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plots 10 and 8 (2026) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plots 10 and 8 (2026) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plots 10 and 8 (2026) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	261	856,080
Plots 10 and 8 (2026) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	261	318,420
Plots 10 and 8 (2026) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plots 10 and 8 (2026) Mass Excavation	Rubber Tired Dozers	2	10	85	0.4	261	177,480
Plots 10 and 8 (2026) Mass Excavation	Scrapers	2	10	550	0.48	261	1,378,080
Plots 10 and 8 (2026) Mass Excavation	Scrapers	6	10	550	0.48	261	4,134,240
Plots 10 and 8 (2026) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plots 10 and 8 (2026) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plots 10 and 8 (2026) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plots 10 and 8 (2026) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plots 10 and 8 (2026) Finish Grading	Rubber Tired Dozers	2	10	85	0.4	261	177,480
Plots 10 and 8 (2026) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plots 10 and 8 (2026) Utilities	Cement and Mortar Mixers	4	1	9	0.56	261	5,262
Plots 10 and 8 (2026) Utilities	Excavators	1	10	523	0.38	261	518,711
Plots 10 and 8 (2026) Utilities	Excavators	10	10	286	0.38	261	2,836,548
Plots 10 and 8 (2026) Utilities	Excavators	1	10	190	0.38	261	188,442
Plots 10 and 8 (2026) Utilities	Excavators	2	10	396	0.38	261	785,506
Plots 10 and 8 (2026) Utilities	Excavators	1	10	190	0.38	261	188,442
Plots 10 and 8 (2026) Utilities	Excavators	1	10	188	0.38	261	186,458
Plots 10 and 8 (2026) Utilities	Excavators	4	10	40	0.38	261	158,688
Plots 10 and 8 (2026) Utilities	Forklifts	2	10	89	0.2	261	92,916
Plots 10 and 8 (2026) Utilities	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 10 and 8 (2026) Utilities	Other Material Handling Equipment	10	1	167	0.4	261	174,348
Plots 10 and 8 (2026) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 10 and 8 (2026) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plots 10 and 8 (2026) Building-Concrete	Cement and Mortar Mixers	20	1	9	0.56	261	26,309
Plots 10 and 8 (2026) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plots 10 and 8 (2026) Building-Concrete	Pumps	1	10	84	0.74	261	162,238
Plots 10 and 8 (2026) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plots 10 and 8 (2026) Building-Wet Utilities	Excavators	1	10	300	0.38	261	297,540
Plots 10 and 8 (2026) Building-Wet Utilities	Excavators	1	10	179	0.38	261	177,532
Plots 10 and 8 (2026) Building-Wet Utilities	Excavators	1	10	173	0.38	261	171,581
Plots 10 and 8 (2026) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	261	139,478
Plots 10 and 8 (2026) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	261	428,458
Plots 10 and 8 (2026) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	261	312,887
Plots 10 and 8 (2026) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169
Plots 10 and 8 (2026) Building-Electrical	Cement and Mortar Mixers	5	1	9	0.56	261	6,577
Plots 10 and 8 (2026) Building-Electrical	Excavators	4	10	40	0.38	261	158,688
Plots 10 and 8 (2026) Building-Electrical	Forklifts	2	10	89	0.2	261	92,916
Plots 10 and 8 (2026) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plots 10 and 8 (2026) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plots 10 and 8 (2026) Building-Landscaping	Excavators	1	10	29	0.38	261	28,762
Plots 10 and 8 (2026) Building-Landscaping	Forklifts	1	10	125	0.2	261	65,250
Plots 10 and 8 (2026) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plots 10 and 8 (2026) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 10 and 8 (2026) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	261	140,000
Plots 10 and 8 (2026) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	261	66,633
Plots 10 and 8 (2026) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	261	70,496
Plots 10 and 8 (2026) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	261	75,325
Plots 10 and 8 (2026) Building-Landscaping	Trenchers	1	10	39	0.5	261	50,895
Plots 10 and 8 (2026) Landscaping	Excavators	1	10	29	0.38	261	28,762
Plots 10 and 8 (2026) Landscaping	Forklifts	1	10	125	0.2	261	65,250
Plots 10 and 8 (2026) Landscaping	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plots 10 and 8 (2026) Landscaping	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plots 10 and 8 (2026) Landscaping	Rubber Tired Loaders	1	10	149	0.36	261	140,000
Plots 10 and 8 (2026) Landscaping	Skid Steer Loaders	1	10	69	0.37	261	66,633
Plots 10 and 8 (2026) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	261	70,496
Plots 10 and 8 (2026) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	261	75,325
Plots 10 and 8 (2026) Landscaping	Trenchers	1	10	39	0.5	261	50,895
Plots 10 and 8 (2026) Temporary Utilities	Cranes	1	10	445	0.29	261	336,821
Plots 10 and 8 (2026) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	261	3,946
Plots 10 and 8 (2026) Curbing/Drive Approaches	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plots 10 and 8 (2026) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	261	93,020
Plots 10 and 8 (2026) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	261	123,088

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 10 and 8 (2026) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	261	53,114
Plots 10 and 8 (2026) Paving	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plots 10 and 8 (2026) Paving	Pavers	1	10	126	0.42	261	138,121
Plots 10 and 8 (2026) Paving	Paving Equipment	1	10	131	0.36	261	123,088
Plots 10 and 8 (2026) Paving	Plate Compactors	1	10	8	0.43	261	8,978
Plots 10 and 8 (2026) Paving	Rollers	1	10	81	0.38	261	80,336
Plots 10 and 8 (2026) Paving	Scrapers	1	10	362	0.48	261	453,514
Plots 10 and 8 (2026) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	261	173,826
Plot 8 (2027) Mass Excavation	Graders	1	10	193	0.41	261	206,529
Plot 8 (2027) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	261	396,720
Plot 8 (2027) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 8 (2027) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plot 8 (2027) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plot 8 (2027) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plot 8 (2027) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plot 8 (2027) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plot 8 (2027) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	261	856,080
Plot 8 (2027) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	261	318,420
Plot 8 (2027) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plot 8 (2027) Mass Excavation	Rubber Tired Dozers	2	10	85	0.4	261	177,480
Plot 8 (2027) Mass Excavation	Scrapers	2	10	550	0.48	261	1,378,080
Plot 8 (2027) Mass Excavation	Scrapers	6	10	550	0.48	261	4,134,240
Plot 8 (2027) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plot 8 (2027) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 8 (2027) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 8 (2027) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plot 8 (2027) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	261	88,740
Plot 8 (2027) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plot 8 (2027) Utilities	Cement and Mortar Mixers	4	1	9	0.56	261	5,262
Plot 8 (2027) Utilities	Excavators	1	10	523	0.38	261	518,711
Plot 8 (2027) Utilities	Excavators	5	10	286	0.38	261	1,418,274
Plot 8 (2027) Utilities	Excavators	1	10	190	0.38	261	188,442
Plot 8 (2027) Utilities	Excavators	2	10	396	0.38	261	785,506
Plot 8 (2027) Utilities	Excavators	1	10	190	0.38	261	188,442
Plot 8 (2027) Utilities	Excavators	1	10	188	0.38	261	186,458
Plot 8 (2027) Utilities	Excavators	4	10	40	0.38	261	158,688
Plot 8 (2027) Utilities	Forklifts	2	10	89	0.2	261	92,916
Plot 8 (2027) Utilities	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plot 8 (2027) Utilities	Other Material Handling Equipment	10	1	167	0.4	261	174,348
Plot 8 (2027) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 8 (2027) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plot 8 (2027) Building-Concrete	Cement and Mortar Mixers	20	1	9	0.56	261	26,309
Plot 8 (2027) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 8 (2027) Building-Concrete	Pumps	1	10	84	0.74	261	162,238
Plot 8 (2027) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plot 8 (2027) Building-Wet Utilities	Excavators	1	10	300	0.38	261	297,540
Plot 8 (2027) Building-Wet Utilities	Excavators	1	10	179	0.38	261	177,532
Plot 8 (2027) Building-Wet Utilities	Excavators	1	10	173	0.38	261	171,581
Plot 8 (2027) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	261	139,478
Plot 8 (2027) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	261	428,458
Plot 8 (2027) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	261	312,887
Plot 8 (2027) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169
Plot 8 (2027) Building-Electrical	Cement and Mortar Mixers	5	1	9	0.56	261	6,577
Plot 8 (2027) Building-Electrical	Excavators	4	10	40	0.38	261	158,688
Plot 8 (2027) Building-Electrical	Forklifts	2	10	89	0.2	261	92,916
Plot 8 (2027) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 8 (2027) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plot 8 (2027) Building-Landscaping	Excavators	1	10	29	0.38	261	28,762
Plot 8 (2027) Building-Landscaping	Forklifts	1	10	125	0.2	261	65,250
Plot 8 (2027) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plot 8 (2027) Building-Landscaping	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plot 8 (2027) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	261	140,000
Plot 8 (2027) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	261	66,633
Plot 8 (2027) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	261	70,496
Plot 8 (2027) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	261	75,325
Plot 8 (2027) Building-Landscaping	Trenchers	1	10	39	0.5	261	50,895
Plot 8 (2027) Landscaping	Excavators	1	10	29	0.38	261	28,762
Plot 8 (2027) Landscaping	Forklifts	1	10	125	0.2	261	65,250
Plot 8 (2027) Landscaping	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 8 (2027) Landscaping	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plot 8 (2027) Landscaping	Rubber Tired Loaders	1	10	149	0.36	261	140,000
Plot 8 (2027) Landscaping	Skid Steer Loaders	1	10	69	0.37	261	66,633
Plot 8 (2027) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	261	70,496
Plot 8 (2027) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	261	75,325
Plot 8 (2027) Landscaping	Trenchers	1	10	39	0.5	261	50,895
Plot 8 (2027) Temporary Utilities	Cranes	1	10	445	0.29	261	336,821
Plot 8 (2027) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	261	3,946
Plot 8 (2027) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plot 8 (2027) Paving	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 8 (2027) Paving	Pavers	1	10	126	0.42	261	138,121

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 8 (2027) Paving	Paving Equipment	1	10	131	0.36	261	123,088
Plot 8 (2027) Paving	Plate Compactors	1	10	8	0.43	261	8,978
Plot 8 (2027) Paving	Rollers	1	10	81	0.38	261	80,336
Plot 8 (2027) Paving	Scrapers	1	10	362	0.48	261	453,514
Plot 8 (2027) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	261	173,826
Plots 11 and 6,7 (2028) Mass Excavation	Graders	1	10	193	0.41	260	205,738
Plots 11 and 6,7 (2028) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	260	395,200
Plots 11 and 6,7 (2028) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 11 and 6,7 (2028) Mass Excavation	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plots 11 and 6,7 (2028) Mass Excavation	Plate Compactors	1	10	354	0.43	260	395,772
Plots 11 and 6,7 (2028) Mass Excavation	Plate Compactors	1	10	354	0.43	260	395,772
Plots 11 and 6,7 (2028) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	260	1,206,400
Plots 11 and 6,7 (2028) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	260	1,206,400
Plots 11 and 6,7 (2028) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	260	852,800
Plots 11 and 6,7 (2028) Mass Excavation	Rubber Tired Dozers	2	10	305	0.4	260	634,400
Plots 11 and 6,7 (2028) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plots 11 and 6,7 (2028) Mass Excavation	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plots 11 and 6,7 (2028) Mass Excavation	Scrapers	2	10	550	0.48	260	1,372,800
Plots 11 and 6,7 (2028) Mass Excavation	Scrapers	6	10	550	0.48	260	4,118,400
Plots 11 and 6,7 (2028) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 11 and 6,7 (2028) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 6,7 (2028) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 6,7 (2028) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plots 11 and 6,7 (2028) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plots 11 and 6,7 (2028) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 11 and 6,7 (2028) Utilities	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plots 11 and 6,7 (2028) Utilities	Excavators	1	10	523	0.38	260	516,724
Plots 11 and 6,7 (2028) Utilities	Excavators	5	10	286	0.38	260	1,412,840
Plots 11 and 6,7 (2028) Utilities	Excavators	1	10	190	0.38	260	187,720
Plots 11 and 6,7 (2028) Utilities	Excavators	2	10	396	0.38	260	782,496
Plots 11 and 6,7 (2028) Utilities	Excavators	1	10	190	0.38	260	187,720
Plots 11 and 6,7 (2028) Utilities	Excavators	1	10	188	0.38	260	185,744
Plots 11 and 6,7 (2028) Utilities	Excavators	4	10	40	0.38	260	158,080
Plots 11 and 6,7 (2028) Utilities	Forklifts	2	10	89	0.2	260	92,560
Plots 11 and 6,7 (2028) Utilities	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plots 11 and 6,7 (2028) Utilities	Other Material Handling Equipment	10	1	167	0.4	260	173,680
Plots 11 and 6,7 (2028) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 11 and 6,7 (2028) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 11 and 6,7 (2028) Building-Concrete	Cement and Mortar Mixers	10	1	9	0.56	260	13,104
Plots 11 and 6,7 (2028) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	260	17,368

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 11 and 6,7 (2028) Building-Concrete	Pumps	1	10	84	0.74	260	161,616
Plots 11 and 6,7 (2028) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 11 and 6,7 (2028) Building-Wet Utilities	Excavators	1	10	300	0.38	260	296,400
Plots 11 and 6,7 (2028) Building-Wet Utilities	Excavators	1	10	179	0.38	260	176,852
Plots 11 and 6,7 (2028) Building-Wet Utilities	Excavators	1	10	173	0.38	260	170,924
Plots 11 and 6,7 (2028) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plots 11 and 6,7 (2028) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	260	426,816
Plots 11 and 6,7 (2028) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	260	311,688
Plots 11 and 6,7 (2028) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plots 11 and 6,7 (2028) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plots 11 and 6,7 (2028) Building-Electrical	Excavators	4	10	40	0.38	260	158,080
Plots 11 and 6,7 (2028) Building-Electrical	Forklifts	2	10	89	0.2	260	92,560
Plots 11 and 6,7 (2028) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 11 and 6,7 (2028) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 11 and 6,7 (2028) Building-Landscaping	Excavators	1	10	29	0.38	260	28,652
Plots 11 and 6,7 (2028) Building-Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plots 11 and 6,7 (2028) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 11 and 6,7 (2028) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 11 and 6,7 (2028) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plots 11 and 6,7 (2028) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plots 11 and 6,7 (2028) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plots 11 and 6,7 (2028) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plots 11 and 6,7 (2028) Building-Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plots 11 and 6,7 (2028) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plots 11 and 6,7 (2028) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plots 11 and 6,7 (2028) Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 6,7 (2028) Landscaping	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plots 11 and 6,7 (2028) Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plots 11 and 6,7 (2028) Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plots 11 and 6,7 (2028) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plots 11 and 6,7 (2028) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plots 11 and 6,7 (2028) Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plots 11 and 6,7 (2028) Temporary Utilities	Cranes	1	10	445	0.29	260	335,530
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	260	3,931
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	260	92,664
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	260	122,616
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	260	52,910
Plots 11 and 6,7 (2028) Paving	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 11 and 6,7 (2028) Paving	Pavers	1	10	126	0.42	260	137,592

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 11 and 6,7 (2028) Paving	Paving Equipment	1	10	131	0.36	260	122,616
Plots 11 and 6,7 (2028) Paving	Plate Compactors	1	10	8	0.43	260	8,944
Plots 11 and 6,7 (2028) Paving	Rollers	1	10	81	0.38	260	80,028
Plots 11 and 6,7 (2028) Paving	Scrapers	1	10	362	0.48	260	451,776
Plots 11 and 6,7 (2028) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	260	173,160
Plot 11 (2029) Mass Excavation	Graders	1	10	193	0.41	261	206,529
Plot 11 (2029) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	261	396,720
Plot 11 (2029) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 11 (2029) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 11 (2029) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plot 11 (2029) Mass Excavation	Plate Compactors	1	10	354	0.43	261	397,294
Plot 11 (2029) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plot 11 (2029) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	261	1,211,040
Plot 11 (2029) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	261	856,080
Plot 11 (2029) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	261	318,420
Plot 11 (2029) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plot 11 (2029) Mass Excavation	Rubber Tired Dozers	1	10	85	0.4	261	88,740
Plot 11 (2029) Mass Excavation	Scrapers	1	10	550	0.48	261	689,040
Plot 11 (2029) Mass Excavation	Scrapers	6	10	550	0.48	261	4,134,240
Plot 11 (2029) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plot 11 (2029) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 11 (2029) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 11 (2029) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	261	146,160
Plot 11 (2029) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	261	88,740
Plot 11 (2029) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plot 11 (2029) Utilities	Cement and Mortar Mixers	4	1	9	0.56	261	5,262
Plot 11 (2029) Utilities	Excavators	1	10	523	0.38	261	518,711
Plot 11 (2029) Utilities	Excavators	5	10	286	0.38	261	1,418,274
Plot 11 (2029) Utilities	Excavators	1	10	190	0.38	261	188,442
Plot 11 (2029) Utilities	Excavators	2	10	396	0.38	261	785,506
Plot 11 (2029) Utilities	Excavators	1	10	190	0.38	261	188,442
Plot 11 (2029) Utilities	Excavators	1	10	188	0.38	261	186,458
Plot 11 (2029) Utilities	Excavators	4	10	40	0.38	261	158,688
Plot 11 (2029) Utilities	Forklifts	2	10	89	0.2	261	92,916
Plot 11 (2029) Utilities	Other Material Handling Equipment	4	1	167	0.4	261	69,739
Plot 11 (2029) Utilities	Other Material Handling Equipment	10	1	167	0.4	261	174,348
Plot 11 (2029) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	261	82,085
Plot 11 (2029) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plot 11 (2029) Building-Concrete	Cement and Mortar Mixers	10	1	9	0.56	261	13,154
Plot 11 (2029) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	261	17,435

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 11 (2029) Building-Concrete	Pumps	1	10	84	0.74	261	162,238
Plot 11 (2029) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plot 11 (2029) Building-Wet Utilities	Excavators	1	10	300	0.38	261	297,540
Plot 11 (2029) Building-Wet Utilities	Excavators	1	10	179	0.38	261	177,532
Plot 11 (2029) Building-Wet Utilities	Excavators	1	10	173	0.38	261	171,581
Plot 11 (2029) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	261	139,478
Plot 11 (2029) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	261	428,458
Plot 11 (2029) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	261	312,887
Plot 11 (2029) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	261	164,169
Plot 11 (2029) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	261	5,262
Plot 11 (2029) Building-Electrical	Excavators	4	10	40	0.38	261	158,688
Plot 11 (2029) Building-Electrical	Forklifts	2	10	89	0.2	261	92,916
Plot 11 (2029) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 11 (2029) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	261	347,652
Plot 11 (2029) Building-Landscaping	Excavators	1	10	29	0.38	261	28,762
Plot 11 (2029) Building-Landscaping	Forklifts	1	10	125	0.2	261	65,250
Plot 11 (2029) Building-Landscaping	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 11 (2029) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plot 11 (2029) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	261	140,000
Plot 11 (2029) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	261	66,633
Plot 11 (2029) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	261	70,496
Plot 11 (2029) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	261	75,325
Plot 11 (2029) Building-Landscaping	Trenchers	1	10	39	0.5	261	50,895
Plot 11 (2029) Landscaping	Excavators	1	10	29	0.38	261	28,762
Plot 11 (2029) Landscaping	Forklifts	1	10	125	0.2	261	65,250
Plot 11 (2029) Landscaping	Other Material Handling Equipment	1	1	167	0.4	261	17,435
Plot 11 (2029) Landscaping	Other Material Handling Equipment	5	1	167	0.4	261	87,174
Plot 11 (2029) Landscaping	Rubber Tired Loaders	1	10	149	0.36	261	140,000
Plot 11 (2029) Landscaping	Skid Steer Loaders	1	10	69	0.37	261	66,633
Plot 11 (2029) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	261	70,496
Plot 11 (2029) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	261	75,325
Plot 11 (2029) Landscaping	Trenchers	1	10	39	0.5	261	50,895
Plot 11 (2029) Landscaping	Cranes	1	10	445	0.29	261	336,821
Plot 11 (2029) Temporary Utilities	Cement and Mortar Mixers	3	1	9	0.56	261	3,946
Plot 11 (2029) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	261	34,870
Plot 11 (2029) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	261	93,020
Plot 11 (2029) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	261	123,088
Plot 11 (2029) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	261	53,114
Plot 11 (2029) Paving	Other Material Handling Equipment	3	1	167	0.4	261	52,304
Plot 11 (2029) Paving	Pavers	1	10	126	0.42	261	138,121

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 11 (2029) Paving	Paving Equipment	1	10	131	0.36	261	123,088
Plot 11 (2029) Paving	Plate Compactors	1	10	8	0.43	261	8,978
Plot 11 (2029) Paving	Rollers	1	10	81	0.38	261	80,336
Plot 11 (2029) Paving	Scrapers	1	10	362	0.48	261	453,514
Plot 11 (2029) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	261	173,826
Plot 11 (2030) Mass Excavation	Graders	1	10	193	0.41	260	205,738
Plot 11 (2030) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	260	395,200
Plot 11 (2030) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2030) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2030) Mass Excavation	Plate Compactors	1	10	354	0.43	260	395,772
Plot 11 (2030) Mass Excavation	Plate Compactors	1	10	354	0.43	260	395,772
Plot 11 (2030) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	260	1,206,400
Plot 11 (2030) Mass Excavation	Rubber Tired Dozers	2	10	580	0.4	260	1,206,400
Plot 11 (2030) Mass Excavation	Rubber Tired Dozers	2	10	410	0.4	260	852,800
Plot 11 (2030) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	260	317,200
Plot 11 (2030) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plot 11 (2030) Mass Excavation	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plot 11 (2030) Mass Excavation	Scrapers	6	10	550	0.48	260	4,118,400
Plot 11 (2030) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 11 (2030) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2030) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2030) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plot 11 (2030) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plot 11 (2030) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 11 (2030) Utilities	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 11 (2030) Utilities	Excavators	1	10	523	0.38	260	516,724
Plot 11 (2030) Utilities	Excavators	5	10	286	0.38	260	1,412,840
Plot 11 (2030) Utilities	Excavators	1	10	190	0.38	260	187,720
Plot 11 (2030) Utilities	Excavators	2	10	396	0.38	260	782,496
Plot 11 (2030) Utilities	Excavators	1	10	190	0.38	260	187,720
Plot 11 (2030) Utilities	Excavators	1	10	188	0.38	260	185,744
Plot 11 (2030) Utilities	Excavators	4	10	40	0.38	260	158,080
Plot 11 (2030) Utilities	Forklifts	2	10	89	0.2	260	92,560
Plot 11 (2030) Utilities	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plot 11 (2030) Utilities	Other Material Handling Equipment	10	1	167	0.4	260	173,680
Plot 11 (2030) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 11 (2030) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 11 (2030) Building-Concrete	Cement and Mortar Mixers	10	1	9	0.56	260	13,104
Plot 11 (2030) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2030) Building-Concrete	Pumps	1	10	84	0.74	260	161,616

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 11 (2030) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 11 (2030) Building-Wet Utilities	Excavators	1	10	300	0.38	260	296,400
Plot 11 (2030) Building-Wet Utilities	Excavators	1	10	179	0.38	260	176,852
Plot 11 (2030) Building-Wet Utilities	Excavators	1	10	173	0.38	260	170,924
Plot 11 (2030) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plot 11 (2030) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	260	426,816
Plot 11 (2030) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	260	311,688
Plot 11 (2030) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plot 11 (2030) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 11 (2030) Building-Electrical	Excavators	4	10	40	0.38	260	158,080
Plot 11 (2030) Building-Electrical	Forklifts	2	10	89	0.2	260	92,560
Plot 11 (2030) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2030) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 11 (2030) Building-Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 11 (2030) Building-Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 11 (2030) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 11 (2030) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 11 (2030) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plot 11 (2030) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plot 11 (2030) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plot 11 (2030) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plot 11 (2030) Building-Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plot 11 (2030) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 11 (2030) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 11 (2030) Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2030) Landscaping	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plot 11 (2030) Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plot 11 (2030) Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plot 11 (2030) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plot 11 (2030) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plot 11 (2030) Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plot 11 (2030) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 11 (2030) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 11 (2030) Temporary Utilities	Cranes	1	10	445	0.29	260	335,530
Plot 11 (2030) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	260	3,931
Plot 11 (2030) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 11 (2030) Paving	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2030) Paving	Pavers	1	10	126	0.42	260	137,592
Plot 11 (2030) Paving	Paving Equipment	1	10	131	0.36	260	122,616
Plot 11 (2030) Paving	Plate Compactors	1	10	8	0.43	260	8,944
Plot 11 (2030) Paving	Rollers	1	10	81	0.38	260	80,028
Plot 11 (2030) Paving	Scrapers	1	10	362	0.48	260	451,776

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 11 (2030) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	260	173,160
Plot 11 (2031) Mass Excavation	Graders	1	10	193	0.41	260	205,738
Plot 11 (2031) Mass Excavation	Off-Highway Trucks	1	10	400	0.38	260	395,200
Plot 11 (2031) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2031) Mass Excavation	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2031) Mass Excavation	Plate Compactors	1	10	354	0.43	260	395,772
Plot 11 (2031) Mass Excavation	Plate Compactors	1	10	354	0.43	260	395,772
Plot 11 (2031) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	260	317,200
Plot 11 (2031) Mass Excavation	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plot 11 (2031) Mass Excavation	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plot 11 (2031) Mass Excavation	Scrapers	6	10	550	0.48	260	4,118,400
Plot 11 (2031) Mass Excavation	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 11 (2031) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2031) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2031) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plot 11 (2031) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plot 11 (2031) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 11 (2031) Utilities	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 11 (2031) Utilities	Excavators	1	10	523	0.38	260	516,724
Plot 11 (2031) Utilities	Excavators	5	10	286	0.38	260	1,412,840
Plot 11 (2031) Utilities	Excavators	1	10	190	0.38	260	187,720
Plot 11 (2031) Utilities	Excavators	2	10	396	0.38	260	782,496
Plot 11 (2031) Utilities	Excavators	1	10	190	0.38	260	187,720
Plot 11 (2031) Utilities	Excavators	1	10	188	0.38	260	185,744
Plot 11 (2031) Utilities	Excavators	4	10	40	0.38	260	158,080
Plot 11 (2031) Utilities	Forklifts	2	10	89	0.2	260	92,560
Plot 11 (2031) Utilities	Other Material Handling Equipment	4	1	167	0.4	260	69,472
Plot 11 (2031) Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plot 11 (2031) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 11 (2031) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 11 (2031) Building-Concrete	Cement and Mortar Mixers	10	1	9	0.56	260	13,104
Plot 11 (2031) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2031) Building-Concrete	Pumps	1	10	84	0.74	260	161,616
Plot 11 (2031) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 11 (2031) Building-Wet Utilities	Excavators	1	10	300	0.38	260	296,400
Plot 11 (2031) Building-Wet Utilities	Excavators	1	10	179	0.38	260	176,852
Plot 11 (2031) Building-Wet Utilities	Excavators	1	10	173	0.38	260	170,924
Plot 11 (2031) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plot 11 (2031) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	260	426,816
Plot 11 (2031) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	260	311,688

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 11 (2031) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plot 11 (2031) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 11 (2031) Building-Electrical	Excavators	4	10	40	0.38	260	158,080
Plot 11 (2031) Building-Electrical	Forklifts	2	10	89	0.2	260	92,560
Plot 11 (2031) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2031) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 11 (2031) Building-Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 11 (2031) Building-Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 11 (2031) Building-Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2031) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 11 (2031) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plot 11 (2031) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plot 11 (2031) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plot 11 (2031) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plot 11 (2031) Building-Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plot 11 (2031) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 11 (2031) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 11 (2031) Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 11 (2031) Landscaping	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plot 11 (2031) Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plot 11 (2031) Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plot 11 (2031) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plot 11 (2031) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plot 11 (2031) Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plot 11 (2031) Temporary Utilities	Cranes	1	10	445	0.29	260	335,530
Plot 11 (2031) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	260	3,931
Plot 11 (2031) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 11 (2031) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	260	92,664
Plot 11 (2031) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	260	122,616
Plot 11 (2031) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	260	52,910
Plot 11 (2031) Paving	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 11 (2031) Paving	Pavers	1	10	126	0.42	260	137,592
Plot 11 (2031) Paving	Paving Equipment	1	10	131	0.36	260	122,616
Plot 11 (2031) Paving	Plate Compactors	1	10	8	0.43	260	8,944
Plot 11 (2031) Paving	Rollers	1	10	81	0.38	260	80,028
Plot 11 (2031) Paving	Scrapers	1	10	362	0.48	260	451,776
Plot 11 (2031) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	260	173,160
Plots 11 and 12 (2032) Mass Excavation	Rubber Tired Dozers	1	10	305	0.4	260	317,200
Plots 11 and 12 (2032) Mass Excavation	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plots 11 and 12 (2032) Mass Excavation	Scrapers	6	10	550	0.48	260	4,118,400

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 11 and 12 (2032) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 12 (2032) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 12 (2032) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plots 11 and 12 (2032) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plots 11 and 12 (2032) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 11 and 12 (2032) Utilities	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plots 11 and 12 (2032) Utilities	Excavators	1	10	523	0.38	260	516,724
Plots 11 and 12 (2032) Utilities	Excavators	5	10	286	0.38	260	1,412,840
Plots 11 and 12 (2032) Utilities	Excavators	1	10	190	0.38	260	187,720
Plots 11 and 12 (2032) Utilities	Excavators	2	10	396	0.38	260	782,496
Plots 11 and 12 (2032) Utilities	Excavators	1	10	190	0.38	260	187,720
Plots 11 and 12 (2032) Utilities	Excavators	1	10	188	0.38	260	185,744
Plots 11 and 12 (2032) Utilities	Excavators	4	10	40	0.38	260	158,080
Plots 11 and 12 (2032) Utilities	Forklifts	2	10	89	0.2	260	92,560
Plots 11 and 12 (2032) Utilities	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 11 and 12 (2032) Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plots 11 and 12 (2032) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 11 and 12 (2032) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 11 and 12 (2032) Utilities	Cement and Mortar Mixers	10	1	9	0.56	260	13,104
Plots 11 and 12 (2032) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 12 (2032) Building-Concrete	Pumps	1	10	84	0.74	260	161,616
Plots 11 and 12 (2032) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 11 and 12 (2032) Building-Wet Utilities	Excavators	1	10	300	0.38	260	296,400
Plots 11 and 12 (2032) Building-Wet Utilities	Excavators	1	10	179	0.38	260	176,852
Plots 11 and 12 (2032) Building-Wet Utilities	Excavators	1	10	173	0.38	260	170,924
Plots 11 and 12 (2032) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plots 11 and 12 (2032) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	260	426,816
Plots 11 and 12 (2032) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	260	311,688
Plots 11 and 12 (2032) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plots 11 and 12 (2032) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plots 11 and 12 (2032) Building-Electrical	Excavators	4	10	40	0.38	260	158,080
Plots 11 and 12 (2032) Building-Electrical	Forklifts	2	10	89	0.2	260	92,560
Plots 11 and 12 (2032) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 11 and 12 (2032) Building-Landscaping	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 11 and 12 (2032) Building-Landscaping	Excavators	1	10	29	0.38	260	28,652
Plots 11 and 12 (2032) Building-Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plots 11 and 12 (2032) Building-Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 12 (2032) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 11 and 12 (2032) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plots 11 and 12 (2032) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 11 and 12 (2032) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plots 11 and 12 (2032) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plots 11 and 12 (2032) Building-Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plots 11 and 12 (2032) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plots 11 and 12 (2032) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plots 11 and 12 (2032) Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 11 and 12 (2032) Landscaping	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plots 11 and 12 (2032) Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plots 11 and 12 (2032) Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plots 11 and 12 (2032) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plots 11 and 12 (2032) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plots 11 and 12 (2032) Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plots 11 and 12 (2032) Temporary Utilities	Cranes	1	10	445	0.29	260	335,530
Plots 11 and 12 (2032) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	260	3,931
Plots 11 and 12 (2032) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 11 and 12 (2032) Paving	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 11 and 12 (2032) Paving	Pavers	1	10	126	0.42	260	137,592
Plots 11 and 12 (2032) Paving	Paving Equipment	1	10	131	0.36	260	122,616
Plots 11 and 12 (2032) Paving	Plate Compactors	1	10	8	0.43	260	8,944
Plots 11 and 12 (2032) Paving	Rollers	1	10	81	0.38	260	80,028
Plots 11 and 12 (2032) Paving	Scrapers	1	10	362	0.48	260	451,776
Plots 11 and 12 (2032) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	260	173,160
Plot 12 (2033) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 12 (2033) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 12 (2033) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plot 12 (2033) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plot 12 (2033) Utilities	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 12 (2033) Utilities	Excavators	1	10	523	0.38	260	516,724
Plot 12 (2033) Utilities	Excavators	5	10	286	0.38	260	1,412,840
Plot 12 (2033) Utilities	Excavators	1	10	190	0.38	260	187,720
Plot 12 (2033) Utilities	Excavators	2	10	396	0.38	260	782,496
Plot 12 (2033) Utilities	Excavators	1	10	190	0.38	260	187,720
Plot 12 (2033) Utilities	Excavators	1	10	188	0.38	260	185,744
Plot 12 (2033) Utilities	Excavators	4	10	40	0.38	260	158,080
Plot 12 (2033) Utilities	Forklifts	2	10	89	0.2	260	92,560
Plot 12 (2033) Utilities	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 12 (2033) Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plot 12 (2033) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plot 12 (2033) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 12 (2033) Building-Concrete	Cement and Mortar Mixers	10	1	9	0.56	260	13,104

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 12 (2033) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 12 (2033) Building-Concrete	Pumps	1	10	84	0.74	260	161,616
Plot 12 (2033) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 12 (2033) Building-Wet Utilities	Excavators	1	10	300	0.38	260	296,400
Plot 12 (2033) Building-Wet Utilities	Excavators	1	10	179	0.38	260	176,852
Plot 12 (2033) Building-Wet Utilities	Excavators	1	10	173	0.38	260	170,924
Plot 12 (2033) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plot 12 (2033) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	260	426,816
Plot 12 (2033) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	260	311,688
Plot 12 (2033) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plot 12 (2033) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plot 12 (2033) Building-Electrical	Excavators	4	10	40	0.38	260	158,080
Plot 12 (2033) Building-Electrical	Forklifts	2	10	89	0.2	260	92,560
Plot 12 (2033) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plot 12 (2033) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plot 12 (2033) Building-Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 12 (2033) Building-Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 12 (2033) Building-Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 12 (2033) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 12 (2033) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plot 12 (2033) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plot 12 (2033) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plot 12 (2033) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plot 12 (2033) Building-Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plot 12 (2033) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plot 12 (2033) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plot 12 (2033) Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plot 12 (2033) Landscaping	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plot 12 (2033) Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plot 12 (2033) Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plot 12 (2033) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plot 12 (2033) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plot 12 (2033) Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plot 12 (2033) Temporary Utilities	Cranes	1	10	445	0.29	260	335,530
Plot 12 (2033) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	260	3,931
Plot 12 (2033) Curbing/Drive Approaches	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plot 12 (2033) Curbing/Drive Approaches	Paving Equipment	1	10	99	0.36	260	92,664
Plot 12 (2033) Curbing/Drive Approaches	Paving Equipment	1	10	131	0.36	260	122,616
Plot 12 (2033) Curbing/Drive Approaches	Tractors/Loaders/Backhoes	1	10	55	0.37	260	52,910
Plot 12 (2033) Paving	Other Material Handling Equipment	3	1	167	0.4	260	52,104

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plot 12 (2033) Paving	Pavers	1	10	126	0.42	260	137,592
Plot 12 (2033) Paving	Paving Equipment	1	10	131	0.36	260	122,616
Plot 12 (2033) Paving	Plate Compactors	1	10	8	0.43	260	8,944
Plot 12 (2033) Paving	Rollers	1	10	81	0.38	260	80,028
Plot 12 (2033) Paving	Scrapers	1	10	362	0.48	260	451,776
Plot 12 (2033) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	260	173,160
Plots 12 and 21,22 (2034) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 12 and 21,22 (2034) Finish Grading	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 12 and 21,22 (2034) Finish Grading	Rubber Tired Dozers	1	10	140	0.4	260	145,600
Plots 12 and 21,22 (2034) Finish Grading	Rubber Tired Dozers	1	10	85	0.4	260	88,400
Plots 12 and 21,22 (2034) Finish Grading	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 12 and 21,22 (2034) Utilities	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plots 12 and 21,22 (2034) Utilities	Excavators	1	10	523	0.38	260	516,724
Plots 12 and 21,22 (2034) Utilities	Excavators	5	10	286	0.38	260	1,412,840
Plots 12 and 21,22 (2034) Utilities	Excavators	1	10	190	0.38	260	187,720
Plots 12 and 21,22 (2034) Utilities	Excavators	2	10	396	0.38	260	782,496
Plots 12 and 21,22 (2034) Utilities	Excavators	1	10	190	0.38	260	187,720
Plots 12 and 21,22 (2034) Utilities	Excavators	1	10	188	0.38	260	185,744
Plots 12 and 21,22 (2034) Utilities	Excavators	4	10	40	0.38	260	158,080
Plots 12 and 21,22 (2034) Utilities	Forklifts	2	10	89	0.2	260	92,560
Plots 12 and 21,22 (2034) Utilities	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 12 and 21,22 (2034) Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plots 12 and 21,22 (2034) Utilities	Tractors/Loaders/Backhoes	1	10	85	0.37	260	81,770
Plots 12 and 21,22 (2034) Utilities	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 12 and 21,22 (2034) Building-Concrete	Cement and Mortar Mixers	5	1	9	0.56	260	6,552
Plots 12 and 21,22 (2034) Building-Concrete	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 12 and 21,22 (2034) Building-Concrete	Pumps	1	10	84	0.74	260	161,616
Plots 12 and 21,22 (2034) Building-Concrete	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320
Plots 12 and 21,22 (2034) Building-Wet Utilities	Excavators	1	10	300	0.38	260	296,400
Plots 12 and 21,22 (2034) Building-Wet Utilities	Excavators	1	10	179	0.38	260	176,852
Plots 12 and 21,22 (2034) Building-Wet Utilities	Excavators	1	10	173	0.38	260	170,924
Plots 12 and 21,22 (2034) Building-Wet Utilities	Other Material Handling Equipment	8	1	167	0.4	260	138,944
Plots 12 and 21,22 (2034) Building-Wet Utilities	Rubber Tired Loaders	3	10	152	0.36	260	426,816
Plots 12 and 21,22 (2034) Building-Wet Utilities	Tractors/Loaders/Backhoes	3	10	108	0.37	260	311,688
Plots 12 and 21,22 (2034) Building-Wet Utilities	Tractors/Loaders/Backhoes	2	10	85	0.37	260	163,540
Plots 12 and 21,22 (2034) Building-Electrical	Cement and Mortar Mixers	4	1	9	0.56	260	5,242
Plots 12 and 21,22 (2034) Building-Electrical	Excavators	4	10	40	0.38	260	158,080
Plots 12 and 21,22 (2034) Building-Electrical	Forklifts	2	10	89	0.2	260	92,560
Plots 12 and 21,22 (2034) Building-Electrical	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 12 and 21,22 (2034) Building-Electrical	Tractors/Loaders/Backhoes	4	10	90	0.37	260	346,320

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 12 and 21,22 (2034) Building-Landscaping	Excavators	1	10	29	0.38	260	28,652
Plots 12 and 21,22 (2034) Building-Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plots 12 and 21,22 (2034) Building-Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 12 and 21,22 (2034) Building-Landscaping	Other Material Handling Equipment	2	1	167	0.4	260	34,736
Plots 12 and 21,22 (2034) Building-Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plots 12 and 21,22 (2034) Building-Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plots 12 and 21,22 (2034) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plots 12 and 21,22 (2034) Building-Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plots 12 and 21,22 (2034) Building-Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plots 12 and 21,22 (2034) Landscaping	Excavators	1	10	29	0.38	260	28,652
Plots 12 and 21,22 (2034) Landscaping	Forklifts	1	10	125	0.2	260	65,000
Plots 12 and 21,22 (2034) Landscaping	Other Material Handling Equipment	1	1	167	0.4	260	17,368
Plots 12 and 21,22 (2034) Landscaping	Other Material Handling Equipment	5	1	167	0.4	260	86,840
Plots 12 and 21,22 (2034) Landscaping	Rubber Tired Loaders	1	10	149	0.36	260	139,464
Plots 12 and 21,22 (2034) Landscaping	Skid Steer Loaders	1	10	69	0.37	260	66,378
Plots 12 and 21,22 (2034) Landscaping	Tractors/Loaders/Backhoes	1	10	73	0.37	260	70,226
Plots 12 and 21,22 (2034) Landscaping	Tractors/Loaders/Backhoes	1	10	78	0.37	260	75,036
Plots 12 and 21,22 (2034) Landscaping	Trenchers	1	10	39	0.5	260	50,700
Plots 12 and 21,22 (2034) Temporary Utilities	Cranes	1	10	445	0.29	260	335,530
Plots 12 and 21,22 (2034) Curbing/Drive Approaches	Cement and Mortar Mixers	3	1	9	0.56	260	3,931
Plots 12 and 21,22 (2034) Paving	Other Material Handling Equipment	3	1	167	0.4	260	52,104
Plots 12 and 21,22 (2034) Paving	Pavers	1	10	126	0.42	260	137,592
Plots 12 and 21,22 (2034) Paving	Paving Equipment	1	10	131	0.36	260	122,616
Plots 12 and 21,22 (2034) Paving	Plate Compactors	1	10	8	0.43	260	8,944
Plots 12 and 21,22 (2034) Paving	Rollers	1	10	81	0.38	260	80,028
Plots 12 and 21,22 (2034) Paving	Scrapers	1	10	362	0.48	260	451,776
Plots 12 and 21,22 (2034) Paving	Tractors/Loaders/Backhoes	2	10	90	0.37	260	173,160
Plots 2 and 4 (2020) Building Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 2 and 4 (2020) Building Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 2 and 4 (2020) Building Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 2 and 4 (2020) Building Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 2 and 4 (2020) Building Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 2 and 4 (2020) Building Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 4 (2021) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 4 (2021) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 4 (2021) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 4 (2021) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 4 (2021) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 4 (2021) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 4 and 9 (2022) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 4 and 9 (2022) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 4 and 9 (2022) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 4 and 9 (2022) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 4 and 9 (2022) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 4 and 9 (2022) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 9 (2023) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 9 (2023) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 9 (2023) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 9 (2023) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 9 (2023) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 9 (2023) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 9 (2023) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 9 and 1,3,20 (2024) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 9 and 1,3,20 (2024) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 9 and 1,3,20 (2024) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 9 and 1,3,20 (2024) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 9 and 1,3,20 (2024) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 9 and 1,3,20 (2024) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 5 and 10 (2025) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 5 and 10 (2025) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 5 and 10 (2025) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 5 and 10 (2025) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 5 and 10 (2025) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 10 and 8 (2026) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 10 and 8 (2026) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 10 and 8 (2026) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 10 and 8 (2026) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 10 and 8 (2026) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 10 and 8 (2026) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 10 and 8 (2026) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 8 (2027) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 8 (2027) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 8 (2027) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 8 (2027) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 8 (2027) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 8 (2027) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 11 and 6,7 (2028) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 11 and 6,7 (2028) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 11 and 6,7 (2028) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 11 and 6,7 (2028) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 11 and 6,7 (2028) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 11 and 6,7 (2028) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 11 and 6,7 (2028) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 11 and 6,7 (2028) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 11 and 6,7 (2028) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 11 and 6,7 (2028) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Plots 11 and 6,7 (2028) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 11 (2029) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 11 (2029) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 11 (2029) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 11 (2029) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 11 (2029) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 11 (2029) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 11 (2030) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 11 (2030) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 11 (2030) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 11 (2030) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 11 (2030) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 11 (2030) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 11 (2031) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 11 (2031) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 11 (2031) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 11 (2031) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 11 (2031) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 11 (2031) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 11 and 12 (2032) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 11 and 12 (2032) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 11 and 12 (2032) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 11 and 12 (2032) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 11 and 12 (2032) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 11 and 12 (2032) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plot 12 (2033) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plot 12 (2033) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plot 12 (2033) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plot 12 (2033) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plot 12 (2033) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plot 12 (2033) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192
Plots 12 and 21,22 (2034) Building-Concrete	Cement and Mortar Mixers	24	24	9	0.56	10	29,030
Plots 12 and 21,22 (2034) Building-Concrete	Generator Sets	4	12	84	0.74	10	29,837
Plots 12 and 21,22 (2034) Building-Concrete	Other Material Handling Equipment	2	24	167	0.4	10	32,064
Plots 12 and 21,22 (2034) Building-Concrete	Pumps	2	24	84	0.74	10	29,837
Plots 12 and 21,22 (2034) Building-Concrete	Tractors/Loaders/Backhoes	8	24	90	0.37	10	63,936
Plots 12 and 21,22 (2034) Building-Concrete	Tractors/Loaders/Backhoes	4	24	85	0.37	10	30,192

**Total >100** 333,571,957

Building Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
<b>Total &lt;100</b>							72,413,316

World Logistics Center  
Construction Energy Analysis

On-Road Workers (LDA, LDT1, LDT2)

EMFAC2014 Gasoline Fuel Consumption Factor:<sup>1</sup> 0.0362 gallons/mile miles/gallon  
 Total Worker VMT: 457,663 miles 27.7  
**Total VMT gasoline gallons (workers): 16,549**

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; LDA, LDT1, LDT2; CY 2017; Aggregate MY; Aggregate Speed)

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plots 2 and 4 (2020) Mass Excavation	262	50	0.5	6,550
Plots 2 and 4 (2020) Finish Grading	262	15	0.5	1,965
Plots 2 and 4 (2020) Utilities	262	40	0.5	5,240
Plots 2 and 4 (2020) Landscaping	262	10	0.5	1,310
Plots 2 and 4 (2020) Building Concrete	262	25	0.5	3,275
Plots 2 and 4 (2020) Building-Wet Utilities	262	25	0.5	3,275
Plots 2 and 4 (2020) Building-Electrical	262	15	0.5	1,965
Plots 2 and 4 (2020) Temporary Utilities	262	0	0.5	-
Plots 2 and 4 (2020) Building-Landscaping	262	10	0.5	1,310
Plots 2 and 4 (2020) Paving	262	25	0.5	3,275
Plots 2 and 4 (2020) Curbing/Drive Approaches	262	10	0.5	1,310
Plot 4 (2021) Mass Excavation	261	50	0.5	6,525
Plot 4 (2021) Finish Grading	261	15	0.5	1,958
Plot 4 (2021) Utilities	261	40	0.5	5,220
Plot 4 (2021) Building-Concrete	261	25	0.5	3,263
Plot 4 (2021) Building-Wet Utilities	261	25	0.5	3,263
Plot 4 (2021) Building-Electrical	261	15	0.5	1,958
Plot 4 (2021) Building-Landscaping	261	10	0.5	1,305
Plot 4 (2021) Landscaping	261	10	0.5	1,305
Plot 4 (2021) Temporary Utilities	261	0	0.5	-
Plot 4 (2021) Curbing/Drive Approaches	261	10	0.5	1,305
Plot 4 (2021) Paving	261	25	0.5	3,263
Plots 4 and 9 (2022) Mass Excavation	260	50	0.5	6,500
Plots 4 and 9 (2022) Finish Grading	260	12.5	0.5	1,625
Plots 4 and 9 (2022) Utilities	260	25	0.5	3,250
Plots 4 and 9 (2022) Building-Concrete	260	37.5	0.5	4,875
Plots 4 and 9 (2022) Building-Wet Utilities	260	25	0.5	3,250

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plots 4 and 9 (2022) Building-Electrical	260	15	0.5	1,950
Plots 4 and 9 (2022) Building-Landscaping	260	17.5	0.5	2,275
Plots 4 and 9 (2022) Landscaping	260	25	0.5	3,250
Plots 4 and 9 (2022) Temporary Utilities	260	0	0.5	-
Plots 4 and 9 (2022) Curbing/Drive Approaches	260	12.5	0.5	1,625
Plots 4 and 9 (2022) Paving	260	17.5	0.5	2,275
Plot 9 (2023) Mass Excavation	260	50	0.5	6,500
Plot 9 (2023) Finish Grading	260	10	0.5	1,300
Plot 9 (2023) Utilities	260	10	0.5	1,300
Plot 9 (2023) Building-Concrete	260	50	0.5	6,500
Plot 9 (2023) Building-Wet Utilities	260	25	0.5	3,250
Plot 9 (2023) Building-Electrical	260	15	0.5	1,950
Plot 9 (2023) Building-Landscaping	260	25	0.5	3,250
Plot 9 (2023) Interchange	260	0	0.5	-
Plot 9 (2023) Landscaping	260	40	0.5	5,200
Plot 9 (2023) Temporary Utilities	260	0	0.5	-
Plot 9 (2023) Curbing/Drive Approaches	260	15	0.5	1,950
Plot 9 (2023) Paving	260	10	0.5	1,300
Plots 9 and 1,3,20 (2024) Mass Excavation	261	50	0.5	6,525
Plots 9 and 1,3,20 (2024) Finish Grading	262	25	0.5	3,275
Plots 9 and 1,3,20 (2024) Utilities	262	25	0.5	3,275
Plots 9 and 1,3,20 (2024) Building-Concrete	262	37.5	0.5	4,913
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	262	25	0.5	3,275
Plots 9 and 1,3,20 (2024) Building-Electrical	262	15	0.5	1,965
Plots 9 and 1,3,20 (2024) Building-Landscaping	262	17.5	0.5	2,293
Plots 9 and 1,3,20 (2024) Interchange	262	12.5	0.5	1,638
Plots 9 and 1,3,20 (2024) Landscaping	262	25	0.5	3,275
Plots 9 and 1,3,20 (2024) Temporary Utilities	262	0	0.5	-
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	262	10	0.5	1,310
Plots 9 and 1,3,20 (2024) Paving	262	17.5	0.5	2,293
Plots 5 and 10 (2025) Mass Excavation	261	50	0.5	6,525
Plots 5 and 10 (2025) Finish Grading	261	15	0.5	1,958
Plots 5 and 10 (2025) Utilities	261	40	0.5	5,220
Plots 5 and 10 (2025) Building-Concrete	261	10	0.5	1,305
Plots 5 and 10 (2025) Building-Wet Utilities	261	25	0.5	3,263
Plots 5 and 10 (2025) Building-Electrical	261	25	0.5	3,263
Plots 5 and 10 (2025) Building-Landscaping	261	15	0.5	1,958
Plots 5 and 10 (2025) Landscaping	261	0	0.5	-
Plots 5 and 10 (2025) Temporary Utilities	261	10	0.5	1,305
Plots 5 and 10 (2025) Curbing/Drive Approaches	261	25	0.5	3,263

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plots 5 and 10 (2025) Paving	261	10	0.5	1,305
Plots 10 and 8 (2026) Mass Excavation	261	50	0.5	6,525
Plots 10 and 8 (2026) Finish Grading	261	15	0.5	1,958
Plots 10 and 8 (2026) Utilities	261	40	0.5	5,220
Plots 10 and 8 (2026) Building-Concrete	261	25	0.5	3,263
Plots 10 and 8 (2026) Building-Wet Utilities	261	25	0.5	3,263
Plots 10 and 8 (2026) Building-Electrical	261	15	0.5	1,958
Plots 10 and 8 (2026) Building-Landscaping	261	10	0.5	1,305
Plots 10 and 8 (2026) Landscaping	261	10	0.5	1,305
Plots 10 and 8 (2026) Temporary Utilities	261	0	0.5	-
Plots 10 and 8 (2026) Curbing/Drive Approaches	261	10	0.5	1,305
Plots 10 and 8 (2026) Paving	261	25	0.5	3,263
Plot 8 (2027) Mass Excavation	261	50	0.5	6,525
Plot 8 (2027) Finish Grading	261	12.5	0.5	1,631
Plot 8 (2027) Utilities	261	25	0.5	3,263
Plot 8 (2027) Building-Concrete	261	37.5	0.5	4,894
Plot 8 (2027) Building-Wet Utilities	261	25	0.5	3,263
Plot 8 (2027) Building-Electrical	261	15	0.5	1,958
Plot 8 (2027) Building-Landscaping	261	17.5	0.5	2,284
Plot 8 (2027) Landscaping	261	25	0.5	3,263
Plot 8 (2027) Temporary Utilities	261	0	0.5	-
Plot 8 (2027) Curbing/Drive Approaches	261	12.5	0.5	1,631
Plot 8 (2027) Paving	261	17.5	0.5	2,284
Plots 11 and 6,7 (2028) Mass Excavation	260	50	0.5	6,500
Plots 11 and 6,7 (2028) Finish Grading	260	10	0.5	1,300
Plots 11 and 6,7 (2028) Utilities	260	10	0.5	1,300
Plots 11 and 6,7 (2028) Building-Concrete	260	50	0.5	6,500
Plots 11 and 6,7 (2028) Building-Wet Utilities	260	25	0.5	3,250
Plots 11 and 6,7 (2028) Building-Electrical	260	15	0.5	1,950
Plots 11 and 6,7 (2028) Building-Landscaping	260	25	0.5	3,250
Plots 11 and 6,7 (2028) Landscaping	260	0	0.5	-
Plots 11 and 6,7 (2028) Temporary Utilities	260	40	0.5	5,200
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	260	0	0.5	-
Plots 11 and 6,7 (2028) Paving	260	15	0.5	1,950
Plot 11 (2029) Mass Excavation	261	10	0.5	1,305
Plot 11 (2029) Finish Grading	261	50	0.5	6,525
Plot 11 (2029) Utilities	261	25	0.5	3,263
Plot 11 (2029) Building-Concrete	261	25	0.5	3,263
Plot 11 (2029) Building-Wet Utilities	261	37.5	0.5	4,894
Plot 11 (2029) Building-Electrical	261	25	0.5	3,263

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plot 11 (2029) Building-Landscaping	261	15	0.5	1,958
Plot 11 (2029) Landscaping	261	17.5	0.5	2,284
Plot 11 (2029) Temporary Utilities	261	12.5	0.5	1,631
Plot 11 (2029) Curbing/Drive Approaches	261	25	0.5	3,263
Plot 11 (2029) Paving	261	0	0.5	-
Plot 11 (2030) Mass Excavation	260	50	0.5	6,500
Plot 11 (2030) Finish Grading	260	15	0.5	1,950
Plot 11 (2030) Utilities	260	40	0.5	5,200
Plot 11 (2030) Building-Concrete	260	10	0.5	1,300
Plot 11 (2030) Building-Wet Utilities	260	25	0.5	3,250
Plot 11 (2030) Building-Electrical	260	25	0.5	3,250
Plot 11 (2030) Building-Landscaping	260	15	0.5	1,950
Plot 11 (2030) Landscaping	260	0	0.5	-
Plot 11 (2030) Temporary Utilities	260	10	0.5	1,300
Plot 11 (2030) Curbing/Drive Approaches	260	25	0.5	3,250
Plot 11 (2030) Paving	260	10	0.5	1,300
Plot 11 (2031) Mass Excavation	260	50	0.5	6,500
Plot 11 (2031) Finish Grading	260	15	0.5	1,950
Plot 11 (2031) Utilities	260	40	0.5	5,200
Plot 11 (2031) Building-Concrete	260	25	0.5	3,250
Plot 11 (2031) Building-Wet Utilities	260	25	0.5	3,250
Plot 11 (2031) Building-Electrical	260	15	0.5	1,950
Plot 11 (2031) Building-Landscaping	260	10	0.5	1,300
Plot 11 (2031) Landscaping	260	10	0.5	1,300
Plot 11 (2031) Temporary Utilities	260	0	0.5	-
Plot 11 (2031) Curbing/Drive Approaches	260	10	0.5	1,300
Plot 11 (2031) Paving	260	25	0.5	3,250
Plots 11 and 12 (2032) Mass Excavation	260	50	0.5	6,500
Plots 11 and 12 (2032) Finish Grading	260	12.5	0.5	1,625
Plots 11 and 12 (2032) Utilities	260	25	0.5	3,250
Plots 11 and 12 (2032) Building-Concrete	260	37.5	0.5	4,875
Plots 11 and 12 (2032) Building-Wet Utilities	260	25	0.5	3,250
Plots 11 and 12 (2032) Building-Electrical	260	15	0.5	1,950
Plots 11 and 12 (2032) Building-Landscaping	260	17.5	0.5	2,275
Plots 11 and 12 (2032) Landscaping	260	25	0.5	3,250
Plots 11 and 12 (2032) Temporary Utilities	260	0	0.5	-
Plots 11 and 12 (2032) Curbing/Drive Approaches	260	12.5	0.5	1,625
Plots 11 and 12 (2032) Paving	260	17.5	0.5	2,275
Plot 12 (2033) Finish Grading	260	50	0.5	6,500
Plot 12 (2033) Utilities	260	10	0.5	1,300

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plot 12 (2033) Building-Concrete	260	10	0.5	1,300
Plot 12 (2033) Building-Wet Utilities	260	50	0.5	6,500
Plot 12 (2033) Building-Electrical	260	25	0.5	3,250
Plot 12 (2033) Building-Landscaping	260	15	0.5	1,950
Plot 12 (2033) Landscaping	260	25	0.5	3,250
Plot 12 (2033) Temporary Utilities	260	0	0.5	-
Plot 12 (2033) Curbing/Drive Approaches	260	40	0.5	5,200
Plot 12 (2033) Paving	260	0	0.5	-
Plots 12 and 21,22 (2034) Finish Grading	260	15	0.5	1,950
Plots 12 and 21,22 (2034) Utilities	260	10	0.5	1,300
Plots 12 and 21,22 (2034) Building-Concrete	260	50	0.5	6,500
Plots 12 and 21,22 (2034) Building-Wet Utilities	260	25	0.5	3,250
Plots 12 and 21,22 (2034) Building-Electrical	260	25	0.5	3,250
Plots 12 and 21,22 (2034) Building-Landscaping	260	37.5	0.5	4,875
Plots 12 and 21,22 (2034) Landscaping	260	25	0.5	3,250
Plots 12 and 21,22 (2034) Temporary Utilities	260	15	0.5	1,950
Plots 12 and 21,22 (2034) Curbing/Drive Approaches	260	17.5	0.5	2,275
Plots 12 and 21,22 (2034) Paving	260	12.5	0.5	1,625
<b>Total Worker VMT:</b>				<b>457,663</b>

|

World Logistics Center  
Construction Energy Analysis

On-Road Workers (LDA, LDT1, LDT2)

EMFAC2014 Gasoline Fuel Consumption Factor:<sup>1</sup> 0.0362 gallons/mile miles/gallon  
 Total Worker VMT: 22,883,125 miles 27.7  
**Total VMT gasoline gallons (workers): 827,463**

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; LDA, LDT1, LDT2; CY 2017; Aggregate MV; Aggregate Speed)

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plots 2 and 4 (2020) Mass Excavation	262	50	25	327,500
Plots 2 and 4 (2020) Finish Grading	262	15	25	98,250
Plots 2 and 4 (2020) Utilities	262	40	25	262,000
Plots 2 and 4 (2020) Landscaping	262	10	25	65,500
Plots 2 and 4 (2020) Building Concrete	262	25	25	163,750
Plots 2 and 4 (2020) Building-Wet Utilities	262	25	25	163,750
Plots 2 and 4 (2020) Building-Electrical	262	15	25	98,250
Plots 2 and 4 (2020) Temporary Utilities	262	0	25	-
Plots 2 and 4 (2020) Building-Landscaping	262	10	25	65,500
Plots 2 and 4 (2020) Paving	262	25	25	163,750
Plots 2 and 4 (2020) Curbing/Drive Approaches	262	10	25	65,500
Plot 4 (2021) Mass Excavation	261	50	25	326,250
Plot 4 (2021) Finish Grading	261	15	25	97,875
Plot 4 (2021) Utilities	261	40	25	261,000
Plot 4 (2021) Building-Concrete	261	25	25	163,125
Plot 4 (2021) Building-Wet Utilities	261	25	25	163,125
Plot 4 (2021) Building-Electrical	261	15	25	97,875
Plot 4 (2021) Building-Landscaping	261	10	25	65,250
Plot 4 (2021) Landscaping	261	10	25	65,250
Plot 4 (2021) Temporary Utilities	261	0	25	-
Plot 4 (2021) Curbing/Drive Approaches	261	10	25	65,250
Plot 4 (2021) Paving	261	25	25	163,125
Plots 4 and 9 (2022) Mass Excavation	260	50	25	325,000
Plots 4 and 9 (2022) Finish Grading	260	12.5	25	81,250
Plots 4 and 9 (2022) Utilities	260	25	25	162,500
Plots 4 and 9 (2022) Building-Concrete	260	37.5	25	243,750
Plots 4 and 9 (2022) Building-Wet Utilities	260	25	25	162,500

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plots 4 and 9 (2022) Building-Electrical	260	15	25	97,500
Plots 4 and 9 (2022) Building-Landscaping	260	17.5	25	113,750
Plots 4 and 9 (2022) Landscaping	260	25	25	162,500
Plots 4 and 9 (2022) Temporary Utilities	260	0	25	-
Plots 4 and 9 (2022) Curbing/Drive Approaches	260	12.5	25	81,250
Plots 4 and 9 (2022) Paving	260	17.5	25	113,750
Plot 9 (2023) Mass Excavation	260	50	25	325,000
Plot 9 (2023) Finish Grading	260	10	25	65,000
Plot 9 (2023) Utilities	260	10	25	65,000
Plot 9 (2023) Building-Concrete	260	50	25	325,000
Plot 9 (2023) Building-Wet Utilities	260	25	25	162,500
Plot 9 (2023) Building-Electrical	260	15	25	97,500
Plot 9 (2023) Building-Landscaping	260	25	25	162,500
Plot 9 (2023) Interchange	260	0	25	-
Plot 9 (2023) Landscaping	260	40	25	260,000
Plot 9 (2023) Temporary Utilities	260	0	25	-
Plot 9 (2023) Curbing/Drive Approaches	260	15	25	97,500
Plot 9 (2023) Paving	260	10	25	65,000
Plots 9 and 1,3,20 (2024) Mass Excavation	261	50	25	326,250
Plots 9 and 1,3,20 (2024) Finish Grading	262	25	25	163,750
Plots 9 and 1,3,20 (2024) Utilities	262	25	25	163,750
Plots 9 and 1,3,20 (2024) Building-Concrete	262	37.5	25	245,625
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	262	25	25	163,750
Plots 9 and 1,3,20 (2024) Building-Electrical	262	15	25	98,250
Plots 9 and 1,3,20 (2024) Building-Landscaping	262	17.5	25	114,625
Plots 9 and 1,3,20 (2024) Interchange	262	12.5	25	81,875
Plots 9 and 1,3,20 (2024) Landscaping	262	25	25	163,750
Plots 9 and 1,3,20 (2024) Temporary Utilities	262	0	25	-
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	262	10	25	65,500
Plots 9 and 1,3,20 (2024) Paving	262	17.5	25	114,625
Plots 5 and 10 (2025) Mass Excavation	261	50	25	326,250
Plots 5 and 10 (2025) Finish Grading	261	15	25	97,875
Plots 5 and 10 (2025) Utilities	261	40	25	261,000
Plots 5 and 10 (2025) Building-Concrete	261	10	25	65,250
Plots 5 and 10 (2025) Building-Wet Utilities	261	25	25	163,125
Plots 5 and 10 (2025) Building-Electrical	261	25	25	163,125
Plots 5 and 10 (2025) Building-Landscaping	261	15	25	97,875
Plots 5 and 10 (2025) Landscaping	261	0	25	-
Plots 5 and 10 (2025) Temporary Utilities	261	10	25	65,250
Plots 5 and 10 (2025) Curbing/Drive Approaches	261	25	25	163,125

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plots 5 and 10 (2025) Paving	261	10	25	65,250
Plots 10 and 8 (2026) Mass Excavation	261	50	25	326,250
Plots 10 and 8 (2026) Finish Grading	261	15	25	97,875
Plots 10 and 8 (2026) Utilities	261	40	25	261,000
Plots 10 and 8 (2026) Building-Concrete	261	25	25	163,125
Plots 10 and 8 (2026) Building-Wet Utilities	261	25	25	163,125
Plots 10 and 8 (2026) Building-Electrical	261	15	25	97,875
Plots 10 and 8 (2026) Building-Landscaping	261	10	25	65,250
Plots 10 and 8 (2026) Landscaping	261	10	25	65,250
Plots 10 and 8 (2026) Temporary Utilities	261	0	25	-
Plots 10 and 8 (2026) Curbing/Drive Approaches	261	10	25	65,250
Plots 10 and 8 (2026) Paving	261	25	25	163,125
Plot 8 (2027) Mass Excavation	261	50	25	326,250
Plot 8 (2027) Finish Grading	261	12.5	25	81,563
Plot 8 (2027) Utilities	261	25	25	163,125
Plot 8 (2027) Building-Concrete	261	37.5	25	244,688
Plot 8 (2027) Building-Wet Utilities	261	25	25	163,125
Plot 8 (2027) Building-Electrical	261	15	25	97,875
Plot 8 (2027) Building-Landscaping	261	17.5	25	114,188
Plot 8 (2027) Landscaping	261	25	25	163,125
Plot 8 (2027) Temporary Utilities	261	0	25	-
Plot 8 (2027) Curbing/Drive Approaches	261	12.5	25	81,563
Plot 8 (2027) Paving	261	17.5	25	114,188
Plots 11 and 6,7 (2028) Mass Excavation	260	50	25	325,000
Plots 11 and 6,7 (2028) Finish Grading	260	10	25	65,000
Plots 11 and 6,7 (2028) Utilities	260	10	25	65,000
Plots 11 and 6,7 (2028) Building-Concrete	260	50	25	325,000
Plots 11 and 6,7 (2028) Building-Wet Utilities	260	25	25	162,500
Plots 11 and 6,7 (2028) Building-Electrical	260	15	25	97,500
Plots 11 and 6,7 (2028) Building-Landscaping	260	25	25	162,500
Plots 11 and 6,7 (2028) Landscaping	260	0	25	-
Plots 11 and 6,7 (2028) Temporary Utilities	260	40	25	260,000
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	260	0	25	-
Plots 11 and 6,7 (2028) Paving	260	15	25	97,500
Plot 11 (2029) Mass Excavation	261	10	25	65,250
Plot 11 (2029) Finish Grading	261	50	25	326,250
Plot 11 (2029) Utilities	261	25	25	163,125
Plot 11 (2029) Building-Concrete	261	25	25	163,125
Plot 11 (2029) Building-Wet Utilities	261	37.5	25	244,688
Plot 11 (2029) Building-Electrical	261	25	25	163,125

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plot 11 (2029) Building-Landscaping	261	15	25	97,875
Plot 11 (2029) Landscaping	261	17.5	25	114,188
Plot 11 (2029) Temporary Utilities	261	12.5	25	81,563
Plot 11 (2029) Curbing/Drive Approaches	261	25	25	163,125
Plot 11 (2029) Paving	261	0	25	-
Plot 11 (2030) Mass Excavation	260	50	25	325,000
Plot 11 (2030) Finish Grading	260	15	25	97,500
Plot 11 (2030) Utilities	260	40	25	260,000
Plot 11 (2030) Building-Concrete	260	10	25	65,000
Plot 11 (2030) Building-Wet Utilities	260	25	25	162,500
Plot 11 (2030) Building-Electrical	260	25	25	162,500
Plot 11 (2030) Building-Landscaping	260	15	25	97,500
Plot 11 (2030) Landscaping	260	0	25	-
Plot 11 (2030) Temporary Utilities	260	10	25	65,000
Plot 11 (2030) Curbing/Drive Approaches	260	25	25	162,500
Plot 11 (2030) Paving	260	10	25	65,000
Plot 11 (2031) Mass Excavation	260	50	25	325,000
Plot 11 (2031) Finish Grading	260	15	25	97,500
Plot 11 (2031) Utilities	260	40	25	260,000
Plot 11 (2031) Building-Concrete	260	25	25	162,500
Plot 11 (2031) Building-Wet Utilities	260	25	25	162,500
Plot 11 (2031) Building-Electrical	260	15	25	97,500
Plot 11 (2031) Building-Landscaping	260	10	25	65,000
Plot 11 (2031) Landscaping	260	10	25	65,000
Plot 11 (2031) Temporary Utilities	260	0	25	-
Plot 11 (2031) Curbing/Drive Approaches	260	10	25	65,000
Plot 11 (2031) Paving	260	25	25	162,500
Plots 11 and 12 (2032) Mass Excavation	260	50	25	325,000
Plots 11 and 12 (2032) Finish Grading	260	12.5	25	81,250
Plots 11 and 12 (2032) Utilities	260	25	25	162,500
Plots 11 and 12 (2032) Building-Concrete	260	37.5	25	243,750
Plots 11 and 12 (2032) Building-Wet Utilities	260	25	25	162,500
Plots 11 and 12 (2032) Building-Electrical	260	15	25	97,500
Plots 11 and 12 (2032) Building-Landscaping	260	17.5	25	113,750
Plots 11 and 12 (2032) Landscaping	260	25	25	162,500
Plots 11 and 12 (2032) Temporary Utilities	260	0	25	-
Plots 11 and 12 (2032) Curbing/Drive Approaches	260	12.5	25	81,250
Plots 11 and 12 (2032) Paving	260	17.5	25	113,750
Plot 12 (2033) Finish Grading	260	50	25	325,000
Plot 12 (2033) Utilities	260	10	25	65,000

Building Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Plot 12 (2033) Building-Concrete	260	10	25	65,000
Plot 12 (2033) Building-Wet Utilities	260	50	25	325,000
Plot 12 (2033) Building-Electrical	260	25	25	162,500
Plot 12 (2033) Building-Landscaping	260	15	25	97,500
Plot 12 (2033) Landscaping	260	25	25	162,500
Plot 12 (2033) Temporary Utilities	260	0	25	-
Plot 12 (2033) Curbing/Drive Approaches	260	40	25	260,000
Plot 12 (2033) Paving	260	0	25	-
Plots 12 and 21,22 (2034) Finish Grading	260	15	25	97,500
Plots 12 and 21,22 (2034) Utilities	260	10	25	65,000
Plots 12 and 21,22 (2034) Building-Concrete	260	50	25	325,000
Plots 12 and 21,22 (2034) Building-Wet Utilities	260	25	25	162,500
Plots 12 and 21,22 (2034) Building-Electrical	260	25	25	162,500
Plots 12 and 21,22 (2034) Building-Landscaping	260	37.5	25	243,750
Plots 12 and 21,22 (2034) Landscaping	260	25	25	162,500
Plots 12 and 21,22 (2034) Temporary Utilities	260	15	25	97,500
Plots 12 and 21,22 (2034) Curbing/Drive Approaches	260	17.5	25	113,750
Plots 12 and 21,22 (2034) Paving	260	12.5	25	81,250
<b>Total Worker VMT:</b>				<b>22,883,125</b>

World Logistics Center  
Construction Energy Analysis

On-Road Vendor Trucks

0.1337 gallons/mile  
169,710 miles  
**22,697**

miles/gallon  
7.5

**Total VMT diesel gallons (on-road vendor trucks):**

EMFAC2014 Diesel Fuel Consumption Factor:<sup>2</sup> 0.6687 gallons/hour  
Total Haul Truck Idle-Hours per Year: 28,285 hours  
**Total Idling diesel gallons (on-road haul trucks): 18,914**

**Total diesel gallons (on-road haul trucks): 41,612 gal**

*Estimated Fuel Savings from Anti-Idling Regulation (64 percent based on estimated CARB emissions reductions):<sup>3</sup> 52,540*

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; HHDT and MHDT; Annual; CY 2017; Aggregate MY; Aggregate Speed)
2. California Air Resources Board, EMFAC2017 (South Coast Air Basin; HHDT and MHDT; Annual; CY 2017; Aggregate MY; 5 miles per hour converted to hourly rate)
3. Source: California Air Resources Board (CARB), 2004. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/idling/idling.htm>, accessed November 2016.

Building Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Plots 2 and 4 (2020) Mass Excavation	262	9	0.5	1,179	197
Plots 2 and 4 (2020) Finish Grading	262	2	0.5	262	44
Plots 2 and 4 (2020) Utilities	262	25	0.5	3,275	546
Plots 2 and 4 (2020) Landscaping	262	6	0.5	786	131
Plots 2 and 4 (2020) Building Concrete	262	2	0.5	262	44
Plots 2 and 4 (2020) Building-Wet Utilities	262	15	0.5	1,965	328
Plots 2 and 4 (2020) Building-Electrical	262	6	0.5	786	131
Plots 2 and 4 (2020) Temporary Utilities	262	0	0.5	-	-
Plots 2 and 4 (2020) Building-Landscaping	262	7	0.5	917	153
Plots 2 and 4 (2020) Paving	262	6	0.5	786	131
Plots 2 and 4 (2020) Curbing/Drive Approaches	262	4	0.5	524	87
Plot 4 (2021) Mass Excavation	261	9	0.5	1,175	196
Plot 4 (2021) Finish Grading	261	2	0.5	261	44
Plot 4 (2021) Utilities	261	25	0.5	3,263	544
Plot 4 (2021) Building-Concrete	261	2	0.5	261	44
Plot 4 (2021) Building-Wet Utilities	261	2	0.5	261	44
Plot 4 (2021) Building-Electrical	261	6	0.5	783	131
Plot 4 (2021) Building-Landscaping	261	7	0.5	914	152
Plot 4 (2021) Landscaping	261	6	0.5	783	131
Plot 4 (2021) Temporary Utilities	261	0	0.5	-	-
Plot 4 (2021) Curbing/Drive Approaches	261	4	0.5	522	87
Plot 4 (2021) Paving	261	6	0.5	783	131
Plots 4 and 9 (2022) Mass Excavation	260	12	0.5	1,560	260
Plots 4 and 9 (2022) Finish Grading	260	4.5	0.5	585	98
Plots 4 and 9 (2022) Utilities	260	14.5	0.5	1,885	314

Building Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Plots 4 and 9 (2022) Building-Concrete	260	8.5	0.5	1,105	184
Plots 4 and 9 (2022) Building-Wet Utilities	260	15	0.5	1,950	325
Plots 4 and 9 (2022) Building-Electrical	260	6	0.5	780	130
Plots 4 and 9 (2022) Building-Landscaping	260	4.5	0.5	585	98
Plots 4 and 9 (2022) Landscaping	260	15.5	0.5	2,015	336
Plots 4 and 9 (2022) Temporary Utilities	260	0	0.5	-	-
Plots 4 and 9 (2022) Curbing/Drive Approaches	260	5	0.5	650	108
Plots 4 and 9 (2022) Paving	260	6	0.5	780	130
Plot 9 (2023) Mass Excavation	260	15	0.5	1,950	325
Plot 9 (2023) Finish Grading	260	7	0.5	910	152
Plot 9 (2023) Utilities	260	4	0.5	520	87
Plot 9 (2023) Building-Concrete	260	15	0.5	1,950	325
Plot 9 (2023) Building-Wet Utilities	260	15	0.5	1,950	325
Plot 9 (2023) Building-Electrical	260	6	0.5	780	130
Plot 9 (2023) Building-Landscaping	260	2	0.5	260	43
Plot 9 (2023) Interchange	260	0	0.5	-	-
Plot 9 (2023) Landscaping	260	25	0.5	3,250	542
Plot 9 (2023) Temporary Utilities	260	0	0.5	-	-
Plot 9 (2023) Curbing/Drive Approaches	260	6	0.5	780	130
Plot 9 (2023) Paving	260	6	0.5	780	130
Plots 9 and 1,3,20 (2024) Mass Excavation	261	11.5	0.5	1,501	250
Plots 9 and 1,3,20 (2024) Finish Grading	262	14.5	0.5	1,900	317
Plots 9 and 1,3,20 (2024) Utilities	262	14.5	0.5	1,900	317
Plots 9 and 1,3,20 (2024) Building-Concrete	262	8.5	0.5	1,114	186
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	262	15	0.5	1,965	328
Plots 9 and 1,3,20 (2024) Building-Electrical	262	6	0.5	786	131
Plots 9 and 1,3,20 (2024) Building-Landscaping	262	4.5	0.5	590	98
Plots 9 and 1,3,20 (2024) Interchange	262	2	0.5	262	44
Plots 9 and 1,3,20 (2024) Landscaping	262	15.5	0.5	2,031	338
Plots 9 and 1,3,20 (2024) Temporary Utilities	262	0	0.5	-	-
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	262	5.5	0.5	721	120
Plots 9 and 1,3,20 (2024) Paving	262	6	0.5	786	131
Plots 5 and 10 (2025) Mass Excavation	261	9	0.5	1,175	196
Plots 5 and 10 (2025) Finish Grading	261	2	0.5	261	44
Plots 5 and 10 (2025) Utilities	261	25	0.5	3,263	544
Plots 5 and 10 (2025) Building-Concrete	261	6	0.5	783	131
Plots 5 and 10 (2025) Building-Wet Utilities	261	2	0.5	261	44
Plots 5 and 10 (2025) Building-Electrical	261	15	0.5	1,958	326
Plots 5 and 10 (2025) Building-Landscaping	261	6	0.5	783	131
Plots 5 and 10 (2025) Landscaping	261	0	0.5	-	-
Plots 5 and 10 (2025) Temporary Utilities	261	7	0.5	914	152
Plots 5 and 10 (2025) Curbing/Drive Approaches	261	6	0.5	783	131
Plots 5 and 10 (2025) Paving	261	4	0.5	522	87
Plots 10 and 8 (2026) Mass Excavation	261	9	0.5	1,175	196
Plots 10 and 8 (2026) Finish Grading	261	2	0.5	261	44
Plots 10 and 8 (2026) Utilities	261	25	0.5	3,263	544
Plots 10 and 8 (2026) Building-Concrete	261	2	0.5	261	44

Building Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Plots 10 and 8 (2026) Building-Wet Utilities	261	2	0.5	261	44
Plots 10 and 8 (2026) Building-Electrical	261	6	0.5	783	131
Plots 10 and 8 (2026) Building-Landscaping	261	7	0.5	914	152
Plots 10 and 8 (2026) Landscaping	261	6	0.5	783	131
Plots 10 and 8 (2026) Temporary Utilities	261	0	0.5	-	-
Plots 10 and 8 (2026) Curbing/Drive Approaches	261	4	0.5	522	87
Plots 10 and 8 (2026) Paving	261	6	0.5	783	131
Plot 8 (2027) Mass Excavation	261	12	0.5	1,566	261
Plot 8 (2027) Finish Grading	261	4.5	0.5	587	98
Plot 8 (2027) Utilities	261	14.5	0.5	1,892	315
Plot 8 (2027) Building-Concrete	261	8.5	0.5	1,109	185
Plot 8 (2027) Building-Wet Utilities	261	15	0.5	1,958	326
Plot 8 (2027) Building-Electrical	261	6	0.5	783	131
Plot 8 (2027) Building-Landscaping	261	4.5	0.5	587	98
Plot 8 (2027) Landscaping	261	15.5	0.5	2,023	337
Plot 8 (2027) Temporary Utilities	261	0	0.5	-	-
Plot 8 (2027) Curbing/Drive Approaches	261	5	0.5	653	109
Plot 8 (2027) Paving	261	6	0.5	783	131
Plots 11 and 6,7 (2028) Mass Excavation	260	15	0.5	1,950	325
Plots 11 and 6,7 (2028) Finish Grading	260	7	0.5	910	152
Plots 11 and 6,7 (2028) Utilities	260	4	0.5	520	87
Plots 11 and 6,7 (2028) Building-Concrete	260	15	0.5	1,950	325
Plots 11 and 6,7 (2028) Building-Wet Utilities	260	15	0.5	1,950	325
Plots 11 and 6,7 (2028) Building-Electrical	260	6	0.5	780	130
Plots 11 and 6,7 (2028) Building-Landscaping	260	2	0.5	260	43
Plots 11 and 6,7 (2028) Landscaping	260	0	0.5	-	-
Plots 11 and 6,7 (2028) Temporary Utilities	260	25	0.5	3,250	542
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	260	0	0.5	-	-
Plots 11 and 6,7 (2028) Paving	260	6	0.5	780	130
Plot 11 (2029) Mass Excavation	261	6	0.5	783	131
Plot 11 (2029) Finish Grading	261	11.5	0.5	1,501	250
Plot 11 (2029) Utilities	261	14.5	0.5	1,892	315
Plot 11 (2029) Building-Concrete	261	14.5	0.5	1,892	315
Plot 11 (2029) Building-Wet Utilities	261	8.5	0.5	1,109	185
Plot 11 (2029) Building-Electrical	261	15	0.5	1,958	326
Plot 11 (2029) Building-Landscaping	261	6	0.5	783	131
Plot 11 (2029) Landscaping	261	4.5	0.5	587	98
Plot 11 (2029) Temporary Utilities	261	2	0.5	261	44
Plot 11 (2029) Curbing/Drive Approaches	261	15.5	0.5	2,023	337
Plot 11 (2029) Paving	261	0	0.5	-	-
Plot 11 (2030) Mass Excavation	260	9	0.5	1,170	195
Plot 11 (2030) Finish Grading	260	2	0.5	260	43
Plot 11 (2030) Utilities	260	25	0.5	3,250	542
Plot 11 (2030) Building-Concrete	260	6	0.5	780	130
Plot 11 (2030) Building-Wet Utilities	260	2	0.5	260	43
Plot 11 (2030) Building-Electrical	260	15	0.5	1,950	325
Plot 11 (2030) Building-Landscaping	260	6	0.5	780	130

Building Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Plot 11 (2030) Landscaping	260	0	0.5	-	-
Plot 11 (2030) Temporary Utilities	260	7	0.5	910	152
Plot 11 (2030) Curbing/Drive Approaches	260	6	0.5	780	130
Plot 11 (2030) Paving	260	4	0.5	520	87
Plot 11 (2031) Mass Excavation	260	9	0.5	1,170	195
Plot 11 (2031) Finish Grading	260	2	0.5	260	43
Plot 11 (2031) Utilities	260	25	0.5	3,250	542
Plot 11 (2031) Building-Concrete	260	2	0.5	260	43
Plot 11 (2031) Building-Wet Utilities	260	2	0.5	260	43
Plot 11 (2031) Building-Electrical	260	6	0.5	780	130
Plot 11 (2031) Building-Landscaping	260	7	0.5	910	152
Plot 11 (2031) Landscaping	260	6	0.5	780	130
Plot 11 (2031) Temporary Utilities	260	0	0.5	-	-
Plot 11 (2031) Curbing/Drive Approaches	260	4	0.5	520	87
Plot 11 (2031) Paving	260	6	0.5	780	130
Plots 11 and 12 (2032) Mass Excavation	260	12	0.5	1,560	260
Plots 11 and 12 (2032) Finish Grading	260	4.5	0.5	585	98
Plots 11 and 12 (2032) Utilities	260	14.5	0.5	1,885	314
Plots 11 and 12 (2032) Building-Concrete	260	8.5	0.5	1,105	184
Plots 11 and 12 (2032) Building-Wet Utilities	260	15	0.5	1,950	325
Plots 11 and 12 (2032) Building-Electrical	260	6	0.5	780	130
Plots 11 and 12 (2032) Building-Landscaping	260	4.5	0.5	585	98
Plots 11 and 12 (2032) Landscaping	260	15.5	0.5	2,015	336
Plots 11 and 12 (2032) Temporary Utilities	260	0	0.5	-	-
Plots 11 and 12 (2032) Curbing/Drive Approaches	260	5	0.5	650	108
Plots 11 and 12 (2032) Paving	260	6	0.5	780	130
Plot 12 (2033) Finish Grading	260	15	0.5	1,950	325
Plot 12 (2033) Utilities	260	7	0.5	910	152
Plot 12 (2033) Building-Concrete	260	4	0.5	520	87
Plot 12 (2033) Building-Wet Utilities	260	15	0.5	1,950	325
Plot 12 (2033) Building-Electrical	260	15	0.5	1,950	325
Plot 12 (2033) Building-Landscaping	260	6	0.5	780	130
Plot 12 (2033) Landscaping	260	2	0.5	260	43
Plot 12 (2033) Temporary Utilities	260	0	0.5	-	-
Plot 12 (2033) Curbing/Drive Approaches	260	25	0.5	3,250	542
Plot 12 (2033) Paving	260	0	0.5	-	-
Plots 12 and 21,22 (2034) Finish Grading	260	6	0.5	780	130
Plots 12 and 21,22 (2034) Utilities	260	6	0.5	780	130
Plots 12 and 21,22 (2034) Building-Concrete	260	11.5	0.5	1,495	249
Plots 12 and 21,22 (2034) Building-Wet Utilities	260	14.5	0.5	1,885	314
Plots 12 and 21,22 (2034) Building-Electrical	260	14.5	0.5	1,885	314
Plots 12 and 21,22 (2034) Building-Landscaping	260	8.5	0.5	1,105	184
Plots 12 and 21,22 (2034) Landscaping	260	15	0.5	1,950	325
Plots 12 and 21,22 (2034) Temporary Utilities	260	6	0.5	780	130
Plots 12 and 21,22 (2034) Curbing/Drive Approaches	260	4.5	0.5	585	98
Plots 12 and 21,22 (2034) Paving	260	2	0.5	260	43
Total Vendor Truck VMT:					169,710

Building Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Total Idle-Hours:					28,285



World Logistics Center  
Construction Energy Analysis

On-Road Haul Trucks

0.1551 gallons/mile miles/gallon  
137,496 miles 6.45

**Total VMT diesel gallons (on-road haul trucks): 21,328**

*Estimated Fuel Savings from  
Anti-Idling Regulation (64 percent based on  
estimated CARB emissions reductions):<sup>3</sup>*  
**49,371**

EMFAC2014 Diesel Fuel Consumption Factor:<sup>2</sup> 0.7756 gallons/hour

Total Haul Truck Idle-Hours per Year: 22,916 hours

**Total Idling diesel gallons (on-road haul trucks): 17,774**

**Total diesel gallons (on-road haul trucks): 39,102 gal**

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; T7 Single Construction; Annual; CY 2017; Aggregate MY; Aggregate Speed)
2. California Air Resources Board, EMFAC2017 (South Coast Air Basin; T7 Single Construction; Annual; CY 2017; Aggregate MY; 5 miles per hour converted to hourly rate)
3. Source: California Air Resources Board (CARB), 2004. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/idling/idling.htm>, accessed November 2016.

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 2 and 4 (2020) Mass Excavation	262	1705	0.5	853	142
Plots 2 and 4 (2020) Finish Grading	262	26	0.5	13	2
Plots 2 and 4 (2020) Utilities	262	6260	0.5	3,130	522
Plots 2 and 4 (2020) Landscaping	262	0	0.5	-	-
Plots 2 and 4 (2020) Building Concrete	262	7512	0.5	3,756	626
Plots 2 and 4 (2020) Building-Wet Utilities	262	2191	0.5	1,096	183
Plots 2 and 4 (2020) Building-Electrical	262	5008	0.5	2,504	417
Plots 2 and 4 (2020) Temporary Utilities	262	0	0.5	-	-
Plots 2 and 4 (2020) Building-Landscaping	262	0	0.5	-	-
Plots 2 and 4 (2020) Paving	262	528	0.5	264	44
Plots 2 and 4 (2020) Curbing/Drive Approaches	262	624	0.5	312	52
Plot 4 (2021) Mass Excavation	261	1705	0.5	853	142
Plot 4 (2021) Finish Grading	261	52	0.5	26	4
Plot 4 (2021) Utilities	261	6260	0.5	3,130	522
Plot 4 (2021) Building-Concrete	261	7512	0.5	3,756	626
Plot 4 (2021) Building-Wet Utilities	261	7512	0.5	3,756	626
Plot 4 (2021) Building-Electrical	261	5008	0.5	2,504	417
Plot 4 (2021) Building-Landscaping	261	0	0.5	-	-
Plot 4 (2021) Landscaping	261	0	0.5	-	-
Plot 4 (2021) Temporary Utilities	261	0	0.5	-	-
Plot 4 (2021) Curbing/Drive Approaches	261	624	0.5	312	52
Plot 4 (2021) Paving	261	528	0.5	264	44
Plots 4 and 9 (2022) Mass Excavation	260	2945	0.5	1,473	245
Plots 4 and 9 (2022) Finish Grading	260	26	0.5	13	2

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 4 and 9 (2022) Utilities	260	3442	0.5	1,721	287
Plots 4 and 9 (2022) Building-Concrete	260	5848.5	0.5	2,924	487
Plots 4 and 9 (2022) Building-Wet Utilities	260	2191	0.5	1,096	183
Plots 4 and 9 (2022) Building-Electrical	260	2556	0.5	1,278	213
Plots 4 and 9 (2022) Building-Landscaping	260	3756	0.5	1,878	313
Plots 4 and 9 (2022) Landscaping	260	3130	0.5	1,565	261
Plots 4 and 9 (2022) Temporary Utilities	260	0	0.5	-	-
Plots 4 and 9 (2022) Curbing/Drive Approaches	260	2816	0.5	1,408	235
Plots 4 and 9 (2022) Paving	260	264	0.5	132	22
Plot 9 (2023) Mass Excavation	260	4185	0.5	2,093	349
Plot 9 (2023) Finish Grading	260	0	0.5	-	-
Plot 9 (2023) Utilities	260	624	0.5	312	52
Plot 9 (2023) Building-Concrete	260	4185	0.5	2,093	349
Plot 9 (2023) Building-Wet Utilities	260	2191	0.5	1,096	183
Plot 9 (2023) Building-Electrical	260	104	0.5	52	9
Plot 9 (2023) Building-Landscaping	260	7512	0.5	3,756	626
Plot 9 (2023) Interchange	260	0	0.5	-	-
Plot 9 (2023) Landscaping	260	6260	0.5	3,130	522
Plot 9 (2023) Temporary Utilities	260	0	0.5	-	-
Plot 9 (2023) Curbing/Drive Approaches	260	5008	0.5	2,504	417
Plot 9 (2023) Paving	260	0	0.5	-	-
Plots 9 and 1,3,20 (2024) Mass Excavation	261	2635	0.5	1,318	220
Plots 9 and 1,3,20 (2024) Finish Grading	262	3442	0.5	1,721	287
Plots 9 and 1,3,20 (2024) Utilities	262	3442	0.5	1,721	287
Plots 9 and 1,3,20 (2024) Building-Concrete	262	5848.5	0.5	2,924	487
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	262	2191	0.5	1,096	183
Plots 9 and 1,3,20 (2024) Building-Electrical	262	2556	0.5	1,278	213
Plots 9 and 1,3,20 (2024) Building-Landscaping	262	3756	0.5	1,878	313
Plots 9 and 1,3,20 (2024) Interchange	262	1408.5	0.5	704	117
Plots 9 and 1,3,20 (2024) Landscaping	262	3130	0.5	1,565	261
Plots 9 and 1,3,20 (2024) Temporary Utilities	262	0	0.5	-	-
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	262	312	0.5	156	26
Plots 9 and 1,3,20 (2024) Paving	262	264	0.5	132	22
Plots 5 and 10 (2025) Mass Excavation	261	7	0.5	3	1
Plots 5 and 10 (2025) Finish Grading	261	0	0.5	0	0
Plots 5 and 10 (2025) Utilities	261	24	0.5	12	2
Plots 5 and 10 (2025) Building-Concrete	261	0	0.5	-	-
Plots 5 and 10 (2025) Building-Wet Utilities	261	29	0.5	14	2
Plots 5 and 10 (2025) Building-Electrical	261	8	0.5	4	1
Plots 5 and 10 (2025) Building-Landscaping	261	19	0.5	10	2
Plots 5 and 10 (2025) Landscaping	261	0	0.5	-	-
Plots 5 and 10 (2025) Temporary Utilities	261	0	0.5	-	-
Plots 5 and 10 (2025) Curbing/Drive Approaches	261	2	0.5	1	0
Plots 5 and 10 (2025) Paving	261	2	0.5	1	0
Plots 10 and 8 (2026) Mass Excavation	261	7	0.5	3	1
Plots 10 and 8 (2026) Finish Grading	261	0	0.5	0	0

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 10 and 8 (2026) Utilities	261	24	0.5	12	2
Plots 10 and 8 (2026) Building-Concrete	261	29	0.5	14	2
Plots 10 and 8 (2026) Building-Wet Utilities	261	29	0.5	14	2
Plots 10 and 8 (2026) Building-Electrical	261	19	0.5	10	2
Plots 10 and 8 (2026) Building-Landscaping	261	0	0.5	-	-
Plots 10 and 8 (2026) Landscaping	261	0	0.5	-	-
Plots 10 and 8 (2026) Temporary Utilities	261	0	0.5	-	-
Plots 10 and 8 (2026) Curbing/Drive Approaches	261	2	0.5	1	0
Plots 10 and 8 (2026) Paving	261	2	0.5	1	0
Plot 8 (2027) Mass Excavation	261	11	0.5	6	1
Plot 8 (2027) Finish Grading	261	0	0.5	0	0
Plot 8 (2027) Utilities	261	13	0.5	7	1
Plot 8 (2027) Building-Concrete	261	22	0.5	11	2
Plot 8 (2027) Building-Wet Utilities	261	8	0.5	4	1
Plot 8 (2027) Building-Electrical	261	10	0.5	5	1
Plot 8 (2027) Building-Landscaping	261	14	0.5	7	1
Plot 8 (2027) Landscaping	261	12	0.5	6	1
Plot 8 (2027) Temporary Utilities	261	0	0.5	-	-
Plot 8 (2027) Curbing/Drive Approaches	261	11	0.5	5	1
Plot 8 (2027) Paving	261	1	0.5	1	0
Plots 11 and 6,7 (2028) Mass Excavation	260	16	0.5	8	1
Plots 11 and 6,7 (2028) Finish Grading	260	0	0.5	-	-
Plots 11 and 6,7 (2028) Utilities	260	2	0.5	1	0
Plots 11 and 6,7 (2028) Building-Concrete	260	16	0.5	8	1
Plots 11 and 6,7 (2028) Building-Wet Utilities	260	8	0.5	4	1
Plots 11 and 6,7 (2028) Building-Electrical	260	0	0.5	0	0
Plots 11 and 6,7 (2028) Building-Landscaping	260	29	0.5	14	2
Plots 11 and 6,7 (2028) Landscaping	260	0	0.5	-	-
Plots 11 and 6,7 (2028) Temporary Utilities	260	24	0.5	12	2
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	260	0	0.5	-	-
Plots 11 and 6,7 (2028) Paving	260	19	0.5	10	2
Plot 11 (2029) Mass Excavation	261	0	0.5	-	-
Plot 11 (2029) Finish Grading	261	10	0.5	5	1
Plot 11 (2029) Utilities	261	13	0.5	7	1
Plot 11 (2029) Building-Concrete	261	13	0.5	7	1
Plot 11 (2029) Building-Wet Utilities	261	22	0.5	11	2
Plot 11 (2029) Building-Electrical	261	8	0.5	4	1
Plot 11 (2029) Building-Landscaping	261	10	0.5	5	1
Plot 11 (2029) Landscaping	261	14	0.5	7	1
Plot 11 (2029) Temporary Utilities	261	5	0.5	3	0
Plot 11 (2029) Curbing/Drive Approaches	261	12	0.5	6	1
Plot 11 (2029) Paving	261	0	0.5	-	-
Plot 11 (2030) Mass Excavation	260	1705	0.5	853	142
Plot 11 (2030) Finish Grading	260	26	0.5	13	2
Plot 11 (2030) Utilities	260	6260	0.5	3,130	522
Plot 11 (2030) Building-Concrete	260	0	0.5	-	-

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plot 11 (2030) Building-Wet Utilities	260	7512	0.5	3,756	626
Plot 11 (2030) Building-Electrical	260	2191	0.5	1,096	183
Plot 11 (2030) Building-Landscaping	260	5008	0.5	2,504	417
Plot 11 (2030) Landscaping	260	0	0.5	-	-
Plot 11 (2030) Temporary Utilities	260	0	0.5	-	-
Plot 11 (2030) Curbing/Drive Approaches	260	528	0.5	264	44
Plot 11 (2030) Paving	260	624	0.5	312	52
Plot 11 (2031) Mass Excavation	260	1705	0.5	853	142
Plot 11 (2031) Finish Grading	260	52	0.5	26	4
Plot 11 (2031) Utilities	260	6260	0.5	3,130	522
Plot 11 (2031) Building-Concrete	260	7512	0.5	3,756	626
Plot 11 (2031) Building-Wet Utilities	260	7512	0.5	3,756	626
Plot 11 (2031) Building-Electrical	260	5008	0.5	2,504	417
Plot 11 (2031) Building-Landscaping	260	0	0.5	-	-
Plot 11 (2031) Landscaping	260	0	0.5	-	-
Plot 11 (2031) Temporary Utilities	260	0	0.5	-	-
Plot 11 (2031) Curbing/Drive Approaches	260	624	0.5	312	52
Plot 11 (2031) Paving	260	528	0.5	264	44
Plots 11 and 12 (2032) Mass Excavation	260	2945	0.5	1,473	245
Plots 11 and 12 (2032) Finish Grading	260	26	0.5	13	2
Plots 11 and 12 (2032) Utilities	260	3442	0.5	1,721	287
Plots 11 and 12 (2032) Building-Concrete	260	5848.5	0.5	2,924	487
Plots 11 and 12 (2032) Building-Wet Utilities	260	2191	0.5	1,096	183
Plots 11 and 12 (2032) Building-Electrical	260	2556	0.5	1,278	213
Plots 11 and 12 (2032) Building-Landscaping	260	3756	0.5	1,878	313
Plots 11 and 12 (2032) Landscaping	260	3130	0.5	1,565	261
Plots 11 and 12 (2032) Temporary Utilities	260	0	0.5	-	-
Plots 11 and 12 (2032) Curbing/Drive Approaches	260	2816	0.5	1,408	235
Plots 11 and 12 (2032) Paving	260	264	0.5	132	22
Plot 12 (2033) Finish Grading	260	4185	0.5	2,093	349
Plot 12 (2033) Utilities	260	0	0.5	-	-
Plot 12 (2033) Building-Concrete	260	624	0.5	312	52
Plot 12 (2033) Building-Wet Utilities	260	4185	0.5	2,093	349
Plot 12 (2033) Building-Electrical	260	2191	0.5	1,096	183
Plot 12 (2033) Building-Landscaping	260	104	0.5	52	9
Plot 12 (2033) Landscaping	260	7512	0.5	3,756	626
Plot 12 (2033) Temporary Utilities	260	0	0.5	-	-
Plot 12 (2033) Curbing/Drive Approaches	260	6260	0.5	3,130	522
Plot 12 (2033) Paving	260	0	0.5	-	-
Plots 12 and 21,22 (2034) Finish Grading	260	5008	0.5	2,504	417
Plots 12 and 21,22 (2034) Utilities	260	0	0.5	-	-
Plots 12 and 21,22 (2034) Building-Concrete	260	2635	0.5	1,318	220
Plots 12 and 21,22 (2034) Building-Wet Utilities	260	3442	0.5	1,721	287
Plots 12 and 21,22 (2034) Building-Electrical	260	3442	0.5	1,721	287
Plots 12 and 21,22 (2034) Building-Landscaping	260	5848.5	0.5	2,924	487
Plots 12 and 21,22 (2034) Landscaping	260	2,191	0.5	1,096	183

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 12 and 21,22 (2034) Temporary Utilities	260.0	2,556.0	0.5	1,278	213
Plots 12 and 21,22 (2034) Curbing/Drive Approaches	260	3756	0.5	1,878	313
Plots 12 and 21,22 (2034) Paving	260	1408.5	0.5	704	117
Total VMT:				137,496	22,916
Total Idle hours:					

**World Logistics Center  
Construction Energy Analysis**

**On-Road Haul Trucks**

0.1551 gallons/mile miles/gallon  
10,324,213 miles 6.45

**Total VMT diesel gallons (on-road haul trucks): 1,601,486**

*Estimated Fuel Savings from*

*Anti-Idling Regulation (64 percent based on estimated CARB emissions reductions):<sup>3</sup>*

**74,143**

EMFAC2017 Diesel Fuel Consumption Factor:2 0.7756 gallons/hour  
Total Haul Truck Idle-Hours per Year: 34,414 hours  
**Total Idling diesel gallons (on-road haul trucks): 26,691**

**Total diesel gallons (on-road haul trucks): 1,628,178 gal**

1. California Air Resources Board, EMFAC2017 (South Coast Air Basin; T7 Single Construction; Annual; CY 2017; Aggregate MY; Aggregate Speed)
2. California Air Resources Board, EMFAC2017 (South Coast Air Basin; T7 Single Construction; Annual; CY 2017; Aggregate MY; 5 miles per hour converted to hourly rate)
3. Source: California Air Resources Board (CARB), 2004. Staff Report: initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, <https://www.arb.ca.gov/regact/diling/diling.htm>, accessed November 2016.

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 2 and 4 (2020) Mass Excavation	262	1705	25	42,625	142
Plots 2 and 4 (2020) Finish Grading	262	26	25	650	2
Plots 2 and 4 (2020) Utilities	262	6260	25	156,500	522
Plots 2 and 4 (2020) Landscaping	262	0	25	-	-
Plots 2 and 4 (2020) Building Concrete	262	7512	25	187,800	626
Plots 2 and 4 (2020) Building-Wet Utilities	262	2191	25	54,775	183
Plots 2 and 4 (2020) Building-Electrical	262	5008	25	125,200	417
Plots 2 and 4 (2020) Temporary Utilities	262	0	25	-	-
Plots 2 and 4 (2020) Building-Landscaping	262	0	25	-	-
Plots 2 and 4 (2020) Paving	262	528	25	13,200	44
Plots 2 and 4 (2020) Curbing/Drive Approaches	262	624	25	15,600	52
Plot 4 (2021) Mass Excavation	261	1705	25	42,625	142
Plot 4 (2021) Finish Grading	261	52	25	1,300	4
Plot 4 (2021) Utilities	261	6260	25	156,500	522
Plot 4 (2021) Building-Concrete	261	7512	25	187,800	626
Plot 4 (2021) Building-Wet Utilities	261	7512	25	187,800	626
Plot 4 (2021) Building-Electrical	261	5008	25	125,200	417
Plot 4 (2021) Building-Landscaping	261	0	25	-	-
Plot 4 (2021) Landscaping	261	0	25	-	-
Plot 4 (2021) Temporary Utilities	261	0	25	-	-
Plot 4 (2021) Curbing/Drive Approaches	261	624	25	15,600	52
Plot 4 (2021) Paving	261	528	25	13,200	44
Plots 4 and 9 (2022) Mass Excavation	260	2945	25	73,625	245
Plots 4 and 9 (2022) Finish Grading	260	26	25	650	2

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 4 and 9 (2022) Utilities	260	3442	25	86,050	287
Plots 4 and 9 (2022) Building-Concrete	260	5848.5	25	146,213	487
Plots 4 and 9 (2022) Building-Wet Utilities	260	2191	25	54,775	183
Plots 4 and 9 (2022) Building-Electrical	260	2556	25	63,900	213
Plots 4 and 9 (2022) Building-Landscaping	260	3756	25	93,900	313
Plots 4 and 9 (2022) Landscaping	260	3130	25	78,250	261
Plots 4 and 9 (2022) Temporary Utilities	260	0	25	-	-
Plots 4 and 9 (2022) Curbing/Drive Approaches	260	2816	25	70,400	235
Plots 4 and 9 (2022) Paving	260	264	25	6,600	22
Plot 9 (2023) Mass Excavation	260	4185	25	104,625	349
Plot 9 (2023) Finish Grading	260	0	25	-	-
Plot 9 (2023) Utilities	260	624	25	15,600	52
Plot 9 (2023) Building-Concrete	260	4185	25	104,625	349
Plot 9 (2023) Building-Wet Utilities	260	2191	25	54,775	183
Plot 9 (2023) Building-Electrical	260	104	25	2,600	9
Plot 9 (2023) Building-Landscaping	260	7512	25	187,800	626
Plot 9 (2023) Interchange	260	0	25	-	-
Plot 9 (2023) Landscaping	260	6260	25	156,500	522
Plot 9 (2023) Temporary Utilities	260	0	25	-	-
Plot 9 (2023) Curbing/Drive Approaches	260	5008	25	125,200	417
Plot 9 (2023) Paving	260	0	25	-	-
Plots 9 and 1,3,20 (2024) Mass Excavation	261	2635	25	65,875	220
Plots 9 and 1,3,20 (2024) Finish Grading	262	3442	25	86,050	287
Plots 9 and 1,3,20 (2024) Utilities	262	3442	25	86,050	287
Plots 9 and 1,3,20 (2024) Building-Concrete	262	5848.5	25	146,213	487
Plots 9 and 1,3,20 (2024) Building-Wet Utilities	262	2191	25	54,775	183
Plots 9 and 1,3,20 (2024) Building-Electrical	262	2556	25	63,900	213
Plots 9 and 1,3,20 (2024) Building-Landscaping	262	3756	25	93,900	313
Plots 9 and 1,3,20 (2024) Interchange	262	1408.5	25	35,213	117
Plots 9 and 1,3,20 (2024) Landscaping	262	3130	25	78,250	261
Plots 9 and 1,3,20 (2024) Temporary Utilities	262	0	25	-	-
Plots 9 and 1,3,20 (2024) Curbing/Drive Approaches	262	312	25	7,800	26
Plots 9 and 1,3,20 (2024) Paving	262	264	25	6,600	22
Plots 5 and 10 (2025) Mass Excavation	261	1705	25	42,625	142
Plots 5 and 10 (2025) Finish Grading	261	26	25	650	2
Plots 5 and 10 (2025) Utilities	261	6260	25	156,500	522
Plots 5 and 10 (2025) Building-Concrete	261	0	25	-	-
Plots 5 and 10 (2025) Building-Wet Utilities	261	7512	25	187,800	626
Plots 5 and 10 (2025) Building-Electrical	261	2191	25	54,775	183
Plots 5 and 10 (2025) Building-Landscaping	261	5008	25	125,200	417
Plots 5 and 10 (2025) Landscaping	261	0	25	-	-
Plots 5 and 10 (2025) Temporary Utilities	261	0	25	-	-
Plots 5 and 10 (2025) Curbing/Drive Approaches	261	528	25	13,200	44
Plots 5 and 10 (2025) Paving	261	624	25	15,600	52
Plots 10 and 8 (2026) Mass Excavation	261	1705	25	42,625	142
Plots 10 and 8 (2026) Finish Grading	261	52	25	1,300	4

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 10 and 8 (2026) Utilities	261	6260	25	156,500	522
Plots 10 and 8 (2026) Building-Concrete	261	7512	25	187,800	626
Plots 10 and 8 (2026) Building-Wet Utilities	261	7512	25	187,800	626
Plots 10 and 8 (2026) Building-Electrical	261	5008	25	125,200	417
Plots 10 and 8 (2026) Building-Landscaping	261	0	25	-	-
Plots 10 and 8 (2026) Landscaping	261	0	25	-	-
Plots 10 and 8 (2026) Temporary Utilities	261	0	25	-	-
Plots 10 and 8 (2026) Curbing/Drive Approaches	261	624	25	15,600	52
Plots 10 and 8 (2026) Paving	261	528	25	13,200	44
Plot 8 (2027) Mass Excavation	261	2945	25	73,625	245
Plot 8 (2027) Finish Grading	261	26	25	650	2
Plot 8 (2027) Utilities	261	3442	25	86,050	287
Plot 8 (2027) Building-Concrete	261	5848.5	25	146,213	487
Plot 8 (2027) Building-Wet Utilities	261	2191	25	54,775	183
Plot 8 (2027) Building-Electrical	261	2556	25	63,900	213
Plot 8 (2027) Building-Landscaping	261	3756	25	93,900	313
Plot 8 (2027) Landscaping	261	3130	25	78,250	261
Plot 8 (2027) Temporary Utilities	261	0	25	-	-
Plot 8 (2027) Curbing/Drive Approaches	261	2816	25	70,400	235
Plot 8 (2027) Paving	261	264	25	6,600	22
Plots 11 and 6,7 (2028) Mass Excavation	260	4185	25	104,625	349
Plots 11 and 6,7 (2028) Finish Grading	260	0	25	-	-
Plots 11 and 6,7 (2028) Utilities	260	624	25	15,600	52
Plots 11 and 6,7 (2028) Building-Concrete	260	4185	25	104,625	349
Plots 11 and 6,7 (2028) Building-Wet Utilities	260	2191	25	54,775	183
Plots 11 and 6,7 (2028) Building-Electrical	260	104	25	2,600	9
Plots 11 and 6,7 (2028) Building-Landscaping	260	7512	25	187,800	626
Plots 11 and 6,7 (2028) Landscaping	260	0	25	-	-
Plots 11 and 6,7 (2028) Temporary Utilities	260	6260	25	156,500	522
Plots 11 and 6,7 (2028) Curbing/Drive Approaches	260	0	25	-	-
Plots 11 and 6,7 (2028) Paving	260	5008	25	125,200	417
Plot 11 (2029) Mass Excavation	261	0	25	-	-
Plot 11 (2029) Finish Grading	261	2635	25	65,875	220
Plot 11 (2029) Utilities	261	3442	25	86,050	287
Plot 11 (2029) Building-Concrete	261	3442	25	86,050	287
Plot 11 (2029) Building-Wet Utilities	261	5848.5	25	146,213	487
Plot 11 (2029) Building-Electrical	261	2191	25	54,775	183
Plot 11 (2029) Building-Landscaping	261	2556	25	63,900	213
Plot 11 (2029) Landscaping	261	3756	25	93,900	313
Plot 11 (2029) Temporary Utilities	261	1408.5	25	35,213	117
Plot 11 (2029) Curbing/Drive Approaches	261	3130	25	78,250	261
Plot 11 (2029) Paving	261	0	25	-	-
Plot 11 (2030) Mass Excavation	260	1705	25	42,625	142
Plot 11 (2030) Finish Grading	260	26	25	650	2
Plot 11 (2030) Utilities	260	6260	25	156,500	522
Plot 11 (2030) Building-Concrete	260	0	25	-	-

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plot 11 (2030) Building-Wet Utilities	260	7512	25	187,800	626
Plot 11 (2030) Building-Electrical	260	2191	25	54,775	183
Plot 11 (2030) Building-Landscaping	260	5008	25	125,200	417
Plot 11 (2030) Landscaping	260	0	25	-	-
Plot 11 (2030) Temporary Utilities	260	0	25	-	-
Plot 11 (2030) Curbing/Drive Approaches	260	528	25	13,200	44
Plot 11 (2030) Paving	260	624	25	15,600	52
Plot 11 (2031) Mass Excavation	260	1705	25	42,625	142
Plot 11 (2031) Finish Grading	260	52	25	1,300	4
Plot 11 (2031) Utilities	260	6260	25	156,500	522
Plot 11 (2031) Building-Concrete	260	7512	25	187,800	626
Plot 11 (2031) Building-Wet Utilities	260	7512	25	187,800	626
Plot 11 (2031) Building-Electrical	260	5008	25	125,200	417
Plot 11 (2031) Building-Landscaping	260	0	25	-	-
Plot 11 (2031) Landscaping	260	0	25	-	-
Plot 11 (2031) Temporary Utilities	260	0	25	-	-
Plot 11 (2031) Curbing/Drive Approaches	260	624	25	15,600	52
Plot 11 (2031) Paving	260	528	25	13,200	44
Plots 11 and 12 (2032) Mass Excavation	260	2945	25	73,625	245
Plots 11 and 12 (2032) Finish Grading	260	26	25	650	2
Plots 11 and 12 (2032) Utilities	260	3442	25	86,050	287
Plots 11 and 12 (2032) Building-Concrete	260	5848.5	25	146,213	487
Plots 11 and 12 (2032) Building-Wet Utilities	260	2191	25	54,775	183
Plots 11 and 12 (2032) Building-Electrical	260	2556	25	63,900	213
Plots 11 and 12 (2032) Building-Landscaping	260	3756	25	93,900	313
Plots 11 and 12 (2032) Landscaping	260	3130	25	78,250	261
Plots 11 and 12 (2032) Temporary Utilities	260	0	25	-	-
Plots 11 and 12 (2032) Curbing/Drive Approaches	260	2816	25	70,400	235
Plots 11 and 12 (2032) Paving	260	264	25	6,600	22
Plot 12 (2033) Finish Grading	260	4185	25	104,625	349
Plot 12 (2033) Utilities	260	0	25	-	-
Plot 12 (2033) Building-Concrete	260	624	25	15,600	52
Plot 12 (2033) Building-Wet Utilities	260	4185	25	104,625	349
Plot 12 (2033) Building-Electrical	260	2191	25	54,775	183
Plot 12 (2033) Building-Landscaping	260	104	25	2,600	9
Plot 12 (2033) Landscaping	260	7512	25	187,800	626
Plot 12 (2033) Temporary Utilities	260	0	25	-	-
Plot 12 (2033) Curbing/Drive Approaches	260	6260	25	156,500	522
Plot 12 (2033) Paving	260	0	25	-	-
Plots 12 and 21,22 (2034) Finish Grading	260	5008	25	125,200	417
Plots 12 and 21,22 (2034) Utilities	260	0	25	-	-
Plots 12 and 21,22 (2034) Building-Concrete	260	2635	25	65,875	220
Plots 12 and 21,22 (2034) Building-Wet Utilities	260	3442	25	86,050	287
Plots 12 and 21,22 (2034) Building-Electrical	260	3442	25	86,050	287
Plots 12 and 21,22 (2034) Building-Landscaping	260	5848.5	25	146,213	487
Plots 12 and 21,22 (2034) Landscaping	260	2,191	25	54,775	183

Building Phase	Days	Total One-Way Trips	Miles/Trip	VMT	Idle Hours
Plots 12 and 21,22 (2034) Temporary Utilities	260.0	2,556.0	25	63,900	213
Plots 12 and 21,22 (2034) Curbing/Drive Approaches	260	3756	25	93,900	313
Plots 12 and 21,22 (2034) Paving	260	1408.5	25	35,213	117
				10,324,213	34,414

This tool provides a quick estimation of the fuel use and emissions for your equipment in a specific year. The results may slightly differ from those from the official inventory model.

**Instructions:**

Enter the horsepower, model year, and other details about your equipment in the Input box. Make sure to update the **load factor** for your equipment using the lookup table.

The **Output** box gives a quick estimation of the fuel use, NOx, PM, and THC emission for your equipment.

Input	Input Engine Here
Horsepower (hp)	120
Model year	2011
Calendar year	2015
Activity (annual hours)	250
Accumulated hours on equipment (estimate using annual-hours*age if you only know the age of the equipment)	1000
Load factor (check the lookup table)	0.2

Results	
Fuel Used (gallon)	310
NOx Emissions (kg)	15.4
PM Emissions (kg)	0.7
THC Emissions (kg)	0.7
CO2 Emissions (kg)	3162.6
NOx Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	2.57
PM Emission Factor (including deterioration and fuel correction factor): gram/bhp-hr	0.12
THC Emission Factor (including deterioration and fuel correction factor): gram/ bhp-hr	0.11

Intermediate steps	
HPbin	175
NOx_EFO	2.67
NOx_DR	3.5E-05
NOx_FCF	0.950
PM_EFO	0.12
PM_DR	8.6E-06
PM_FCF	0.90
THC_EFO	0.10
THC_DR	2.5E-05
THC_FCF	0.90
NOx_EF (g/hp-hr)	2.57
PM_EF (g/hp-hr)	0.12
THC_EF (g/hp-hr)	0.11
CO2_EF (kg/gallon-diesel)*	10.21
BSFC (lb/hp-hr)	0.367
Unit conversion (lb/gallon)	7.109

\*Reference: [www.epa.gov/sites/production/files/2015-07/documents/emission-factors\\_2014.pdf](http://www.epa.gov/sites/production/files/2015-07/documents/emission-factors_2014.pdf)

Load Factor Lookup Table				
Equipment Category	Equipment Type	Details	Load Factor	
Agriculture equipment	Agricultural tractors		0.48	
	Combine harvesters		0.44	
	Forage & silage harvesters		0.44	
	Cotton pickers		0.44	
	Nut harvester		0.44	
	Other harvesters		0.44	
	Balers (self propelled)		0.50	
	Bale wagons (self propelled)		0.50	
	Swathers/windrowers/hay conditioners		0.48	
	Hay Squeeze/Stack retriever		0.42	
	Sprayers/Spray rigs		0.42	
	Construction equipment		0.40	
	Other non-mobile		0.48	
	Forklifts		0.40	
	Atvs		0.40	
	Others		0.40	
	Portable equipment	All portable equipment		0.31
	Cargo Handling Equipment	Construction equipment		0.55
Container handling equipment			0.59	
Forklift			0.30	
Other general industrial equipment			0.51	
Rig crane			0.20	
	Yard tractor		0.39	
Transport Refrigeration Units (TRU)	TRU on trailers	25 HP and over, MY2012 and Older	0.46	
	TRU on trailers	25 HP and over, MY2013 and Newer	0.38	
	TRU on trailers	23 HP and Over, below 25 HP, All years	0.46	
	TRU on trucks	Below 23 HP, All Model years	0.56	
	TRU on railcars	25 HP and over, MY2012 and Older	0.33	
	TRU on railcars	25 HP and over, MY2013 and Newer	0.27	
	TRU on railcars	Below 25 HP, All Model years	0.33	
	TRU with generators	25 HP and over, MY2012 and Older	0.46	
	TRU with generators	25 HP and Over, MY2013 and Newer	0.38	
	TRU with generators	23 HP and Over, below 25 HP, All Model Years	0.46	
Ground Support Equipment	Passenger Stand		0.40	
	A/C Tug Narrow Body		0.54	
	A/C Tug Wide Body		0.54	
	Baggage Tug		0.37	
	Belt Loader		0.34	
	Bobtail		0.37	
	Cargo Loader		0.34	
	Cargo Tractor		0.36	
	Forklift (GSE)		0.20	
	Lift (GSE)		0.34	
Other GSE		0.34		
Construction and Industrial Equipment	Cranes		0.29	
	Crawler Tractors		0.43	
	Excavators		0.38	
	Graders		0.41	
	Off-Highway Tractors		0.44	
	Off-Highway Trucks		0.38	
	Other Construction Equipment		0.42	
	Pavers		0.42	
	Paving Equipment		0.36	
	Rollers		0.38	
	Rough Terrain Forklifts		0.40	
	Rubber Tired Dozers		0.40	
	Rubber Tired Loaders		0.36	
	Scrapers		0.48	
	Skid Steer Loaders		0.37	
	Surfacing Equipment		0.30	
	Tractors/Loaders/Backhoes		0.37	
	Trenchers		0.50	
	Aerial Lifts		0.31	
	Forklifts		0.20	
Other General Industrial Equipment		0.34		
Other Material Handling Equipment		0.40		
Sweepers/Scrubbers		0.46		
Oil and Drill Rigs	Drill Rig (Mobile)		0.50	
	Workover Rig (Mobile)		0.50	
	Bore/Drill Rigs		0.50	

EMFAC2017 Emissions Inventory

Region Type: Air Basin

Region: South Coast

Calendar Year: 2020

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

VMT	18622369	Fuel Consumption (gal/day)	2490584	Annual VMT	6,797,164,758.09	Annual Fuel Consumption (gals)	909,063,308.01
gal/mi	0.1337415		7.477108248				

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel_Consumption
SOUTH CO	2020	HHDT	Aggregate	Aggregate	GAS	87,066,952.08	7544.942081	1.924993227
SOUTH CO	2020	HHDT	Aggregate	Aggregate	DSL	94401.00533	11283644.05	1766.775921
SOUTH CO	2020	HHDT	Aggregate	Aggregate	NG	4355.501273	177332.3374	81.93282418
SOUTH CO	2020	LDA	Aggregate	Aggregate	GAS	6178149.091	245245789.6	8365.832232
SOUTH CO	2020	LDA	Aggregate	Aggregate	DSL	49858.7341	2047191.978	44.27440932
SOUTH CO	2020	LDA	Aggregate	Aggregate	ELEC	89063.98818	3493455.584	0
SOUTH CO	2020	LDT1	Aggregate	Aggregate	GAS	673575.0448	25456837.2	1009.703307
SOUTH CO	2020	LDT1	Aggregate	Aggregate	DSL	436.3696382	10308.34943	0.467774015
SOUTH CO	2020	LDT1	Aggregate	Aggregate	ELEC	2427.188659	91067.68136	0
SOUTH CO	2020	LDT2	Aggregate	Aggregate	GAS	21085.49.59	81418834.91	3534.790518
SOUTH CO	2020	LDT2	Aggregate	Aggregate	DSL	11074.63811	498881.6758	14.81780046
SOUTH CO	2020	LDT2	Aggregate	Aggregate	ELEC	12230.90008	414287.5504	0
SOUTH CO	2020	LHDT1	Aggregate	Aggregate	GAS	173614.6174	6333810.586	612.6252653
SOUTH CO	2020	LHDT1	Aggregate	Aggregate	DSL	103329.3828	4276352.725	203.9630505
SOUTH CO	2020	LHDT2	Aggregate	Aggregate	GAS	28771.81583	1018932.099	113.1501167
SOUTH CO	2020	LHDT2	Aggregate	Aggregate	DSL	40572.86872	1644689.797	86.79286353
SOUTH CO	2020	WCY	Aggregate	Aggregate	GAS	269351.1059	1916380.232	52.6214956
SOUTH CO	2020	MDV	Aggregate	Aggregate	GAS	1509432.595	54618603.59	2902.923832
SOUTH CO	2020	MDV	Aggregate	Aggregate	DSL	26705.37886	1126984.42	43.60769552
SOUTH CO	2020	MDV	Aggregate	Aggregate	ELEC	3852.020312	134619.071	0
SOUTH CO	2020	MH	Aggregate	Aggregate	GAS	35045.56901	331213.3277	66.05937563
SOUTH CO	2020	MH	Aggregate	Aggregate	DSL	11453.97402	113100.7197	10.93302012
SOUTH CO	2020	MHDT	Aggregate	Aggregate	GAS	24612.44595	1335068.759	269.6494288
SOUTH CO	2020	MHDT	Aggregate	Aggregate	DSL	116761.6622	7338725.152	723.8084841
SOUTH CO	2020	OBUS	Aggregate	Aggregate	GAS	5846.82319	252354.2354	51.34879326
SOUTH CO	2020	OBUS	Aggregate	Aggregate	DSL	4066.240591	300794.1374	37.44688162
SOUTH CO	2020	SBUS	Aggregate	Aggregate	GAS	2268.162807	93420.86198	10.43507716
SOUTH CO	2020	SBUS	Aggregate	Aggregate	DSL	6271.332305	198203.0432	26.62266433
SOUTH CO	2020	UBUS	Aggregate	Aggregate	GAS	938.2571472	88202.7311	18.36430248
SOUTH CO	2020	UBUS	Aggregate	Aggregate	DSL	18.19691831	1877.446227	0.296796191
SOUTH CO	2020	UBUS	Aggregate	Aggregate	ELEC	12.11693886	1072.906717	0
SOUTH CO	2020	UBUS	Aggregate	Aggregate	NG	5222.885974	5712103.4089	144.1754651

EMFAC2017 Emissions Inventory

Region Type: Air Basin  
 Region: South Coast  
 Calendar Year: 2020  
 Season: Annual

Vehicles Classification: EMFAC2011 Categories  
 Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalVR	VehClass	MdHtr	Speed	Fuel	Populator	VMT	Trips	Fuel_Consumption
SOUTH CO	2020	All Other Buses	1350.14	183816.726	26461.1422	18.7	149406		
SOUTH CO	2020	LD A	61781.49	245245790	29177.0004	8365.83223			
SOUTH CO	2020	LD A	49858.7	2047191.98	236026.476	44.2744093			
SOUTH CO	2020	LD A	89064	3493455.58	446754.784	0			
SOUTH CO	2020	LD T1	673575	254566837.2	3092733.34	1009.70331			
SOUTH CO	2020	LD T1	436.37	10308.3494	1529.80218	0.46777402			
SOUTH CO	2020	LD T1	2427.19	91067.6814	11955.9197	0			
SOUTH CO	2020	LD T2	2108550	81418834.9	9872322.88	3534.79052			
SOUTH CO	2020	LD T2	11074.6	498881.676	54951.1663	14.8178005			
SOUTH CO	2020	LD T2	12230.9	414287.55	62115.0794	0			
SOUTH CO	2020	LD H1	173615	633810.59	2586599.11	612.625265			
SOUTH CO	2020	LD H1	103329	4276352.72	1299753.65	203.963051			
SOUTH CO	2020	LD H2	28771.8	1018932.1	428657.186	113.150117			
SOUTH CO	2020	LD H2	40572.9	1644689.8	510355.648	86.7928635			
SOUTH CO	2020	MCY	269351	1916380.23	538702.212	52.6214956			
SOUTH CO	2020	MDV	1509433	54618603.6	6970807.91	2902.92383			
SOUTH CO	2020	MDV	26705.4	1126984.42	131705.033	43.6076955			
SOUTH CO	2020	MDV	3852.02	134619.071	19750.8597	0			
SOUTH CO	2020	MH	35045.6	331213.328	3505.96872	66.0699756			
SOUTH CO	2020	MH	11494	113100.72	1145.3974	10.9330201			
SOUTH CO	2020	Motor Coach	916.105	116977.411	13375.1274	18.731941			
SOUTH CO	2020	ORUS	5846.82	252354.235	116983.238	51.3487933			
SOUTH CO	2020	ORUS	0	17678.952	0	36.7581963			
SOUTH CO	2020	P10	2268.16	93420.862	9072.65123	10.4350772			
SOUTH CO	2020	SBUS	6271.33	198203.043	72370.3053	26.6226643			
SOUTH CO	2020	SBUS	19.6429	218.054583	86.4288167	0.02481043			
SOUTH CO	2020	16 Ag	446.07	88799.3109	6512.61531	8.01914752			
SOUTH CO	2020	16 CAIRP small	233.435	12340.8476	3408.15225	1.18210681			
SOUTH CO	2020	16 CAIRP heavy	4054.98	275690.545	18332.4016	28.1831622			
SOUTH CO	2020	16 instate construction heavy	14124.7	721061.752	63857.0606	72.8708728			
SOUTH CO	2020	16 instate construction small	185002.8	2507593.31	213520.127	238.187185			
SOUTH CO	2020	16 instate heavy	70846.5	3544993.31	815350.457	354.066367			
SOUTH CO	2020	16 instate small	254.967	50953.5321	3722.51103	4.59778773			
SOUTH CO	2020	16 OOS heavy	135.07	7080.84594	1972.02343	0.67920486			
SOUTH CO	2020	16 OOS small	6648.81	101706.244	10168.0533	12.9532819			
SOUTH CO	2020	16 Public	1694.72	28287.3938	19489.3218	3.04455779			
SOUTH CO	2020	16 utility	24612.4	1335068.76	492445.818	269.649429			
SOUTH CO	2020	16 T1	14.8378	252.575311	65.2863243	0.04436246			
SOUTH CO	2020	17 Ag	9582.09	1734645.99	139898.501	256.922836			
SOUTH CO	2020	17 CAIRP construction	1076.68	198030.913	4867.62771	27.712143			
SOUTH CO	2020	17 NNOOS	10476.8	2114657.85	152961.954	303.319739			
SOUTH CO	2020	17 NOOS	3766.55	681535.17	54991.6834	103.346222			
SOUTH CO	2020	17 POLA	13120.5	1606065.94	99715.6884	282.593311			
SOUTH CO	2020	17 Public	8123.02	164573.585	24639.8135	29.0956097			
SOUTH CO	2020	17 Single	12556	802034.14	144894.407	137.911303			
SOUTH CO	2020	17 single construction	6955.69	491278.272	31491.5937	76.2068277			
SOUTH CO	2020	17 SWCV	2684.77	109695.462	10470.6135	54.0468004			
SOUTH CO	2020	17 SWCV	4355.5	177332.337	16986.455	81.9328242			
SOUTH CO	2020	17 tractor construction	19595.4	2696937.45	248861.111	393.43887			
SOUTH CO	2020	17 tractor construction	5766.76	405261.322	26071.2925	63.0776655			
SOUTH CO	2020	17 utility	671.926	13636.4223	7727.14713	2.24296506			
SOUTH CO	2020	17 T15	87.067	7544.94208	1742.03558	1.92499323			
SOUTH CO	2020	URUS	938.257	88202.7311	3753.02859	18.3643025			
SOUTH CO	2020	URUS	18.1969	1877.44623	72.7876732	0.29679619			
SOUTH CO	2020	URUS	12.1169	1072.90672	48.4677554	0			
SOUTH CO	2020	URUS	5222.89	571203.409	20891.5439	144.175465			

Haul Trucks (7 Single Construction)			
VMT	Fuel Consumption (gal/day)	Annual VMT	Annual Fuel Consumption
491278	76207	179,316,569	27,815,492
gal/mi	6.44643786		
0.155119475			

Workers (LDA,LDT1,LDT2)			
VMT	Fuel Consumption (gal/day)	Annual VMT	Annual Fuel Consumption
358676655	12968886	130,916,978,908	4,734,008,405
gal/mi	27.65457256		
0.0362			

<b>Temporary Construction Trailer</b>		
<b>Land Use</b>	<b>Square Feet</b>	<b>Energy Use per year (kWh)</b>
General Office	1,000	12,990
Note: CalEEMod 2016.3.2 used to estimate energy use for temporary construction office		

## Electric-powered Construction Equipment

<b>kWh/hp-hr</b>
0.7457

<b>Equipment</b>	<b># of Equipment</b>	<b>Hours/Day</b>	<b>Horsepower</b>	<b>Load Factor</b>	<b>Number Days</b>	<b>Total hp-hr</b>	<b>kWh</b>	<b>kWh/yr</b>
Cranes	3	12	231	0.29	944	2,276,588	1,697,652	108,824
Signal Boards	2	12	6	0.82	1485	175,349	130,757.60	8,382
<b>Total</b>	-	-	-	-	-	<b>2,451,937</b>	<b>1,828,409</b>	<b>117,206</b>

Notes:

1. Cranes horsepower and load factors taken from CalEEMod
2. Conversion factor taken from University of North Carolina Unit Conversion Dictionary; Source: <http://www.unc.edu/~rowlett/units/dictH.html>



## **E-4 WLC Operational Energy Demand and VMT**



**WLC CNG Fueling Station Consumption**

Truck CNG Capacity	Unit
75	DGE
139.3	SCF/DGE
10,448	SCF

State CNG/LNG Annual Fuel Use (million CF)	MMBtu
2,110,829	2,184,708,015

Source	Fuel Capacity	ADT	Trucks/Day	Fuel Use/Day (CF)	Fuel Use/Yr (MMCF)	% of State	MMBtu
Heavy Duty Trucks	10,448	408	204	2,131,290	777.92	0.037%	805,148

Sources:

- 1 US Energy Information Administration, California Natural Gas Consumption by Year (2018). Available at: [https://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus](https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus)
- 2 US Department of Energy, Case Study - Natural Gas Regional Transport Trucks (2016). Available at: [https://www.afdc.energy.gov/uploads/publication/ng\\_regional\\_transport\\_trucks.pdf](https://www.afdc.energy.gov/uploads/publication/ng_regional_transport_trucks.pdf)
- 3 Alternative Fuels Data Center, Gasonline and Diesel Gallon Equivalency Methodology. Available at: [https://www.afdc.energy.gov/fuels/equivalency\\_methodology.html](https://www.afdc.energy.gov/fuels/equivalency_methodology.html)
- 4 WSP, Traffic Impact Analysis Report for The World Logistics Center (2018).

World Logistics Center  
Operational Fuel Use  
Forklifts

Parameter	Value	Reference/Source
Quantity of non-diesel forklifts per light logistics planning area	5	Highland Fairview 10/11/13
Number of light logistics planning areas	3	
Quantity of non-diesel forklifts	15	
Average daily operating hours per forklift	4	
Horsepower	93	Cat Lift Trucks, LG Gas Cushion Tire Lift Trucks, Model GC35K, <a href="http://www.cat-lift.com/_cat/PDFs/CLT-PDF030/CLT-PDF030.html">http://www.cat-lift.com/_cat/PDFs/CLT-PDF030/CLT-PDF030.html</a>
Load factor	0.2	
Annual days of operation	260	
Annual hp-hr	290,160	
Btu/hp-hr	2,542.5	EPA Conversion factor, <a href="https://www3.epa.gov/ttrchie1/ap42/appendix/appa.pdf">https://www3.epa.gov/ttrchie1/ap42/appendix/appa.pdf</a>
Annual Btu	737,731,800	
<b>Annual MMbtu</b>	<b>737.73</b>	

World Logistics Center  
Operational Fuel Use  
Yard Trucks/Hostlers

Parameter	Value	Source/Reference
Number of yard trucks per facility	2	Highland Fairview, October 10, 2013
Fuel type	Propane	
Average building/facility area, sq. ft.	1,500,000	
Warehouse area (minus logistics), sq. ft.	40,400,000	
Average number of buildings	26.9	
Yard trucks	54	
Horsepower	199	Port of Los Angeles Inventory of Emissions - 2016. Starcrest Consulting Group. Table 5.1 (average HP of propane yard tractor).
WHP	155	Wheel Horsepower to Crankshaft Horsepower Guestimator (Rear-Wheel Drive). <a href="http://www.mk5cortinaestate.co.uk/calculator4.php">http://www.mk5cortinaestate.co.uk/calculator4.php</a>
Load factor	0.39	CARB's Emission Inventory Development for Cargo Handling Equipment. <a href="https://www.arb.ca.gov/regact/2011/cargo11/cargoappb.pdf">https://www.arb.ca.gov/regact/2011/cargo11/cargoappb.pdf</a>
Maximum daily operating hours per truck	7	
Annual days of operation	260	
Annual hp-hr	5,926,357	
Btu/hp-hr	2,454	EPA Conversion Factor, <a href="https://www3.epa.gov/tnchie1/ap42/appendix/appa.pdf">https://www3.epa.gov/tnchie1/ap42/appendix/appa.pdf</a>
Annual Btu	14,543,279,587	
<b>Annual MMBtu</b>	<b>14,543.28</b>	

World Logistics Center  
Operational Energy Analysis  
2025 Low EV Scenario  
Fuel Usage from VMT

Fuel Type: <sup>1</sup>	GAS	DSL	ELEC	NG
<b>VMT</b>				
LDA	326,275 miles/year			
LDT1	24,073 miles/year			
LDT2	120,472 miles/year			
LHDT1	35,977 miles/year			
LHDT2	17,249 miles/year			
MDV	25,945 miles/year			
HHDT	179,492 miles/year			
MHDT	107,645 miles/year			

Fuel Type: <sup>1</sup>	GAS	DSL	ELEC	NG
Percent:				
LDA	96.1%	1.0%	2.9%	0.0%
LDT1	98.6%	0.0%	1.4%	0.0%
LDT2	97.5%	0.8%	1.8%	0.0%
LHDT1	55.9%	44.1%	0.0%	0.0%
LHDT2	35.4%	64.6%	0.0%	0.0%
MDV	95.9%	2.5%	1.6%	0.0%
HHDT	0.1%	94.7%	0.0%	5.3%
MHDT	16.3%	83.7%	0.0%	0.0%
Miles per Gallon Fuel:				
LDA	33.50	52.50	-	-
LDT1	28.60	23.60	-	-
LDT2	27.30	38.60	-	-
LHDT1	10.90	22.60	-	-
LHDT2	9.50	20.40	-	-
MDV	22.00	29.60	-	-
HHDT	4.50	7.30	-	2.30
MHDT	5.30	11.50	-	-

Fuel Type	gal/year	gal/year	gal/year	MMbtu/year
<b>Annual VMT by Fuel Type :</b>				
LDA	313,648	3,165	9,462	0
LDT1	23,729	10	335	0
LDT2	117,424	904	2,144	0
LHDT1	20,097	15,880	0	0
LHDT2	6,110	11,139	0	0
MDV	24,884	638	420	0
HHDT	126	169,925	0	9,441
MHDT	17,578	90,066	0	0
Total	523,595	291,727	12,361	9,441

Annual Fuel Savings from Electric Vehicles:<sup>2</sup>

Fuel Type	gal/year	gal/year	gal/year	MMbtu/year
<b>Annual fuel use by vehicle type:</b>				
LDA	9,363	60	-	-
LDT1	830	0	-	-
LDT2	4,301	23	-	-
LHDT1	1,844	703	-	-
LHDT2	643	546	-	-
MDV	1,131	22	-	-
HHDT	28	23,277	-	612
MHDT	3,317	7,832	-	-
<b>Total</b>	<b>21,456</b>	<b>32,464</b>	<b>0</b>	<b>612</b>

Notes:  
1. California Air Resources Board. EMFAC2014. South Coast Air Basin; 2023; Annual; All vehicle types. Aggregate model year; Aggregate speed). <https://www.arb.ca.gov/emfac/2014/>  
2. Assumes electric vehicles would replace traditional gasoline-fueled vehicles.

World Logistics Center  
Operational Energy Analysis  
2025 Medium EV Scenario  
Fuel Usage from VMT

Fuel Type: <sup>1</sup>	GAS	DSL	ELEC	NG
<b>VMT</b>				
LDA	326,275 miles/year			
LDT1	24,073 miles/year			
LDT2	120,472 miles/year			
LHDT1	35,977 miles/year			
LHDT2	17,249 miles/year			
MDV	25,945 miles/year			
HHDT	179,492 miles/year			
MHDT	107,645 miles/year			

Fuel Type: <sup>1</sup>	GAS	DSL	ELEC	NG
<b>Percent</b>				
LDA	93.8%	1.0%	5.2%	0.0%
LDT1	94.8%	0.0%	5.2%	0.0%
LDT2	94.0%	0.8%	5.2%	0.0%
LHDT1	55.9%	44.1%	0.0%	0.0%
LHDT2	35.4%	64.6%	0.0%	0.0%
MDV	92.3%	2.5%	5.2%	0.0%
HHDT	0.1%	94.7%	0.0%	5.3%
MHDT	16.3%	83.7%	0.0%	0.0%

Miles per Gallon Fuel:

LDA	33.50	52.50	-	-
LDT1	28.60	23.60	-	-
LDT2	27.30	38.60	-	-
LHDT1	10.90	22.60	-	-
LHDT2	9.50	20.40	-	-
MDV	22.00	29.60	-	-
HHDT	4.50	7.30	-	2.30
MHDT	5.30	11.50	-	-

Annual VMT by Fuel Type :

LDA	306,046	3,165	16,966	0
LDT1	22,821	10	1,252	0
LDT2	113,244	904	6,265	0
LHDT1	20,097	15,880	0	0
LHDT2	6,110	11,139	0	0
MDV	23,947	638	1,349	0
HHDT	126	169,925	0	9,441
MHDT	17,578	90,066	0	0
Total	509,968	291,727	25,832	9,441

Annual Fuel Savings from Electric Vehicles:<sup>2</sup>

Annual fuel use by vehicle type:	gal/year	gal/year	kBtu/year
LDA	9,136	60	-
LDT1	798	0	-
LDT2	4,148	23	-
LHDT1	1,844	703	-
LHDT2	643	546	-
MDV	1,089	22	-
HHDT	28	23,277	612
MHDT	3,317	7,832	-
<b>Total</b>	<b>21,002</b>	<b>32,464</b>	<b>612</b>

Notes:

- California Air Resources Board, EMFAC2014, South Coast Air Basin, 2023; Annual, All vehicle types; Aggregate model (year, Aggregate speed).  
<https://www.arb.ca.gov/emfac/2014/>
- Assumes electric vehicles would replace traditional gasoline-fueled vehicles.



World Logistics Center  
Operational Energy Analysis  
2035 Low EV Scenario  
Fuel Usage from VMT

Vehicle Type	VMVT
LDA	598,447 miles/year
LDT1	44,154 miles/year
LDT2	220,968 miles/year
LHDT1	57,934 miles/year
LHDT2	27,805 miles/year
MDV	45,362 miles/year
HHDT	301,181 miles/year
MHDT	180,624 miles/year

Fuel Type: <sup>1</sup>	GAS	DSL	ELEC	NG
Percent:				
LDA	93.6%	1.1%	5.3%	0.0%
LDT1	97.0%	0.0%	3.0%	0.0%
LDT2	95.4%	0.9%	3.7%	0.0%
LHDT1	48.7%	51.3%	0.0%	0.0%
LHDT2	29.4%	70.6%	0.0%	0.0%
MDV	93.0%	3.1%	3.9%	0.0%
HHDT	0.1%	93.3%	0.0%	6.6%
MHDT	14.3%	85.7%	0.0%	0.0%

Miles per Gallon Fuel:

LDA	40.00	61.20	-	-
LDT1	33.85	30.02	-	-
LDT2	34.07	45.45	-	-
LHDT1	12.37	25.50	-	-
LHDT2	10.72	22.95	-	-
MDV	27.75	34.98	-	-
HHDT	5.28	8.95	-	2.71
MHDT	6.08	13.21	-	-

Annual VMT by Fuel Type :

LDA	560,303	6,634	31,511	0	0	0
LDT1	42,820	6	1,327	0	0	0
LDT2	210,815	2,052	8,101	0	0	0
LHDT1	28,216	29,718	0	0	0	0
LHDT2	8,183	19,622	0	0	0	0
MDV	42,167	1,419	1,776	0	0	0
HHDT	240	281,013	0	0	19,927	0
MHDT	25,864	154,760	0	0	0	0
Total	918,607	495,224	42,716	0	19,927	0

Annual Fuel Savings from Electric Vehicles:<sup>2</sup>

Annual fuel use by vehicle type:	gal/year	gal/year	kBtu/year
LDA	14,006	108	-
LDT1	1,265	0	-
LDT2	6,189	45	-
LHDT1	2,282	1,166	-
LHDT2	764	855	-
MDV	1,520	41	-
HHDT	45	31,414	1,094
MHDT	4,257	11,716	-
<b>Total</b>	<b>30,327</b>	<b>45,345</b>	<b>1,094</b>

Notes:

- California Air Resources Board, EMFAC2014, South Coast Air Basin, 2023; Annual, All vehicle types; Aggregate model (year, Aggregate speed).  
<https://www.arb.ca.gov/emfac/2014/>
- Assumes electric vehicles would replace traditional gasoline-fueled vehicles.

World Logistics Center  
Operational Energy Analysis  
2035 Medium EV Scenario  
Fuel Usage from VMT

Vehicle Type	VMVT
LDA	598,447 miles/year
LDT1	44,154 miles/year
LDT2	220,968 miles/year
LHDT1	57,934 miles/year
LHDT2	27,805 miles/year
MDV	45,362 miles/year
HHDT	301,181 miles/year
MHDT	180,624 miles/year

Fuel Type: <sup>1</sup>	GAS	DSL	ELEC	NG
-------------------------	-----	-----	------	----

Percent	GAS	DSL	ELEC	NG
LDA	77.9%	1.1%	21.0%	0.0%
LDT1	79.0%	0.0%	21.0%	0.0%
LDT2	78.1%	0.9%	21.0%	0.0%
LHDT1	48.7%	51.3%	0.0%	0.0%
LHDT2	29.4%	70.6%	0.0%	0.0%
MDV	74.4%	3.1%	22.5%	0.0%
HHDT	0.1%	93.3%	0.0%	6.6%
MHDT	14.3%	85.7%	0.0%	0.0%

Miles per Gallon Fuel:

LDA	40.00	61.20	-	-
LDT1	33.85	30.02	-	-
LDT2	34.07	45.45	-	-
LHDT1	12.37	25.50	-	-
LHDT2	10.72	22.95	-	-
MDV	27.75	34.98	-	-
HHDT	5.28	8.95	-	2.71
MHDT	6.08	13.21	-	-

Annual VMT by Fuel Type :

LDA	466,191	6,634	125,674	0
LDT1	34,882	6	9,272	0
LDT2	172,513	2,052	46,403	0
LHDT1	28,216	29,718	0	0
LHDT2	8,183	19,622	0	0
MDV	33,749	1,419	10,206	0
HHDT	240	281,013	0	19,927
MHDT	25,864	154,760	0	0
Total	769,837	495,224	191,556	19,927

Annual Fuel Savings from Electric Vehicles:<sup>2</sup>

Annual fuel use by vehicle type:	gal/year	gal/year	kBtu/year
LDA	11,654	108	-
LDT1	1,030	0	-
LDT2	5,064	45	-
LHDT1	2,282	1,166	-
LHDT2	764	855	-
MDV	1,216	41	-
HHDT	45	31,414	1,094
MHDT	4,257	11,716	-
<b>Total</b>	<b>26,313</b>	<b>45,345</b>	<b>1,094</b>

Notes:

- California Air Resources Board, EMFAC2014, South Coast Air Basin, 2023; Annual, All vehicle types; Aggregate model (year, Aggregate speed).  
<https://www.arb.ca.gov/emfac/2014/>
- Assumes electric vehicles would replace traditional gasoline-fueled vehicles.

World Logistics Center  
Operational Energy Analysis  
2035 High EV Scenario  
Fuel Usage from VMT

Vehicle Type	GAS	DSL	ELEC	NG
<b>VMT</b>	598,447 miles/year			
LDA	44,154 miles/year			
LDT1	220,968 miles/year			
LDT2	57,934 miles/year			
LHDT1	27,805 miles/year			
LHDT2	45,362 miles/year			
MDV	301,181 miles/year			
HHDT	180,624 miles/year			
MHDT				

Fuel Type: <sup>1</sup>	Percent	GAS	DSL	ELEC	NG
LDA	77.9%	1.1%	21.0%	0.0%	100.0%
LDT1	79.0%	0.0%	21.0%	0.0%	100.0%
LDT2	78.1%	0.9%	21.0%	0.0%	100.0%
LHDT1	38.7%	41.3%	20.0%	0.0%	100.0%
LHDT2	19.4%	60.6%	20.0%	0.0%	100.0%
MDV	74.4%	3.1%	22.5%	0.0%	100.0%
HHDT	0.1%	63.3%	30.0%	6.6%	100.0%
MHDT	14.3%	55.7%	30.0%	0.0%	100.0%

Miles per Gallon Fuel:

LDA	40.00	61.20	-	-	
LDT1	33.85	30.02	-	-	
LDT2	34.07	45.45	-	-	
LHDT1	12.37	25.50	-	-	
LHDT2	10.72	22.95	-	-	
MDV	27.75	34.98	-	-	
HHDT	5.28	8.95	-	-	2.71
MHDT	6.08	13.21	-	-	

Annual VMT by Fuel Type :

LDA	466,191	6,634	125,674	0	0	
LDT1	34,882	6	9,272	0	0	
LDT2	172,513	2,052	46,403	0	0	
LHDT1	22,421	23,927	11,587	0	0	
LHDT2	5,394	16,850	5,561	0	0	
MDV	33,749	1,419	10,206	0	0	
HHDT	240	190,647	90,354	19,927	19,927	
MHDT	25,864	100,607	54,187	0	0	
Total	761,252	342,142	353,245	19,927	19,927	

Annual Fuel Savings from Electric Vehicles:<sup>2</sup>

Annual fuel use by vehicle type:	gal/year	gal/year	kBtu/year
LDA	11,654	108	-
LDT1	1,030	0	-
LDT2	5,064	45	-
LHDT1	1,813	938	-
LHDT2	503	734	-
MDV	1,216	41	-
HHDT	45	21,312	1,094
MHDT	4,257	7,617	-
<b>Total</b>	<b>25,584</b>	<b>30,796</b>	<b>1,094</b>

Notes:

- California Air Resources Board, EMFAC2014, South Coast Air Basin, 2023; Annual, All vehicle types; Aggregate model (year, Aggregate speed).  
<https://www.arb.ca.gov/emfac/2014/>
- Assumes electric vehicles would replace traditional gasoline-fueled vehicles.

## **E-5 EV Scenario Assumptions**

Phase 1 = 2025 completion  
Phase 2 = 2035 completion

**Project Total Daily Vehicle Counts**  
(trips to fueling station and convenience market not included)

	2025	2035
Passenger Vehicles	11,431	19,564
Light Trucks (2 axle)	777	1,384
Medium Trucks (3 axle)	1,113	1,964
Large Trucks (4+ axle)	3,072	5,416
TOTAL	16,343	28,728

Assumes 2 trips = 1 vehicle

**EV population and charging scenarios**

**A. Project: EMFAC (1.1 million ZEVs in California by 2025)**

Passenger EV Parking Spaces 527 932 per building code; 527 EV charging stations in 2025; 932 in 2035

Assume 80% locations are for Level 2 chargers @ 19.2 kW, highest rate; 1 vehicle per EV station per day; 4 hour charge time for 100 kWh battery;  
20% locations with DC power blocks that can charge up to 500 kW per vehicle and can spread across multiple vehicles as needed

2025 avg battery size = 100 kWh; charge capacity = 80 kWh (80%)

Peak load assumptions to be provided by WSP

Passenger vehicles & light trucks 2035

10% locations are for Level 2 chargers @ 19.2 kW, highest rate; vehicle per EV station per day; 8 hour charge time (larger batteries)

90% locations with DC charging using power blocks providing up to 500 kW; can spread load across multiple vehicles as needed (100 kW avg)

Average battery size = 200 kWh; charge capacity = 160 kWh

Peak load assumptions to be provided by WSP

	2025	peak rate (MW)	avg daily (MWh)	annual
Passenger Vehicles	288	0.7	11.5	4,206
Light Trucks (2 axle)	12	0.06	0.47	173
Medium Trucks (3 axle)	0	0	0	0
Large Trucks (4+ axle)	0	0	0	0
TOTAL	300	0.75	12.0	4,379

Assume no truck charging

	2035	peak rate (MW)	avg daily (MWh)	annual
Passenger Vehicles	937	5.7	74.9	27,351
Light Trucks (2 axle)	54	0.1	2.2	793
Medium Trucks (3 axle)	0	0	0	0
Large Trucks (4+ axle)	0	0	0	0
TOTAL	991	5.9	77.1	28,144

27,351 Avg daily MWh are ESA estimates; peak MW from WSP

793 Peak and avg daily loads from WSP

4205,9883 Peak values derived using WSP factors

27350,776 Peak values derived using WSP factors

**B. Modified Project: 2017 Scoping Plan w/ Mobile Source Strategy and charging stations for cars and light trucks per existing building code**

Passenger EV Parking Spaces 527 2,058 For 2025 use existing building code; for 2035 scale the Scenario A spaces based on expected EV population per MSS

Passenger vehicles 2025: 100% locations with DC charging using power blocks providing up to 500 kW; can spread load across multiple vehicles as needed (100 kW avg)

Passenger vehicles 2040: 100% locations with DC charging using power blocks providing up to 500 kW; can spread load across multiple vehicles as needed (100 kW avg)

based on MSS targets for overall EVs

Light Duty Trucks: NA

Medium Duty Trucks: NA

Heavy Duty Trucks: NA

Peak load methodology provided by WSP

	2025	peak rate (MW)	avg daily (MWh)	annual
Passenger Vehicles	590	1.4	23.6	8,608
Light Trucks (2 axle)*	38	0.2	1.5	549
Medium Trucks (3 axle)*	0	0	0	0
Large Trucks (4+ axle)*	0	0	0	0
TOTAL	627	1.6	25.1	9,157

	2035	peak rate (MW)	avg daily (MWh)	annual
Passenger Vehicles	4,197	25.6	335.3	122,564
Light Trucks (2 axle)	312	0.8	12.3	4,568
Medium Trucks (3 axle)	0	0	0	0
Large Trucks (4+ axle)	0	0	0	0
TOTAL	4,509	26.4	348.3	127,132

122,564 Avg Daily MWh from ESA; Peak MW from WSP

4,568 Peak and avg daily loads from WSP

Peak values derived using WSP factors

Peak values derived using WSP factors

**C. Modified Project: 2017 Scoping Plan w/ MSS and Sustainable Freight Action Plan and existing/expected truck regulations (CALSTART Beehive model)**

Passenger EV Parking Spaces 527 2,058 same assumptions as Scenario B

Passenger vehicles: same assumptions as Scenario B

Assume peak rate = all stations charging simultaneously

22.5% by 2035 (conservative) Same as Scenario B

20% by 2035 (conservative)

30% by 2035 (conservative)

Peak load methodology provided by WSP

	2025	peak rate (MW)	avg daily (MWh)	annual MWh
Passenger Vehicles	590	1.4	23.6	8,608
Light Trucks (2 axle)*	38	0.1	1.5	549
Medium Trucks (3 axle)*	111	0.5	6.0	2,189
Large Trucks (4+ axle)*	614	17.5	229.4	83,743
TOTAL	1353	19.5	260.5	95,089

	2035	peak rate (MW)	avg daily (MWh)	annual MWh
Passenger Vehicles	4,197	25.6	335.3	122,564
Light Trucks (2 axle)	312	1.0	12.5	4,568
Medium Trucks (3 axle)	393	1.6	21.2	7,728
Large Trucks (4+ axle)	1,625	46.3	606.7	221,462
TOTAL	6,527	74.4	976.2	356,321

pass/avg ratio = 0.076238

**2016 Sustainable Freight Action Plan**

By 2030, deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy

**2016 Mobile Source Strategy: Cleaner Technologies and Fuels Scenario**

By 2030 - 4.2 ZEVs = 1.8 million pure ZEVs operating Statewide, and 2.4 million PHEVs

From CA Plug-in Electric Vehicle Collaborative: **Plugging In at Work**  
Available at: <http://www.psevcollaborative.org/Policy-makers>

Type of Charging	Power Levels (Installed circuit rating)	Miles of Range per Hour of Charging*
AC Level 1	110/120VAC at 15 or 20 Amps	~4-6 miles/hr.
AC Level 2	208/240VAC at 30 Amps	8-12 miles/hr.
3.3 kW (low)	208/240VAC at 40 Amps	16-24 miles/hr.
6.6 kW (medium)	208/240VAC at 50 Amps	24-36 miles/hr.
9.6 kW (high)	208/240VAC at 100 Amps	> 60 miles/hr.
19.2 kW (highest)	208/240VAC at 100 Amps	> 60 miles/hr.

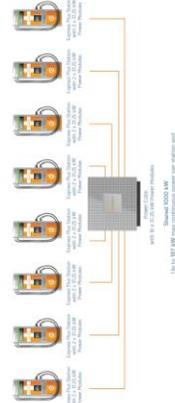
\* Refer to vehicle specifications for exact ratings.

Figure 1. Charging power levels and miles of range recharged.

**EV charging - power loads per charging station**

Level 2 highest	240V/100A =	19.2 kW	21.36651
avg battery charge capacity:	80 kWh	4.2 hrs	charging time
	100 kWh battery		

DC fast chargers	30360	3,6432	9.6	27655.582
	250-450V DC, 90 kW	90 kW		
	200-600V DC, 240 kW	240		
charging block:	500 kW	500 kW		
avg battery charge capacity:	160 kWh	2.2 hrs	90 kW charging time	
	200 kWh battery	0.32 hrs	500 kW charging time	



\* Projected numbers based on CALSTART/CARB 3-Year Funding Plan, and potential ZE Drayage Regulation and ZE City Center Access Regulation in 2025

<https://www.chargepoint.com/products/commercial/express-plus/>

**Table 25: WLC Trips by Vehicle Type**

Phase and Vehicle Type

ADT = average daily trips

AM Peak Hour		PM Peak Hour		ADT	
In	Out	Total	In	Out	Total

Max Number of daily vehicles with EV charging potential

gas station and convenience mkt trips

	763	691	1,454	608	1,349	1,958	23,532	669	22,863	11,431	11,766
Light Trucks (2 axle)	52	56	108	52	66	118	1,751	296	1,455	727	875
Medium Trucks (3 axle)	35	41	76	54	65	119	2,226	0	2,226	1,113	1,113
Heavy Trucks (using alternative fuel station, so non-diesel)	14	13	27	11	10	21	379	379	0	0	190
Heavy Trucks	174	207	380	121	148	269	6,143	0	6,143	3,072	3,072
<b>Total</b>	<b>1,037</b>	<b>1,008</b>	<b>2,046</b>	<b>846</b>	<b>1,638</b>	<b>2,484</b>	<b>34,031</b>	<b>32,687</b>	<b>16,343</b>	<b>17,015</b>	

**Phase 2 - 2026 to 2035**

Pass Veh	517	487	1,003	429	973	1,402	17,066				
Light Trucks	35	42	77	39	46	85	1,313				
Medium Trucks	26	31	58	41	49	90	1,702				
Heavy Trucks	130	157	288	92	111	203	4,688				
<b>Total</b>	<b>709</b>	<b>718</b>	<b>1,426</b>	<b>602</b>	<b>1,179</b>	<b>1,781</b>	<b>24,769</b>				

1,344

**Full Build-Out - 2035**

Pass Veh	1,280	1,178	2,458	1,038	2,322	3,360	40,598	669	39,929	19,964	20,299
Light Trucks (2 axle)	87	98	185	90	112	203	3,064	296	2,768	1,384	1,532
Medium Trucks (3 axle)	61	73	134	95	114	209	3,928	0	3,928	1,964	1,964
Heavy Trucks (using alternative fuel station, so non-diesel)	14	13	27	11	10	21	379	379	0	0	190
Heavy Trucks	304	364	668	214	259	473	10,831	0	10,831	5,415	5,415
<b>Total</b>	<b>1,746</b>	<b>1,726</b>	<b>3,472</b>	<b>1,447</b>	<b>2,818</b>	<b>4,265</b>	<b>58,800</b>	<b>57,456</b>	<b>28,728</b>	<b>29,400</b>	

1,344

Scenario: A

EMFAC		
2025	2035	
Passenger vehicles (LDA + LDT1 + LDT2)	11,431	19,964
Passenger EVs	288	937
MDVs	727	1,384
MDV EVs	12	54
<b>Light Duty Electric Vehicle Populations</b>	<b>300</b>	<b>991</b>

Scenario: B

Scoping Plan/MSS		
2025	2035	
Passenger vehicles (LDA + LDT1 + LDT2)	11,431	19,964
Passenger EVs	590	4,197
MDVs	727	1,384
MDV EVs	38	312
<b>Light Duty Electric Vehicle Populations</b>	<b>627</b>	<b>4,509</b>

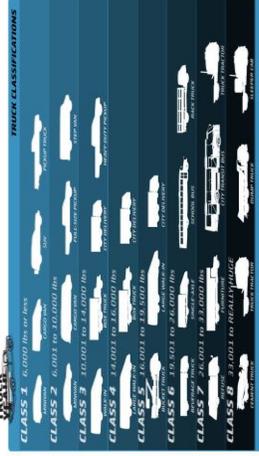
From SCAQMD study: Facility Access: includes Classes 2 and 3 (passenger cars and light trucks), and Classes 1 and 4 (motorcycles and buses) if observed  
 Local Goods Movement: includes Classes 5 through 7 (two-, three-, and four-axle single-unit trucks) - Local goods movement may also include Cla:  
 Long Distance Goods Movement: includes Classes 8 through 13 (multi-unit trucks)

Vehicle Class Correspondence Table

Description	EWFA2007 Vehicle	RVTAM Model (axle-based)	Previous WLC EIR	CAIEMOD Assumed % of Category	Math Check	FHWA System	Fontana Truck Trip Generation Study	ITE/SCAQMD/NAIOP Study
Bicycles								
Motorcycles	MCY					Class 1, Motorcycles		
Passenger Cars	LDA	Passenger Cars	LDA	69.300%	100.000%	Class 2, Passenger Cars	Passenger Vehicles	Passenger Vehicles
	LDT1		LDT1	5.113%		Class 3, 4 tire single unit		
	LDT2		LDT2	25.588%				
Light-Duty Trucks (GVWR <6000 lbs. and ETW <= 3750 lbs)								
Light-Duty Trucks (GVWR <6000 lbs. and ETW 3751-5750 lbs)								
School Buses	SBUS					Class 4, Buses	2- to 4-axle Trucks	
Urban Buses	UBUS				Class 5, 2-axle 6-tire single unit			
Motor Coach					Class 6			
Other Buses	OBUS		MDT	100.000%				
All Other Buses								
Motor Homes	MH							
Medium-Duty Trucks (GVWR 6000-8500 lbs)	MDV							
Light-Heavy-Duty Trucks (GVWR 8501-10000 lbs)	LHDT1	Light Trucks	LHDT1	67.532%	100.000%		3-Axle Trucks	
Light-Heavy-Duty Trucks (GVWR 10001-14000 lbs)	LHDT2	Medium Trucks	LHDT2	32.468%				
Medium-Heavy Duty Diesel Agriculture Truck								
Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>26000 lbs								
Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR<=26000 lbs								
Medium-Heavy Duty Diesel instate construction Truck with GVWR>26000 lbs								
Medium-Heavy Duty Diesel instate construction Truck with GVWR<=26000 lbs	MHDT		MHDT	37.489%				
Medium-Heavy Duty Diesel instate Truck with GVWR>26000 lbs								
Medium-Heavy Duty Diesel instate Truck with GVWR<=26000 lbs								
Medium-Heavy Duty Diesel Out-of-state Truck with GVWR>26000 lbs								
Medium-Heavy Duty Diesel Out-of-state Truck with GVWR<=26000 lbs								
Medium-Heavy Duty Diesel Public Fleet Truck								
Medium-Heavy Duty Diesel Utility Fleet Truck								
Medium-Heavy Duty Gasoline Truck								
Heavy-Heavy Duty Diesel Agriculture Truck								
Heavy-Heavy Duty Diesel CA International Registration Plan Truck								
Heavy-Heavy Duty Diesel CA International Registration Plan Construction Truck								
Heavy-Heavy Duty Diesel Non-Neighboring Out-of-state Truck								
Heavy-Heavy Duty Diesel Neighboring Out-of-state Truck								
Heavy-Heavy Duty Diesel Drayage Truck at Other Facilities								
Heavy-Heavy Duty Diesel Drayage Truck in Bay Area								
Heavy-Heavy Duty Diesel Drayage Truck near South Coast								
Heavy-Heavy Duty Diesel Public Fleet Truck	HHDT	Heavy Trucks	HHDT	62.511%	100.000%	Classes 7-13	4+ Axle Trucks	5+ Axle Trucks
Heavy-Heavy Duty Diesel Single Unit Truck								
Heavy-Heavy Duty Diesel Single Unit Construction Truck								
Heavy-Heavy Duty Diesel Solid Waste Collection Truck								
Heavy-Heavy Duty Diesel Tractor Truck								
Heavy-Heavy Duty Diesel Tractor Construction Truck								
Heavy-Heavy Duty Diesel Utility Fleet Truck								
Heavy-Heavy Duty Gasoline Truck								
Power Take Off								

FHWA System

<b>Class 1</b> Motorcycles		<b>Class 7</b> Two or more axle, single unit	
<b>Class 2</b> Passenger cars		<b>Class 8</b> Four or less axle, single trailer	
<b>Class 3</b> Four tire, single unit		<b>Class 9</b> 5-Axle tractor semitrailer	
<b>Class 4</b> Buses		<b>Class 10</b> Five or more axle, single trailer	
<b>Class 5</b> Two axle, six tire, single unit		<b>Class 11</b> Five or less axle, multi-trailer	
<b>Class 6</b> Three axle, single unit		<b>Class 12</b> Six axle, multi-trailer	
		<b>Class 13</b> Seven or more axle, multi-trailer	



Project Category	EMFAC Category	2025	2035
Passenger Vehicles	DA, LD1, LD72	11,766	20,299
Light Trucks (2-axle)	MDT	875	1,532
Medium Trucks (3 axle)	LHD1, LHD72	1,113	1,964
Large Trucks (4+ axle)	MHDT, HHD72	3,261	5,605
		17,015	29,400

CalEMOD Default vehicle mix

LDA	LD1	LD72	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SEBUS	MH	0.000727
0.552848	0.041144	0.205921	0.110574	0.011987	0.005763	0.023182	0.038654	0.002242	0.001394	0.004854	0.00071	0.000727	

**EV Population Forecasts Based on EMFAC and MSS**

In January 2018, Governor Brown signed Executive Order B-48-18, setting targets of 200 hydrogen fueling stations and 250,000 electric vehicle chargers to support 1.5 million zero-emission vehicles (ZEVs) on California roads by 2025, on the path to 5 million ZEVs by 2030. EMFAC2017 bases its estimates of future ZEV populations on the strategies by which the light duty vehicle manufacturers take to comply with California's ZEV mandate and the Pavley vehicle standards. The 2017+ future projections are based upon the Mid-Range Scenario of the Advanced Clean Cars Midterm Review. For each model year, CARB calculated the fraction of the fleet that will operate similar to a pure zero emission vehicles. This fraction is called EV fraction and is equivalent to the sum of populations of Battery Electric Vehicles (BEVs), Fuel Cell Electric Vehicles (FCEVs), and the fraction of Plug-in Hybrid Electric Vehicles (PHEVs) population that operate like pure ZEVs, divided by the total population of Gasoline and electric fleet. To estimate the fraction of PHEVs that operates like pure ZEVs, EMFAC utilizes utility factors, which are defined as the fraction of VMT the PHEV obtains from the electrical grid.

**Methodology**

EMFAC 2017 anticipates future sales of EVs through the year 2025 in the PC, LDT1, LDT2, and MDV vehicle categories, and assumes EV sales as a percentage of total vehicles remains constant thereafter.

The State's goal from the Mobile Source Strategy (MSS) is to achieve 4.2 million ZEVs in California by 2030, while Executive Order B-48-18 calls for 5 million ZEVs on the road by 2030. Post 2030 estimates for EVs under the MSS scenario conservatively assume that EV sales continue at the same pace after 2030.

**Data Sources**  
 EMFAC EV data source: EMFAC2017 Web Database (<https://www.arb.ca.gov/emfac/2017/>) - based on EMFAC2007 Categories  
 EMFAC2017 Volume III - Technical Documentation, p. 193 - available at: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac>

**Electric Vehicle Penetration - South Coast Air Basin**

Jurisdiction	Year	EMFAC 2017 - LDA + LDT1 + LDT2		EMFAC 2017 - LDA + LDT1 + LDT2 + LDT3		Governor's order & MSS	
		Total Population	% EV	Total Population	% EV	Total Population	% EV
So Coast Air Basin	2020	9,125,366	1.1%	103,722	1.1%	103,722	1.1%
	2025	10,034,980	2.5%	252,889	2.5%	517,550	5.2%
	2030	10,907,401	3.8%	417,413	3.8%	1,444,602	13.2%
	2035	11,642,018	4.7%	546,208	4.7%	2,447,659	21.0%
	2035	22,409,020	1.2%	262,338	1.2%	262,338	1.2%
Statewide	2020	24,876,417	2.5%	619,462	2.5%	1,282,991	5.2%
	2025	27,344,052	3.8%	1,038,403	3.8%	3,621,512	13.2%
	2035	29,511,582	4.7%	1,380,703	4.7%	6,204,620	21.0%

LDA portion of 1.5 million ZEVs by 2025  
 LDA portion of 4.2 million ZEVs by 2030  
 Assumes the 2025-2030 EV population increase repeats from 2030-2035

Jurisdiction	Year	EMFAC 2017 - MDV		Governor's order & MSS	
		Total MDV Population	% EV	Total MDV Population	% EV
So Coast Air Basin	2020	1,539,990	0.3%	3,852	0.3%
	2025	1,627,185	1.6%	83,921	5.2%
	2030	1,733,368	3.0%	229,571	13.2%
	2035	1,849,556	3.9%	416,980	22.5%
	2035	4,131,850	0.2%	8,393	0.2%
Statewide	2020	4,207,663	1.4%	217,009	5.2%
	2025	4,367,848	2.7%	578,488	13.2%
	2035	4,600,339	3.7%	1,037,141	22.5%

MDV portion of 1.5 million ZEVs by 2025  
 MDV portion of 4.2 million ZEVs by 2030  
 Assumes the 2025-2030 EV population increase repeats from 2030-2035



## **E-6 Cumulative Calculations**



---

# **1 Electricity**

---



World Logistic Center  
Cumulative Energy - Electricity

**Cumulative Electrical Consumption Within MVU service Area - Summary**

Project ID	Annual Construction (MWh)	Annual Operation (MWh)	Project ID	Annual Construction (MWh)	Annual Operation (MWh)
MV-001	0.86	4,293	MV-052		11,568
MV-002	0.63	3,894	MV-053		6,714
MV-003	0.73	15,041	MV-054	0.74	9,335
MV-004		12,335	MV-056	0.20	160
MV-005	0.37	1,641	MV-057	0.43	371
MV-006	0.83	4,028	MV-058		80
MV-007	0.39	311	MV-059	0.62	631
MV-008	0.68	581	MV-060	0.70	922
MV-009	0.15	110	MV-061	0.52	2,538
MV-010	0.55	471	MV-062	0.60	5,442
MV-011	0.30	241	MV-063	0.69	2,215
MV-012		914	MV-064	0.67	872
MV-013	0.21	391	MV-065	0.17	305
MV-014	0.49	1,072	MV-066	0.70	1,474
MV-015	0.62	631	MV-068	0.36	2,725
MV-016	0.37	321	MV-069		5,391
MV-017	0.67	962	MV-070	0.68	1,415
MV-018		78	MV-071	0.16	288
MV-019		883	MV-074	0.58	1,201
MV-020		1,322	MV-075	1.09	9,286
MV-021	0.24	914	MV-076	0.88	4,394
MV-022		401	MV-077	0.82	7,015
MV-023	0.77	2,449	MV-078		6,844
MV-024	0.50	1,593	MV-079	0.44	1,971
MV-025	0.62	812	MV-080	0.15	625
MV-026	0.69	1,002	MV-081		3,760
MV-027	0.18	317	MV-082		2,686
MV-028	0.27	529	MV-083		4,685
MV-029	0.61	2,756	MV-084		1,316
MV-033	0.63	541	MV-089	0.10	70
MV-034	0.61	521	MV-090	0.06	103
MV-035	0.32	251	MV-093		658
MV-036		329	MV-102	0.25	1,096
MV-037		21,270	MV-105	0.10	70
MV-038		5,712	MV-106	0.10	70
MV-039		21,058	MV-108	0.02	42
MV-040	0.14	528	MV-111	0.06	94
MV-041	0.91	7,788	MV-112	0.11	88
MV-042	0.50	2,397	MV-118	0.14	90
MV-043		7,313	MV-121	0.03	61
MV-044	0.76	5,959	MV-123	0.10	197
MV-045	0.28	1,228	MV-124	0.40	1,974

World Logistic Center  
Cumulative Energy - Electricity

**Cumulative Electrical Consumption Within MVU service Area - Summary**

Project ID	Annual Construction (MWh)	Annual Operation (MWh)	Project ID	Annual Construction (MWh)	Annual Operation (MWh)
MV-046		2,053	MV-126	0.52	2,355
MV-048		19,944	<b>Cum Proj Total</b>	29	296,135
MV-049		20,959	<b>Net Project</b>	1,496	271,529
MV-050		4,670	<b>Total</b>	1,525	567,664
MV-051		10,125	MVU	352,044	352,044
			%MVU	0.43%	161.25%

## World Logistics Center Cumulative Energy Electricity

3,000 gallons per acre  
 9727 kWh/Mgal to supply water  
 111 kWh/Mgal to treat water  
 1272 kWh/Mgal to distribute water  
 1911 kWh/Mgal to wastewater

### Off-Road Construction Electricity from Dust Control

Project ID	Acers	Water Use (Mgal)	Electricity from Dust Control (kWh)				Total (kWh)	Annual (kWh)
			Supply	Treat	Distribute	Wastewater		
B-001	1,056	3.168	30,815	352	4,030	6,054	41,251	3,675
B-003	295	0.88512	8,610	98	1,126	1,691	11,525	1,027
B-004	74	0.2231658	2,171	25	284	426	2,906	1,025
B-006	128	0.383067083	3,726	43	487	732	4,988	1,368
B-007	129	0.38688	3,763	43	492	739	5,038	449
B-008	207	0.62208	6,051	69	791	1,189	8,100	722
B-009	1,424	4.272	41,554	474	5,434	8,164	55,626	4,956
B-010	30	0.0912	887	10	116	174	1,188	660
B-011	17	0.0496125	483	6	63	95	646	642
B-013	605	1.8144	17,649	201	2,308	3,467	23,625	2,105
B-014	224	0.672	6,537	75	855	1,284	8,750	780
C-001	15	0.0441	429	5	56	84	574	578
C-002	182	0.5468793	5,319	61	696	1,045	7,121	1,485
C-003	5	0.01603035	156	2	20	31	209	234
H-001	188	0.56448	5,491	63	718	1,079	7,350	655
H-002	141	0.4224	4,109	47	537	807	5,500	490
H-003	298	0.89376	8,694	99	1,137	1,708	11,638	1,037
H-004	100	0.300290566	2,921	33	382	574	3,910	1,072
H-005	2	0.00461039	45	1	6	9	60	153
H-006	50	0.150113754	1,460	17	191	287	1,955	1,403
H-007	77	0.229836	2,236	26	292	439	2,993	717
H-008	141	0.42168	4,102	47	536	806	5,491	489
M-001	38	0.113667109	1,106	13	145	217	1,480	1,174
M-003	89	0.26709	2,598	30	340	510	3,478	834
M-004	8	0.02401245	234	3	31	46	313	351
M-005	156	0.466709532	4,540	52	594	892	6,077	541
M-006	15	0.045339196	441	5	58	87	590	586
M-007	21	0.06221355	605	7	79	119	810	746
M-008	248	0.7434435	7,231	83	946	1,421	9,680	1,552
M-009	43	0.1296	1,261	14	165	248	1,688	624
M-010	17	0.0514839	501	6	65	98	670	625
M-011	5	0.0147735	144	2	19	28	192	230
MV-001	22	0.06714225	653	7	85	128	874	857
MV-002	100	0.301416	2,932	33	383	576	3,925	629
MV-003	74	0.222315	2,162	25	283	425	2,895	727
MV-005	9	0.02565738	250	3	33	49	334	375
MV-006	23	0.069075	672	8	88	132	899	828
MV-007	10	0.02976	289	3	38	57	388	391
MV-008	19	0.05568	542	6	71	106	725	676
MV-009	4	0.01056	103	1	13	20	138	149
MV-010	15	0.04512	439	5	57	86	588	548
MV-011	8	0.02304	224	3	29	44	300	303
MV-013	2	0.006201	60	1	8	12	81	206
MV-014	34	0.10272	999	11	131	196	1,338	495
MV-015	20	0.06048	588	7	77	116	788	617
MV-016	10	0.03072	299	3	39	59	400	373
MV-017	31	0.09216	896	10	117	176	1,200	667

## World Logistics Center Cumulative Energy Electricity

### Off-Road Construction Electricity from Dust Control

Project ID	Acers	Water Use (Mgal)	Electricity from Dust Control (kWh)				Total (kWh)	Annual (kWh)
			Supply	Treat	Distribute	Wastewater		
MV-021	6	0.016536	161	2	21	32	215	242
MV-023	32	0.096327	937	11	123	184	1,254	768
MV-024	51	0.15264	1,485	17	194	292	1,988	499
MV-025	26	0.07776	756	9	99	149	1,013	620
MV-026	32	0.096	934	11	122	183	1,250	695
MV-027	4	0.012474	121	1	16	24	162	176
MV-028	7	0.02079	202	2	26	40	271	273
MV-029	88	0.264	2,568	29	336	505	3,438	612
MV-030	27	0.07968	775	9	101	152	1,038	635
MV-031	17	0.05088	495	6	65	97	663	618
MV-032	37	0.1104	1,074	12	140	211	1,438	532
MV-033	17	0.05184	504	6	66	99	675	629
MV-034	17	0.04992	486	6	63	95	650	606
MV-035	8	0.024	233	3	31	46	313	316
MV-040	3	0.00906218	88	1	12	17	118	141
MV-041	45	0.133545	1,299	15	170	255	1,739	910
MV-042	14	0.041108835	400	5	52	79	535	499
MV-044	34	0.102173714	994	11	130	195	1,330	762
MV-045	6	0.01920996	187	2	24	37	250	281
MV-047	5	0.01536	149	2	20	29	200	202
MV-054	53	0.1600698	1,557	18	204	306	2,084	735
MV-056	5	0.01536	149	2	20	29	200	202
MV-057	12	0.03552	346	4	45	68	463	431
MV-059	20	0.06048	588	7	77	116	788	617
MV-060	29	0.08832	859	10	112	169	1,150	704
MV-061	13	0.03969	386	4	50	76	517	520
MV-062	174	0.52128	5,070	58	663	996	6,788	605
MV-063	71	0.21216	2,064	24	270	405	2,763	693
MV-064	28	0.08352	812	9	106	160	1,088	666
MV-065	4	0.012012	117	1	15	23	156	170
MV-066	19	0.057981	564	6	74	111	755	704
MV-067	52	0.15456	1,503	17	197	295	2,013	505
MV-068	9	0.026651968	259	3	34	51	347	355
MV-070	19	0.055671	542	6	71	106	725	676
MV-071	4	0.011319	110	1	14	22	147	160
MV-072	2	0.005544	54	1	7	11	72	88
MV-073	7	0.022176	216	2	28	42	289	292
MV-074	40	0.121338	1,180	13	154	232	1,580	585
MV-075	313	0.937962	9,124	104	1,193	1,792	12,213	1,088
MV-076	23	0.068715077	668	8	87	131	895	877
MV-077	23	0.0685971	667	8	87	131	893	823
MV-079	11	0.0338007	329	4	43	65	440	437
MV-080	3	0.00976815	95	1	12	19	127	152
MV-085	10	0.03087	300	3	39	59	402	405
MV-087	5	0.01386	135	2	18	26	180	196
MV-088	1	0.002772	27	0	4	5	36	97
MV-089	1	0.002772	27	0	4	5	36	97
MV-090	1	0.001611855	16	0	2	3	21	56
MV-091	28	0.08352	812	9	106	160	1,088	666
MV-094	20	0.061446	598	7	78	117	800	737
MV-095	13	0.0385875	375	4	49	74	502	506
MV-096	25	0.07488	728	8	95	143	975	763
MV-097	68	0.20544	1,998	23	261	393	2,675	672
MV-098	5	0.01536	149	2	20	29	200	202
MV-099	7	0.022176	216	2	28	42	289	292
MV-100	15	0.044814	436	5	57	86	584	544
MV-101	1	0.0019845	19	0	3	4	26	69

**World Logistics Center  
Cumulative Energy Electricity**

*Off-Road Construction Electricity from Dust Control*

Project ID	Acers	Water Use (Mgal)	Electricity from Dust Control (kWh)				Total (kWh)	Annual (kWh)
			Supply	Treat	Distribute	Wastewater		
MV-102	6	0.0173628	169	2	22	33	226	254
MV-103	8	0.0236808	230	3	30	45	308	316
MV-104	11	0.034356063	334	4	44	66	447	444
MV-105	1	0.002772	27	0	4	5	36	97
MV-106	1	0.002772	27	0	4	5	36	97
MV-107	3	0.00864	84	1	11	17	113	137
MV-108	0	0.000655547	6	0	1	1	9	23
MV-109	354	1.0608	10,318	118	1,349	2,027	13,813	1,231
MV-110	5	0.01386	135	2	18	26	180	196
MV-111	1	0.003696	36	0	5	7	48	59
MV-112	1	0.003465	34	0	4	7	45	115
MV-113	46	0.13824	1,345	15	176	264	1,800	666
MV-114	0	0.00125685	12	0	2	2	16	44
MV-115	0	4.7541E-06	0	0	0	0	0	0
MV-116	8	0.024	233	3	31	46	313	316
MV-117	4	0.0107484	105	1	14	21	140	168
MV-118	3	0.00864	84	1	11	17	113	137
MV-119	11	0.0336	327	4	43	64	438	408
MV-120	14	0.04178916	406	5	53	80	544	548
MV-121	0	0.000959396	9	0	1	2	12	33
MV-123	1	0.003087	30	0	4	6	40	102
MV-124	10	0.03087	300	3	39	59	402	405
MV-125	2	0.005544	54	1	7	11	72	88
MV-126	75	0.2256	2,194	25	287	431	2,938	523
MV-127	10	0.031314921	305	3	40	60	408	405
MV-129	68	0.203346	1,978	23	259	389	2,648	934
MV-130	7	0.020433214	199	2	26	39	266	269
MV-131	46	0.13815	1,344	15	176	264	1,799	666
MV-132	34	0.10131	985	11	129	194	1,319	807
P-004	7	0.0221364	215	2	28	42	288	295
P-005	14	0.042366	412	5	54	81	552	514
P-006	26	0.07722	751	9	98	148	1,005	875
P-007	51	0.153134982	1,490	17	195	293	1,994	1,062
P-008	10	0.0310167	302	3	39	59	404	401
P-009	28	0.0826254	804	9	105	158	1,076	937
P-012	19	0.058441126	568	6	74	112	761	709
P-014	37	0.11052	1,075	12	141	211	1,439	824
P-022	12	0.034998	340	4	45	67	456	453
P-023	6	0.016578	161	2	21	32	216	221
P-024	45	0.1348344	1,312	15	172	258	1,756	919
P-025	32	0.0955998	930	11	122	183	1,245	929
P-026	35	0.104455494	1,016	12	133	200	1,360	1,079
P-028	29	0.086229	839	10	110	165	1,123	978
P-030	157	0.47232	4,594	52	601	903	6,150	548
P-031	6	0.017325	169	2	22	33	226	231
P-032	47	0.1417815	1,379	16	180	271	1,846	1,464
P-033	595	1.7856	17,369	198	2,271	3,412	23,250	2,071
P-034	97	0.29166753	2,837	32	371	557	3,798	910
P-035	3	0.00924	90	1	12	18	120	144
P-036	110	0.328653401	3,197	36	418	628	4,279	686
P-039	24	0.07217877	702	8	92	138	940	866
P-040	39	0.11712	1,139	13	149	224	1,525	564
P-041	6	0.019271281	187	2	25	37	251	257
P-042	20	0.05856	570	7	74	112	763	711
P-043	18	0.05472	532	6	70	105	713	664
P-044	7	0.021714	211	2	28	41	283	286
P-045	6	0.017325	169	2	22	33	226	231

**World Logistics Center  
Cumulative Energy Electricity**

*Off-Road Construction Electricity from Dust Control*

Project ID	Acers	Water Use (Mgal)	Electricity from Dust Control (kWh)				Total (kWh)	Annual (kWh)
			Supply	Treat	Distribute	Wastewater		
P-046	92	0.275418	2,679	31	350	526	3,586	639
P-047	167	0.50016	4,865	56	636	956	6,513	580
P-048	24	0.072	700	8	92	138	938	734
P-049	36	0.10944	1,065	12	139	209	1,425	527
P-050	6	0.01764	172	2	22	34	230	258
P-051	11	0.0336	327	4	43	64	438	408
P-052	26	0.07872	766	9	100	150	1,025	627
P-053	52	0.15456	1,503	17	197	295	2,013	505
P-054	76	0.22848	2,222	25	291	437	2,975	530
P-055	33	0.099225	965	11	126	190	1,292	1,125
P-056	0	0.00126821	12	0	2	2	17	44
P-057	1	0.003835965	37	0	5	7	50	127
P-058	16	0.0486486	473	5	62	93	633	629
P-059	78	0.23328	2,269	26	297	446	3,038	541
P-060	0	0.00099225	10	0	1	2	13	35
R-004	17	0.049896	485	6	63	95	650	606
R-005	34	0.10335	1,005	11	131	198	1,346	1,067
R-006	6	0.017787	173	2	23	34	232	237
R-007	4	0.012370271	120	1	16	24	161	193
R-008	8	0.023754	231	3	30	45	309	312
R-009	645	1.935464942	18,826	215	2,462	3,699	25,202	2,245
R-010	2	0.005196083	51	1	7	10	68	172
R-011	23	0.070413724	685	8	90	135	917	899
R-012	5	0.013533801	132	2	17	26	176	211
R-013	1	0.00288	28	0	4	6	38	101
R-014	0	0.000850689	8	0	1	2	11	30
R-015	55	0.16482816	1,603	18	210	315	2,146	539
R-016	0	0.001464672	14	0	2	3	19	51
R-017	21	0.063525	618	7	81	121	827	762
R-018	388	1.163168567	11,314	129	1,480	2,223	15,146	1,349
R-019	4	0.012705	124	1	16	24	165	180
R-020	45	0.134599453	1,309	15	171	257	1,753	917
R-021	5	0.0144	140	2	18	28	188	204
R-022	3	0.00864	84	1	11	17	113	137
R-023	1	0.0017726	17	0	2	3	23	62
R-024	1,600	4.8	46,690	533	6,106	9,173	62,501	5,568
R-025	16	0.048048	467	5	61	92	626	583
R-026	86	0.258978488	2,519	29	329	495	3,372	1,115
R-027	0	0.000797769	8	0	1	2	10	28
R-028	29	0.086028	837	10	109	164	1,120	686
R-029	0	0.000836798	8	0	1	2	11	29
R-030	15	0.045988644	447	5	58	88	599	603
R-031	3	0.008316	81	1	11	16	108	132
R-032	2	0.004910976	48	1	6	9	64	163
R-033	2	0.00693	67	1	9	13	90	110
R-034	1	0.002514712	24	0	3	5	33	88
R-035	8	0.023562	229	3	30	45	307	310
R-036	5	0.014322	139	2	18	27	186	203
R-037	0	0.001323	13	0	2	3	17	46
R-038	0	0.00077175	8	0	1	1	10	27
R-039	129	0.38592	3,754	43	491	737	5,025	448
R-040	0	0.0005292	5	0	1	1	7	18
R-041	2	0.004779731	46	1	6	9	62	158
R-042	191	0.57408	5,584	64	730	1,097	7,475	666
R-043	16	0.048	467	5	61	92	625	583
R-044	0	0.000882	9	0	1	2	11	31
R-045	3	0.007841991	76	1	10	15	102	260

**World Logistics Center  
Cumulative Energy Electricity**

*Off-Road Construction Electricity from Dust Control*

Project ID	Acers	Water Use (Mgal)	Electricity from Dust Control (kWh)				Total (kWh)	Annual (kWh)
			Supply	Treat	Distribute	Wastewater		
R-046	11	0.03440928	335	4	44	66	448	418
R-047	3	0.009922117	97	1	13	19	129	155
R-048	6	0.01660365	162	2	21	32	216	243
R-049	66	0.19902	1,936	22	253	380	2,591	651
R-050	1	0.0036792	36	0	5	7	48	58
R-051	0	0.000520601	5	0	1	1	7	18
R-052	10	0.03072	299	3	39	59	400	373
R-053	9	0.02784	271	3	35	53	363	366
R-054	8	0.024	233	3	31	46	313	316
R-055	6	0.0192	187	2	24	37	250	253
R-056	9	0.0270777	263	3	34	52	353	361
R-057	7	0.022086979	215	2	28	42	288	294
R-058	0	0.000605493	6	0	1	1	8	21
R-059	0	0.000893025	9	0	1	2	12	31
R-060	7	0.020996586	204	2	27	40	273	307
R-061	31	0.093811064	913	10	119	179	1,222	1,128
R-062	0	0.000403736	4	0	1	1	5	14
R-063	2	0.004851	47	1	6	9	63	77
R-064	2	0.0048	47	1	6	9	63	76
R-065	20	0.05952	579	7	76	114	775	723
R-066	0	0.001356075	13	0	2	3	18	47
RC-001	400	1.20096	11,682	133	1,528	2,295	15,638	1,393
RC-002	640	1.92	18,676	213	2,442	3,669	25,000	2,227
RC-003	1,092	3.27552	31,861	364	4,166	6,260	42,651	3,800
RC-005	240	0.72	7,003	80	916	1,376	9,375	835
RC-006	41	0.12402	1,206	14	158	237	1,615	1,281
RC-007	49	0.146130005	1,421	16	186	279	1,903	704
RC-009	53	0.157955577	1,536	18	201	302	2,057	1,095
RC-010	266	0.79794	7,762	89	1,015	1,525	10,390	926
RC-011	25	0.0749694	729	8	95	143	976	899
RC-012	18	0.054525686	530	6	69	104	710	705
RC-013	159	0.47712	4,641	53	607	912	6,213	553
RC-014	25	0.07392	719	8	94	141	963	754
RC-015	45	0.13632	1,326	15	173	261	1,775	657
RC-017	1	0.00204624	20	0	3	4	27	71
RC-018	5	0.0144	140	2	18	28	188	204
RC-019	4	0.011641959	113	1	15	22	152	182
RC-020	0	0.0006174	6	0	1	1	8	22
RC-021	0	0.0007368	7	0	1	1	10	26
RC-022	42	0.12576	1,223	14	160	240	1,638	606
RC-023	2	0.006750315	66	1	9	13	88	107
RC-024	8	0.024556217	239	3	31	47	320	327
RC-025	4	0.0109395	106	1	14	21	142	171
RC-026	1	0.00192	19	0	2	4	25	67
RC-027	8	0.024285937	236	3	31	46	316	324
RC-028	0	0.0012348	12	0	2	2	16	43
RC-029	1	0.001795311	17	0	2	3	23	63
RC-030	39	0.115958505	1,128	13	147	222	1,510	865
RC-031	8	0.02324322	226	3	30	44	303	310
RC-032	232	0.69696	6,779	77	887	1,332	9,075	809
RC-033	123	0.36864	3,586	41	469	704	4,800	428
RC-034	138	0.41472	4,034	46	528	793	5,400	481
RC-035	901	2.704098	26,303	300	3,440	5,168	35,210	3,137
RC-036	150	0.44928	4,370	50	571	859	5,850	521
RC-037	180	0.53952	5,248	60	686	1,031	7,025	626
RC-038	56	0.167968296	1,634	19	214	321	2,187	771
RC-039	12	0.03744	364	4	48	72	488	455

**World Logistics Center  
Cumulative Energy Electricity**

*Off-Road Construction Electricity from Dust Control*

Project ID	Acers	Water Use (Mgal)	Electricity from Dust Control (kWh)				Total (kWh)	Annual (kWh)
			Supply	Treat	Distribute	Wastewater		
RD-003	33	0.09888	962	11	126	189	1,288	716
RD-004	21	0.06432	626	7	82	123	838	656
RD-006	4	0.010633392	103	1	14	20	138	166
RD-007	9	0.028167993	274	3	36	54	367	412
RD-008	6	0.01848	180	2	24	35	241	243
RD-009	3	0.009658341	94	1	12	18	126	151
RD-010	6	0.018694319	182	2	24	36	243	249
RD-011	4	0.012230033	119	1	16	23	159	191
SB-007	11	0.03264	317	4	42	62	425	396
SB-008	13	0.0384	374	4	49	73	500	466
SJ-001	123	0.370052987	3,600	41	471	707	4,818	1,321
SJ-002	103	0.30816	2,997	34	392	589	4,013	357
SJ-003	186	0.5568	5,416	62	708	1,064	7,250	646
SJ-004	196	0.58848	5,724	65	749	1,125	7,663	683
WLC-001	19	0.0576	560	6	73	110	750	699

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

10

Climate Zone

	Electricity (kWh/unit)				Natural Gas (kBtu/unit)	
	T24	NT24	Light	T24	NT24	NT24
BP	3.07	2.60	4.24	2.92	0.000	
HI	2.20	5.02	2.93	15.36	17.130	
LI	2.20	5.02	2.93	15.36	17.130	
MF	772.17	3054.10	741.44	8764.08	6030.000	
MO	3.07	2.79	3.66	3.47	0.000	
OG	3.07	2.79	3.66	3.47	0.000	
RC	4.58	2.44	5.61	1.92	0.300	
SF	951.67	6155.97	1608.84	24556.15	6030.000	
SR	877.14	3172.76	1001.10	9544.50	6030.000	
WH	0.37	0.82	1.17	2.00	0.030	

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kWh	kBTU	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
B-001	SF	3,300.00	3,140,511	20,314,701	5,309,172	81,035,295	19,899,000	28,764,384	100,934			
B-002	MF	571.00	440,909	1,743,891	423,362	5,004,290	3,443,130	2,608,162	8,447			
B-003	SF	922.00	877,440	5,675,804	1,483,350	22,640,770	5,559,660	8,036,595	28,200			
B-004	LI	1,734.00	3,814,800	8,704,680	5,080,620	26,634,240	29,703,420	17,600,100	56,338			
B-005	HI	2,565.68	5,644,505	12,879,734	7,517,454	39,408,906	43,950,167	26,041,693	83,359			
B-006	BP	1,853.25	5,689,482	4,818,454	7,857,786	5,411,494	0	18,365,722	5,411			
B-007	SF	403.00	383,523	2,480,856	648,363	9,896,128	2,430,090	3,512,741	12,326			
B-008	SF	648.00	616,682	3,989,069	1,042,528	15,912,385	3,907,440	5,648,279	19,820			
B-009	SF	4,450.00	4,234,932	27,394,067	7,159,338	109,274,868	26,833,500	38,788,336	136,108			
B-010	SF	95.00	90,409	584,817	152,840	2,332,834	572,850	828,066	2,906			
B-011	RC	225.00	1,030,500	549,000	1,262,250	432,000	67,500	2,841,750	500			
B-012	MF	279.00	215,435	852,094	206,862	2,445,178	1,682,370	1,274,391	4,128			
B-013	SF	1,890.00	1,798,656	11,634,783	3,040,708	46,411,124	11,396,700	16,474,147	57,808			
B-014	SF	700.00	666,169	4,309,179	1,126,188	17,189,305	4,221,000	6,101,536	21,410			
C-001	RC	200.00	916,000	488,000	1,122,000	384,000	60,000	2,526,000	444			
C-002	RC	1,000.00	4,580,000	2,440,000	5,610,000	1,920,000	300,000	12,630,000	2,220			
C-002	BP	1,579.00	4,847,530	4,105,400	6,694,960	4,610,680	0	15,647,890	4,611			
C-003	RC	72.70	332,966	177,388	407,847	139,584	21,810	918,201	161			
H-001	SF	588.00	559,582	3,619,710	945,998	14,439,016	3,545,640	5,125,290	17,985			
H-002	SF	440.00	418,735	2,708,627	707,890	10,804,706	2,653,200	3,835,251	13,458			
H-003	SF	931.00	886,005	5,731,208	1,497,830	22,861,776	5,613,930	8,115,043	28,476			
H-004	LI	734.98	1,616,965	3,689,620	2,153,503	11,289,354	12,590,276	7,460,088	23,880			
H-004	BP	995.15	3,055,120	2,587,398	4,219,449	2,905,847	0	9,861,966	2,906			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kBtu	kBtu	kWh	kBtu	Electricity (kWh)	NG (MMBtu)	
H-005	RC	20.91	95,762	51,017	117,298	40,145	6,273	264,078	46			
H-006	RC	680.79	3,118,009	1,661,123	3,819,221	1,307,113	204,236	8,598,352	1,511			
H-007	SR	358.00	314,016	1,135,848	358,394	3,416,931	2,158,740	1,808,258	5,576			
H-008	SR	440.00	385,942	1,396,014	440,484	4,199,580	2,653,200	2,222,440	6,853			
H-009	SF	145.00	137,992	892,616	233,282	3,560,642	874,350	1,263,890	4,435			
M-001	RC	599.00	525,407	1,900,483	599,659	5,717,156	3,611,970	3,025,549	9,329			
M-001	RC	10.00	45,800	24,400	56,100	19,200	3,000	126,300	22			
M-001	OG	258.10	792,373	720,105	944,653	895,614	0	2,457,131	896			
M-001	LI	42.22	92,888	211,954	123,710	648,530	723,263	428,553	1,372			
M-001	HI	409.31	900,486	2,054,746	1,199,284	6,287,032	7,011,515	4,154,517	13,299			
M-002	WH	4,525.00	1,674,250	3,710,500	5,294,250	9,050,000	135,750	10,679,000	9,186			
M-002	OG	469.00	1,439,830	1,308,510	1,716,540	1,627,430	0	4,464,880	1,627			
M-002	LI	487.80	1,073,160	2,448,756	1,429,254	7,492,608	8,356,014	4,951,170	15,849			
M-003	WH	2,900.00	1,073,000	2,378,000	3,393,000	5,800,000	87,000	6,844,000	5,887			
M-004	RC	108.90	498,762	265,716	610,929	209,088	32,670	1,375,407	242			
M-005	WH	3,061.82	1,132,872	2,510,688	3,582,324	6,123,630	91,854	7,225,883	6,215			
M-005	OG	232.76	714,558	649,386	851,883	807,660	0	2,215,828	808			
M-005	LI	1,061.43	2,335,144	5,328,374	3,109,987	16,303,549	18,182,279	10,773,504	34,486			
M-006	BP	219.35	673,398	570,304	930,035	640,496	0	2,173,737	640			
M-007	WH	675.50	249,935	553,910	790,335	1,351,000	20,265	1,594,180	1,371			
M-008	RC	625.00	2,862,500	1,525,000	3,506,250	1,200,000	187,500	7,893,750	1,388			
M-008	MO	2,930.00	8,995,100	8,174,700	10,723,800	10,167,100	0	27,893,600	10,167			
M-009	SF	135.00	128,475	831,056	217,193	3,315,080	814,050	1,176,725	4,129			
M-010	WH	559.00	206,830	458,380	654,030	1,118,000	16,770	1,319,240	1,135			
M-011	RC	67.00	306,860	163,480	375,870	128,640	20,100	846,210	149			
MV-001	RC	304.50	1,394,610	742,980	1,708,245	584,640	91,350	3,845,835	676			
MV-002	SF	262.00	249,338	1,612,864	421,516	6,433,711	1,579,860	2,283,718	8,014			
MV-002	MF	216.00	166,789	659,686	160,151	1,893,041	1,302,480	986,625	3,196			
MV-003	WH	1,901.00	703,370	1,558,820	2,224,170	3,802,000	57,030	4,486,360	3,859			
MV-003	LI	367.00	807,400	1,842,340	1,075,310	5,637,120	6,286,710	3,725,050	11,924			
MV-004	LI	937.26	2,061,972	4,705,045	2,746,172	14,396,314	16,055,264	9,513,189	30,452			
MV-005	RC	116.36	532,929	283,918	652,780	223,411	34,908	1,469,627	258			
MV-006	WH	750.00	277,500	615,000	877,500	1,500,000	22,500	1,770,000	1,523			
MV-007	SF	31.00	29,502	190,835	49,874	761,241	186,930	270,211	948			
MV-008	SF	58.00	55,197	357,046	93,313	1,424,257	349,740	505,556	1,774			
MV-009	SF	11.00	10,468	67,716	17,697	270,118	66,330	95,881	336			
MV-010	SF	47.00	44,728	289,331	75,615	1,154,139	283,410	409,675	1,438			
MV-011	SF	24.00	22,840	147,743	38,612	589,348	144,720	209,196	734			
MV-012	MO	80.00	245,600	223,200	292,800	277,600	0	761,600	278			
MV-013	OG	30.00	92,100	83,700	109,800	104,100	0	285,600	104			
MV-014	SF	107.00	101,829	658,689	172,146	2,627,508	645,210	932,663	3,273			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)		
MV-015	SF	63.00	59,955	387,826	101,357	1,547,037	379,890	549,138	1,927			
MV-016	SF	32.00	30,453	196,991	51,483	785,797	192,960	278,927	979			
MV-017	SF	96.00	91,360	590,973	154,449	2,357,390	578,880	836,782	2,936			
MV-018	RC	5.50	25,190	13,420	30,855	10,560	1,650	69,465	12			
MV-019	SR	139.00	121,922	441,014	139,153	1,326,686	838,170	702,089	2,165			
MV-020	RC	93.79	429,549	228,843	526,151	180,073	28,136	1,184,542	208			
MV-021	MO	80.00	245,600	223,200	292,800	277,600	0	761,600	278			
MV-022	SF	40.00	38,067	246,239	64,354	982,246	241,200	348,659	1,223			
MV-023	MF	417.00	321,995	1,273,560	309,180	3,654,621	2,514,510	1,904,735	6,169			
MV-024	SF	159.00	151,316	978,799	255,806	3,904,428	958,770	1,385,920	4,863			
MV-025	SF	81.00	77,085	498,634	130,316	1,989,048	488,430	706,035	2,477			
MV-026	SF	100.00	95,167	615,597	160,884	2,455,615	603,000	871,648	3,059			
MV-027	MF	54.00	41,697	164,921	40,038	473,260	325,620	246,656	799			
MV-028	MF	90.00	69,495	274,869	66,730	788,767	542,700	411,094	1,331			
MV-029	SF	275.00	261,709	1,692,892	442,431	6,752,941	1,658,250	2,397,032	8,411			
MV-030	SF	83.00	78,989	510,946	133,534	2,038,160	500,490	723,468	2,539			
MV-031	SF	53.00	50,439	326,266	85,269	1,301,476	319,590	461,973	1,621			
MV-032	SF	115.00	109,442	707,937	185,017	2,823,957	693,450	1,002,395	3,517			
MV-033	SF	54.00	51,390	332,422	86,877	1,326,032	325,620	470,690	1,652			
MV-034	SF	52.00	49,487	320,110	83,660	1,276,920	313,560	453,257	1,590			
MV-035	SF	25.00	23,792	153,899	40,221	613,904	150,750	217,912	765			
MV-036	MF	56.00	43,242	171,030	41,521	490,788	337,680	255,792	828			
MV-037	HI	1,616.13	3,555,493	8,112,988	4,735,270	24,823,803	27,684,358	16,403,750	52,508			
MV-038	LI	434.00	954,800	2,178,680	1,271,620	6,666,240	7,434,420	4,405,100	14,101			
MV-039	LI	1,600.00	3,520,000	8,032,000	4,688,000	24,576,000	27,408,000	16,240,000	51,984			
MV-040	WH	98.40	36,406	80,684	115,122	196,790	2,952	232,212	200			
MV-041	WH	1,450.00	536,500	1,189,000	1,696,500	2,900,000	43,500	3,422,000	2,944			
MV-042	WH	446.35	165,150	366,007	522,230	892,700	13,391	1,053,386	906			
MV-043	HI	555.67	1,222,474	2,789,463	1,628,113	8,535,091	9,518,627	5,640,051	18,054			
MV-044	WH	1,109.38	410,470	909,690	1,297,972	2,218,756	33,281	2,618,132	2,252			
MV-045	RC	87.12	399,010	212,573	488,743	167,270	26,136	1,100,326	193			
MV-046	WH	382.28	141,444	313,470	447,268	764,560	11,468	902,181	776			
MV-047	SF	16.00	15,227	98,496	25,741	392,898	96,480	139,464	489			
MV-048	BP	1,484.50	4,557,406	3,859,692	6,294,267	4,334,731	0	14,711,365	4,335			
MV-049	BP	1,560.05	4,789,341	4,056,120	6,614,595	4,555,334	0	15,460,056	4,555			
MV-050	LI	354.81	780,582	1,781,146	1,039,593	5,449,882	6,077,895	3,601,322	11,528			
MV-051	LI	769.32	1,692,504	3,861,986	2,254,108	11,816,755	13,178,452	7,808,598	24,995			
MV-052	LI	878.96	1,933,712	4,412,379	2,575,353	13,500,826	15,056,585	8,921,444	28,557			
MV-053	WH	1,250.00	462,500	1,025,000	1,462,500	2,500,000	37,500	2,950,000	2,538			
MV-054	WH	1,738.00	643,060	1,425,160	2,033,460	3,476,000	52,140	4,101,680	3,528			
MV-056	SF	16.00	15,227	98,496	25,741	392,898	96,480	139,464	489			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kWh	Electricity (kWh)	NG (MMBtu)
MV-057	SF	37.00	35,212	227,771	59,527	908,578	223,110	322,510	1,132	
MV-058	SF	8.00	7,613	49,248	12,871	196,449	48,240	69,732	245	
MV-059	SF	63.00	59,955	387,826	101,357	1,547,037	379,890	549,138	1,927	
MV-060	SF	92.00	87,554	566,349	148,013	2,259,166	554,760	801,916	2,814	
MV-061	RC	180.00	824,400	439,200	1,009,800	345,600	54,000	2,273,400	400	
MV-062	SF	543.00	516,757	3,342,692	873,600	13,333,989	3,274,290	4,733,049	16,608	
MV-063	SF	221.00	210,319	1,360,469	355,554	5,426,909	1,332,630	1,926,342	6,760	
MV-064	SF	87.00	82,795	535,569	139,969	2,136,385	524,610	758,334	2,661	
MV-065	MF	52.00	40,153	158,813	38,555	455,732	313,560	237,521	769	
MV-066	MF	251.00	193,815	766,579	186,101	2,199,784	1,513,530	1,146,495	3,713	
MV-067	SF	161.00	153,219	991,111	259,023	3,953,540	970,830	1,403,353	4,924	
MV-068	HI	207.09	455,589	1,039,572	606,762	3,180,841	3,547,383	2,101,923	6,728	
MV-069	HI	409.60	901,116	2,056,182	1,200,122	6,291,425	7,016,414	4,157,420	13,308	
MV-070	MF	241.00	186,093	736,038	178,687	2,112,143	1,453,230	1,100,818	3,565	
MV-071	MF	49.00	37,836	149,651	36,331	429,440	295,470	223,818	725	
MV-072	MF	24.00	18,532	73,298	17,795	210,338	144,720	109,625	355	
MV-073	MF	96.00	74,128	293,194	71,178	841,352	578,880	438,500	1,420	
MV-074	SR	189.00	165,779	599,652	189,208	1,803,911	1,139,670	954,639	2,944	
MV-075	SR	1,461.00	1,281,502	4,635,402	1,462,607	13,944,515	8,809,830	7,379,511	22,754	
MV-076	RC	311.63	1,427,279	760,385	1,748,261	598,335	93,490	3,935,925	692	
MV-077	LI	533.00	1,172,600	2,675,660	1,561,690	8,186,880	9,130,290	5,409,950	17,317	
MV-078	LI	520.00	1,144,000	2,610,400	1,523,600	7,987,200	8,907,600	5,278,000	16,895	
MV-079	WH	367.00	135,790	300,940	429,390	734,000	11,010	866,120	745	
MV-080	RC	44.30	202,894	108,092	248,523	85,056	13,290	559,509	98	
MV-081	WH	700.00	259,000	574,000	819,000	1,400,000	21,000	1,652,000	1,421	
MV-082	WH	500.00	185,000	410,000	585,000	1,000,000	15,000	1,180,000	1,015	
MV-083	LI	356.00	783,200	1,787,120	1,043,080	5,468,160	6,098,280	3,613,400	11,566	
MV-084	LI	99.98	219,952	501,890	292,936	1,535,662	1,712,623	1,014,777	3,248	
MV-085	RC	140.00	641,200	341,600	785,400	268,800	42,000	1,768,200	311	
MV-086	SF	71.00	67,569	437,074	114,228	1,743,487	428,130	618,870	2,172	
MV-087	MF	60.00	46,330	183,246	44,486	525,845	361,800	274,063	888	
MV-088	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178	
MV-089	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178	
MV-090	RC	7.31	33,480	17,836	41,009	14,035	2,193	92,325	16	
MV-091	SF	87.00	82,795	535,569	139,969	2,136,385	524,610	758,334	2,661	
MV-093	MF	112.00	86,483	342,059	83,041	981,577	675,360	511,584	1,657	
MV-094	MF	266.00	205,397	812,391	197,223	2,331,245	1,603,980	1,215,011	3,935	
MV-095	RC	175.00	801,500	427,000	981,750	336,000	52,500	2,210,250	389	
MV-096	SF	78.00	74,230	480,166	125,490	1,915,380	470,340	679,885	2,386	
MV-097	SF	214.00	203,657	1,317,378	344,292	5,255,016	1,290,420	1,865,327	6,545	
MV-098	SF	16.00	15,227	98,496	25,741	392,898	96,480	139,464	489	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
MV-099	MF	96.00	74,128	293,194	71,178	841,352	578,880	438,500	1,420	
MV-100	MF	194.00	149,801	592,495	143,839	1,700,232	1,169,820	886,136	2,870	
MV-101	RC	9.00	41,220	21,960	50,490	17,280	2,700	113,670	20	
MV-102	OG	84.00	257,880	234,360	307,440	291,480	0	799,680	291	
MV-103	LI	184.00	404,800	923,680	539,120	2,826,240	3,151,920	1,867,600	5,978	
MV-104	WH	373.03	138,021	305,885	436,445	746,060	11,191	880,351	757	
MV-105	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178	
MV-106	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178	
MV-107	SF	9.00	8,565	55,404	14,480	221,005	54,270	78,448	275	
MV-108	RC	2.97	13,616	7,254	16,679	5,708	892	37,549	7	
MV-109	SF	1,105.00	1,051,595	6,802,347	1,777,768	27,134,546	6,663,150	9,631,710	33,798	
MV-110	MF	60.00	46,330	183,246	44,486	525,845	361,800	274,063	888	
MV-111	MF	16.00	12,355	48,866	11,863	140,225	96,480	73,083	237	
MV-112	MF	15.00	11,583	45,812	11,122	131,461	90,450	68,516	222	
MV-113	SF	144.00	137,040	886,460	231,673	3,536,086	868,320	1,255,173	4,404	
MV-114	RC	5.70	26,106	13,908	31,977	10,944	1,710	71,991	13	
MV-115	OG	0.02	71	64	84	80	0	219	0	
MV-116	SF	25.00	23,792	153,899	40,221	613,904	150,750	217,912	765	
MV-117	OG	52.00	159,640	145,080	190,320	180,440	0	495,040	180	
MV-118	SF	9.00	8,565	55,404	14,480	221,005	54,270	78,448	275	
MV-119	SF	35.00	33,308	215,459	56,309	859,465	211,050	305,077	1,071	
MV-120	RC	189.52	868,002	462,429	1,063,207	363,878	56,856	2,393,638	421	
MV-121	RC	4.35	19,928	10,616	24,409	8,354	1,305	54,953	10	
MV-123	RC	14.00	64,120	34,160	78,540	26,880	4,200	176,820	31	
MV-124	RC	140.00	641,200	341,600	785,400	268,800	42,000	1,768,200	311	
MV-125	MF	24.00	18,532	73,298	17,795	210,338	144,720	109,625	355	
MV-126	SF	235.00	223,642	1,446,653	378,077	5,770,695	1,417,050	2,048,373	7,188	
MV-127	WH	340.01	125,804	278,808	397,812	680,020	10,200	802,424	690	
MV-129	LI	1,580.00	3,476,000	7,931,600	4,629,400	24,268,800	27,065,400	16,037,000	51,334	
MV-130	WH	221.86	82,088	181,924	259,575	443,718	6,656	523,587	450	
MV-131	WH	1,500.00	555,000	1,230,000	1,755,000	3,000,000	45,000	3,540,000	3,045	
MV-132	WH	1,100.00	407,000	902,000	1,287,000	2,200,000	33,000	2,596,000	2,233	
P-001	SF	137.00	130,379	843,368	220,411	3,364,193	826,110	1,194,158	4,190	
P-002	WH	600.00	222,000	492,000	702,000	1,200,000	18,000	1,416,000	1,218	
P-003	WH	462.30	171,051	379,086	540,891	924,600	13,869	1,091,028	938	
P-004	LI	172.00	378,400	863,440	503,960	2,641,920	2,946,360	1,745,800	5,588	
P-005	WH	460.00	170,200	377,200	538,200	920,000	13,800	1,085,600	934	
P-006	LI	600.00	1,320,000	3,012,000	1,758,000	9,216,000	10,278,000	6,090,000	19,494	
P-007	LI	1,189.86	2,617,692	5,973,097	3,486,290	18,276,250	20,382,302	12,077,079	38,659	
P-008	LI	241.00	530,200	1,209,820	706,130	3,701,760	4,128,330	2,446,150	7,830	
P-009	HI	642.00	1,412,400	3,222,840	1,881,060	9,861,120	10,997,460	6,516,300	20,859	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
P-010	WH	1,700.00	629,000	1,394,000	1,989,000	3,400,000	51,000	4,012,000	3,451	
P-011	HI	1,224.99	2,694,985	6,149,465	3,589,229	18,815,892	20,984,130	12,433,679	39,800	
P-012	LI	454.09	998,994	2,279,522	1,330,478	6,974,792	7,778,527	4,608,993	14,753	
P-014	WH	1,200.00	444,000	984,000	1,404,000	2,400,000	36,000	2,832,000	2,436	
P-015	WH	780.82	288,902	640,268	913,554	1,561,630	23,424	1,842,723	1,585	
P-016	WH	1,310.00	484,700	1,074,200	1,532,700	2,620,000	39,300	3,091,600	2,659	
P-017	WH	580.00	214,600	475,600	678,600	1,160,000	17,400	1,368,800	1,177	
P-018	WH	1,547.00	572,390	1,268,540	1,809,990	3,094,000	46,410	3,650,920	3,140	
P-019	WH	697.60	258,112	572,032	816,192	1,395,200	20,928	1,646,336	1,416	
P-020	WH	871.50	322,455	714,630	1,019,655	1,743,000	26,145	2,056,740	1,769	
P-021	WH	170.00	62,900	139,400	198,900	340,000	5,100	401,200	345	
P-022	WH	380.00	140,600	311,600	444,600	760,000	11,400	896,800	771	
P-023	WH	180.00	66,600	147,600	210,600	360,000	5,400	424,800	365	
P-024	WH	1,464.00	541,680	1,200,480	1,712,880	2,928,000	43,920	3,455,040	2,972	
P-025	WH	1,038.00	384,060	851,160	1,214,460	2,076,000	31,140	2,449,680	2,107	
P-026	LI	811.62	1,785,564	4,074,332	2,378,047	12,466,483	13,903,051	8,237,943	26,370	
P-027	WH	864.00	319,680	708,480	1,010,880	1,728,000	25,920	2,039,040	1,754	
P-028	LI	670.00	1,474,000	3,363,400	1,963,100	10,291,200	11,477,100	6,800,500	21,768	
P-030	SF	492.00	468,222	3,028,737	791,549	12,081,626	2,966,760	4,288,508	15,048	
P-031	MF	75.00	57,913	229,058	55,608	657,306	452,250	342,578	1,110	
P-032	RC	643.00	2,944,940	1,568,920	3,607,230	1,234,560	192,900	8,121,090	1,427	
P-033	SF	1,860.00	1,770,106	11,450,104	2,992,442	45,674,439	11,215,800	16,212,653	56,890	
P-034	WH	3,166.86	1,171,737	2,596,823	3,705,223	6,333,714	95,006	7,473,783	6,429	
P-035	MF	40.00	30,887	122,164	29,658	350,563	241,200	182,708	592	
P-036	WH	3,448.73	1,276,032	2,827,962	4,035,019	6,897,468	103,462	8,139,012	7,001	
P-036	RC	50.00	229,000	122,000	280,500	96,000	15,000	631,500	111	
P-037	SF	183.00	174,156	1,126,543	294,418	4,493,775	1,103,490	1,595,116	5,597	
P-038	SF	223.00	212,222	1,372,781	358,771	5,476,021	1,344,690	1,943,775	6,821	
P-039	WH	783.70	289,969	642,634	916,929	1,567,400	23,511	1,849,532	1,591	
P-040	SF	122.00	116,104	751,028	196,278	2,995,850	735,660	1,063,411	3,732	
P-041	LI	149.74	329,424	751,685	438,732	2,299,976	2,565,012	1,519,841	4,865	
P-042	SF	61.00	58,052	375,514	98,139	1,497,925	367,830	531,705	1,866	
P-043	SF	57.00	54,245	350,890	91,704	1,399,701	343,710	496,839	1,743	
P-044	MF	94.00	72,584	287,085	69,695	823,824	566,820	429,365	1,391	
P-045	MF	75.00	57,913	229,058	55,608	657,306	452,250	342,578	1,110	
P-046	SR	429.00	376,293	1,361,114	429,472	4,094,591	2,586,870	2,166,879	6,681	
P-047	SF	521.00	495,820	3,207,260	838,206	12,793,754	3,141,630	4,541,286	15,935	
P-048	SF	75.00	71,375	461,698	120,663	1,841,711	452,250	653,736	2,294	
P-049	SF	114.00	108,490	701,781	183,408	2,799,401	687,420	993,679	3,487	
P-050	RC	80.00	366,400	195,200	448,800	153,600	24,000	1,010,400	178	
P-051	SF	35.00	33,308	215,459	56,309	859,465	211,050	305,077	1,071	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
P-052	SF	82.00	78,037	504,790	131,925	2,013,604	494,460	714,751	2,508	
P-053	SF	161.00	153,219	991,111	259,023	3,953,540	970,830	1,403,353	4,924	
P-054	SF	238.00	226,497	1,465,121	382,904	5,844,364	1,435,140	2,074,522	7,280	
P-055	RC	450.00	2,061,000	1,098,000	2,524,500	864,000	135,000	5,683,500	999	
P-056	LI	9.85	21,679	49,467	28,872	151,357	168,799	100,018	320	
P-057	WH	41.65	15,411	34,153	48,731	83,300	1,250	98,294	85	
P-058	HI	378.00	831,600	1,897,560	1,107,540	5,806,080	6,475,140	3,836,700	12,281	
P-059	SF	243.00	231,256	1,495,901	390,948	5,967,144	1,465,290	2,118,105	7,432	
P-060	RC	4.50	20,610	10,980	25,245	8,640	1,350	56,835	10	
P-061	WH	350.00	129,500	287,000	409,500	700,000	10,500	826,000	711	
R-001	BP	1,375.17	4,221,769	3,575,439	5,830,717	4,015,493	0	13,627,925	4,015	
R-002	WH	582.77	2,15,626	477,873	681,843	1,165,544	17,483	1,375,342	1,183	
R-003	LI	652.02	1,434,440	3,273,130	1,910,413	10,014,996	11,169,068	6,617,983	21,184	
R-004	MF	216.00	166,789	659,686	160,151	1,893,041	1,302,480	986,625	3,196	
R-005	MO	500.00	1,535,000	1,395,000	1,830,000	1,735,000	0	4,760,000	1,735	
R-006	MF	77.00	59,457	235,166	57,091	674,834	464,310	351,714	1,139	
R-007	RC	56.10	256,943	136,886	314,727	107,714	16,830	708,556	125	
R-008	SR	37.00	32,454	117,392	37,041	353,147	223,110	186,887	576	
R-009	RC	8,777.62	40,201,494	21,417,390	49,242,441	16,853,028	2,633,286	110,861,325	19,486	
R-010	RC	23.57	107,928	57,499	132,200	45,245	7,070	297,626	52	
R-011	BP	340.66	1,045,816	885,707	1,444,384	994,717	0	3,375,907	995	
R-012	RC	61.38	281,110	149,762	344,329	117,845	18,413	775,201	136	
R-013	SF	3.00	2,855	18,468	4,827	73,668	18,090	26,149	92	
R-014	RC	3.86	17,670	9,414	21,643	7,407	1,157	48,727	9	
R-015	SF	171.70	163,398	1,056,955	276,231	4,216,193	1,035,327	1,496,585	5,252	
R-016	SF	1.53	1,452	9,392	2,455	37,465	9,200	13,299	47	
R-017	MF	275.00	212,347	839,878	203,896	2,410,122	1,658,250	1,256,120	4,068	
R-018	LI	9,037.83	19,883,223	45,369,901	26,480,838	138,821,050	154,818,007	91,733,962	293,639	
R-019	MF	55.00	42,469	167,976	40,779	482,024	331,650	251,224	814	
R-020	WH	1,461.45	540,736	1,198,388	1,709,895	2,922,898	43,843	3,449,020	2,967	
R-021	SF	15.00	14,275	92,340	24,133	368,342	90,450	130,747	459	
R-022	SF	9.00	8,565	55,404	14,480	221,005	54,270	78,448	275	
R-023	RC	8.04	36,819	19,615	45,099	15,435	2,412	101,533	18	
R-024	SF	5,000.00	4,758,350	30,779,850	8,044,200	122,780,750	30,150,000	43,582,400	152,931	
R-025	MF	208.00	160,611	635,253	154,220	1,822,929	1,254,240	950,084	3,077	
R-026	RC	297.95	1,364,613	726,999	1,671,502	572,065	89,385	3,763,114	661	
R-026	LI	943.51	2,075,721	4,736,418	2,764,483	14,492,307	16,162,319	9,576,622	30,655	
R-026	BP	347.61	1,067,159	903,783	1,473,861	1,015,018	0	3,444,803	1,015	
R-027	RC	3.62	16,570	8,828	20,297	6,947	1,085	45,695	8	
R-028	SR	134.00	117,537	425,150	134,147	1,278,963	808,020	676,834	2,087	
R-029	RC	3.80	17,381	9,260	21,290	7,286	1,139	47,931	8	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kWh	Electricity (kWh)	NG (MMBtu)
R-030	RC	208.57	955,229	508,899	1,170,051	400,445	62,570	2,634,179	463	
R-031	MF	36.00	27,798	109,948	26,692	315,507	217,080	164,438	533	
R-032	RC	22.27	102,006	54,344	124,946	42,762	6,682	281,295	49	
R-033	MF	30.00	23,165	91,623	22,243	262,922	180,900	137,031	444	
R-034	OG	12.17	37,350	33,943	44,528	42,216	0	115,820	42	
R-035	MF	102.00	78,761	311,518	75,627	893,936	615,060	465,906	1,509	
R-036	MF	62.00	47,875	189,354	45,969	543,373	373,860	283,198	917	
R-037	RC	6.00	27,480	14,640	33,660	11,520	1,800	75,780	13	
R-038	RC	3.50	16,030	8,540	19,635	6,720	1,050	44,205	8	
R-039	SF	402.00	382,571	2,474,700	646,754	9,871,572	2,424,060	3,504,025	12,296	
R-040	RC	2.40	10,992	5,856	13,464	4,608	720	30,312	5	
R-041	OG	23.12	70,991	64,516	84,634	80,240	0	220,140	80	
R-042	SF	598.00	569,099	3,681,270	962,086	14,684,578	3,605,940	5,212,455	18,291	
R-043	SF	50.00	47,584	307,799	80,442	1,227,808	301,500	435,824	1,529	
R-044	RC	4.00	18,320	9,760	22,440	7,680	1,200	50,520	9	
R-045	OG	37.94	116,473	105,850	138,857	131,648	0	361,179	132	
R-046	SF	35.84	34,111	220,648	57,666	880,166	216,133	312,425	1,096	
R-047	WH	107.73	39,861	88,340	126,046	215,464	3,232	254,248	219	
R-048	RC	75.30	344,874	183,732	422,433	144,576	22,590	951,039	167	
R-049	SR	310.00	271,913	983,556	310,341	2,958,795	1,869,300	1,565,810	4,828	
R-050	SF	3.83	3,647	23,593	6,166	94,111	23,110	33,406	117	
R-051	RC	2.36	10,813	5,761	13,245	4,533	708	29,819	5	
R-052	SF	32.00	30,453	196,991	51,483	785,797	192,960	278,927	979	
R-053	SF	29.00	27,598	178,523	46,656	712,128	174,870	252,778	887	
R-054	SF	25.00	23,792	153,899	40,221	613,904	150,750	217,912	765	
R-055	SF	20.00	19,033	123,119	32,177	491,123	120,600	174,330	612	
R-056	OG	131.00	402,170	365,490	479,460	454,570	0	1,247,120	455	
R-057	LI	171.62	377,555	861,512	502,835	2,636,022	2,939,782	1,741,902	5,576	
R-058	RC	2.75	12,577	6,700	15,405	5,272	824	34,682	6	
R-059	RC	4.05	18,549	9,882	22,721	7,776	1,215	51,152	9	
R-060	BP	101.58	311,851	264,108	430,699	296,614	0	1,006,658	297	
R-061	RC	425.45	1,948,547	1,038,091	2,386,758	816,858	127,634	5,373,396	944	
R-062	RC	1.83	8,386	4,468	10,272	3,516	549	23,126	4	
R-063	MF	21.00	16,216	64,136	15,570	184,046	126,630	95,922	311	
R-064	SF	5.00	4,758	30,780	8,044	122,781	30,150	43,582	153	
R-065	SF	62.00	59,004	381,670	99,748	1,522,481	373,860	540,422	1,896	
R-066	RC	6.15	28,167	15,006	34,502	11,808	1,845	77,675	14	
RC-001	SF	1.251.00	1,190,539	7,701,118	2,012,659	30,719,744	7,543,530	10,904,316	38,263	
RC-002	SF	2,000.00	1,903,340	12,311,940	3,217,680	49,112,300	12,060,000	17,432,960	61,172	
RC-003	SF	3,412.00	3,247,098	21,004,170	5,489,362	83,785,584	20,574,360	29,740,630	104,360	
RC-005	SF	750.00	713,753	4,616,978	1,206,630	18,417,113	4,522,500	6,537,360	22,940	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)	
RC-006	BP	600.00	1,842,000	1,560,000	2,544,000	1,752,000	0	5,946,000	1,752	
RC-007	WH	1,586.65	587,059	1,301,049	1,856,375	3,173,290	47,599	3,744,482	3,221	
RC-009	OG	34.00	104,380	94,860	124,440	117,980	0	323,680	118	
RC-009	HI	1,172.71	2,579,962	5,887,004	3,436,040	18,012,826	20,088,522	11,903,007	38,101	
RC-010	LI	6,200.00	13,640,000	31,124,000	18,166,000	95,232,000	106,206,000	62,930,000	201,438	
RC-011	WH	814.00	301,180	667,480	952,380	1,628,000	24,420	1,921,040	1,652	
RC-012	LI	423.67	932,063	2,126,798	1,241,338	6,507,494	7,257,381	4,300,200	13,765	
RC-013	SF	497.00	472,980	3,059,517	799,593	12,204,407	2,996,910	4,332,091	15,201	
RC-014	MF	320.00	247,094	977,312	237,261	2,804,506	1,929,600	1,461,667	4,734	
RC-015	SF	142.00	135,137	874,148	228,455	3,486,973	856,260	1,237,740	4,343	
RC-017	RC	9.28	42,502	22,643	52,061	17,818	2,784	117,206	21	
RC-018	SF	15.00	14,275	92,340	24,133	368,342	90,450	130,747	459	
RC-019	RC	52.80	241,815	128,827	296,197	101,372	15,839	666,839	117	
RC-020	RC	2.80	12,824	6,832	15,708	5,376	840	35,364	6	
RC-021	WH	8.00	2,960	6,560	9,360	16,000	240	18,880	16	
RC-022	SF	131.00	124,669	806,432	210,758	3,216,856	789,930	1,141,859	4,007	
RC-023	LI	52.45	115,390	263,299	153,679	805,632	898,469	532,368	1,704	
RC-024	LI	190.80	419,764	957,826	559,050	2,930,719	3,268,438	1,936,640	6,199	
RC-025	LI	85.00	187,000	426,700	249,050	1,305,600	1,456,050	862,750	2,762	
RC-026	SF	2.00	1,903	12,312	3,218	49,112	12,060	17,433	61	
RC-027	LI	188.70	415,144	947,284	552,897	2,898,461	3,232,464	1,915,324	6,131	
RC-028	RC	5.60	25,648	13,664	31,416	10,752	1,680	70,728	12	
RC-029	RC	8.14	37,290	19,866	45,677	15,633	2,443	102,833	18	
RC-030	WH	1,259.05	465,849	1,032,421	1,473,089	2,518,100	37,772	2,971,358	2,556	
RC-031	LI	180.60	397,320	906,612	529,158	2,774,016	3,093,678	1,833,090	5,868	
RC-032	SF	726.00	690,912	4,469,234	1,168,018	17,827,765	4,377,780	6,328,164	22,206	
RC-033	SF	384.00	365,441	2,363,892	617,795	9,429,562	2,315,520	3,347,128	11,745	
RC-034	SF	432.00	411,121	2,659,379	695,019	10,608,257	2,604,960	3,765,519	13,213	
RC-035	SF	2,775.00	2,640,884	17,082,817	4,464,531	68,143,316	16,733,250	24,188,232	84,877	
RC-035	OG	80.00	245,600	223,200	292,800	277,600	0	761,600	278	
RC-035	MF	102.00	78,761	311,518	75,627	893,936	615,060	465,906	1,509	
RC-036	SF	468.00	445,382	2,880,994	752,937	11,492,278	2,822,040	4,079,313	14,314	
RC-037	SF	562.00	534,839	3,459,655	904,168	13,800,556	3,388,860	4,898,662	17,189	
RC-038	WH	1,823.76	674,791	1,495,483	2,133,799	3,647,520	54,713	4,304,074	3,702	
RC-039	SF	39.00	37,115	240,083	62,745	957,690	235,170	339,943	1,193	
RD-001	SF	82.00	78,037	504,790	131,925	2,013,604	494,460	714,751	2,508	
RD-002	SF	55.00	52,342	338,578	88,486	1,350,588	331,650	479,406	1,682	
RD-003	SF	103.00	98,022	634,065	165,711	2,529,283	621,090	897,797	3,150	
RD-004	SF	67.00	63,762	412,450	107,792	1,645,262	404,010	584,004	2,049	
RD-005	WH	500.60	185,223	410,494	585,704	1,001,204	15,018	1,181,421	1,016	
RD-006	RC	48.22	220,866	117,667	270,537	92,590	14,467	609,069	107	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
RD-007	RC	127.75	585,077	311,700	716,655	245,272	38,324	1,613,432	284	
RD-008	MF	80.00	61,774	244,328	59,315	701,126	482,400	365,417	1,184	
RD-009	RC	43.80	200,613	106,877	245,729	84,100	13,141	553,219	97	
RD-010	LI	145.26	319,561	729,180	425,597	2,231,117	2,488,218	1,474,338	4,719	
RD-011	RC	55.47	254,030	135,335	311,159	106,493	16,640	700,523	123	
RD-012	WH	601.29	222,476	493,055	703,506	1,202,574	18,039	1,419,037	1,221	
RD-013	WH	1,013.00	374,810	830,660	1,185,210	2,026,000	30,390	2,390,680	2,056	
RD-014	WH	772.00	285,640	633,040	903,240	1,544,000	23,160	1,821,920	1,567	
RD-015	WH	423.00	156,510	346,860	494,910	846,000	12,690	998,280	859	
RD-016	WH	714.73	264,451	586,081	836,238	1,429,466	21,442	1,686,770	1,451	
SB-001	WH	614.33	227,301	503,749	718,764	1,228,656	18,430	1,449,814	1,247	
SB-002	WH	313.47	115,984	257,045	366,760	626,940	9,404	739,789	636	
SB-003	WH	593.56	219,618	486,722	694,469	1,187,126	17,807	1,400,809	1,205	
SB-004	WH	777.62	287,719	637,648	909,815	1,555,240	23,329	1,835,183	1,579	
SB-005	WH	282.00	104,340	231,240	329,940	564,000	8,460	665,520	572	
SB-006	WH	542.98	200,901	445,241	635,283	1,085,954	16,289	1,281,426	1,102	
SB-007	SF	34.00	32,356,780	209,302,980	54,700,560	834,909	205,020	296,360,320	1,040	
SB-008	SF	40.00	38,067	246,239	64,354	982,246	241,200	348,659	1,223	
SJ-001	RC	1,678.24	7,686,361	4,094,917	9,414,954	3,222	503	21,196,232	4	
SJ-002	SF	321.00	305,486	1,976,066	516,438	7,882,524	1,935,630	2,797,990	9,818	
SJ-003	SF	580.00	551,969	3,570,463	933,127	14,242,567	3,497,400	5,055,558	17,740	
SJ-004	SF	613.00	583,374	3,773,610	986,219	15,052,920	3,696,390	5,343,202	18,749	
WLC-001	SF	60.00	57,100	369,358	96,530	1,473,369	361,800	522,989	1,835	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

	Water Usage (gal/ unit)		
	Indoor	Outdoor	
BP	Office Park	177,734	108,937
HI	Heavy Industrial	231,250	0
LI	Light Industrial	231,250	0
MF	Multi-Family - Mid Rise Apartment	65,154	41,075
MO	Medical Office	125,481	23,901
OG	General Office	177,734	108,934
RC	Retail Commercial	74,073	45,399
SF	Single Family Residential	65,154	41,075
SR	Senior Residential	65,154	41,075
WH	Warehouse - Unrefrigerated No Rail	231,250	0

Electricity Intensity Rates (kWhr/Million Gallons)

	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
	9727	111	1272	1911

Energy Consumption - Electricity from Potable Water Use

Project ID	Water		Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)
B-001	215,008,200	135,547,500	350.5557	215.0082
B-002	37,202,934	23,453,825	60.656759	37.202934
B-003	60,071,988	37,871,150	97.943138	60.071988
B-004	400,987,500	0	400.9875	400.9875
B-005	593,314,425	0	593.314425	593.314425
B-006	329,385,800	201,887,657	531.2734573	329.3858
B-007	26,257,062	16,553,225	42.810287	26.257062
B-008	42,219,792	26,616,600	68.856392	42.219792
B-009	289,935,300	182,783,750	472.71905	289.9353
B-010	6,189,630	3,902,125	10.091755	6.18963
B-011	16,666,425	10,214,775	26.8812	16.666425
B-012	18,177,966	11,459,925	29.637891	18.177966
B-013	123,141,060	77,631,750	200.77281	123.14106
B-014	45,607,800	28,752,500	74.3603	45.6078
C-001	14,814,600	9,079,800	23.8944	14.8146
C-002	74,073,000	45,399,000	119.472	74.073
C-002	280,641,986	172,011,523	452.653509	280.641986
C-003	5,385,107	3,300,507	8.6856144	5.3851071
H-001	38,310,552	24,152,100	62.462652	38.310552
H-002	28,667,760	18,073,000	46.74076	28.66776
H-003	60,658,374	38,240,825	98.899199	60.658374
H-004	169,965,050	0	169.96505	169.96505
H-004	176,872,523	108,408,982	285.2815057	176.8725233

	Electricity from Water (kWh)			
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
	3,409,855	38,912	445,907	410,881
	590,008	6,733	77,155	71,095
	952,693	10,872	124,584	114,798
	3,900,405	44,510	510,056	766,287
	5,771,169	65,858	754,696	1,133,824
	5,167,697	58,971	675,780	629,456
	416,416	4,752	54,455	50,177
	669,572	7,641	87,560	80,682
	4,598,138	52,472	601,299	554,066
	98,163	1,120	12,837	11,828
	261,473	2,984	34,193	31,850
	288,288	3,290	37,699	34,738
	1,952,917	22,286	255,383	235,323
	723,303	8,254	94,586	87,157
	232,421	2,652	30,394	28,311
	1,162,104	13,261	151,968	141,554
	4,402,961	50,245	575,775	536,307
	84,485	964	11,048	10,291
	607,574	6,933	79,452	73,211
	454,647	5,188	59,454	54,784
	961,993	10,978	125,800	115,918
	1,653,250	18,866	216,196	324,803
	2,774,933	31,666	362,878	338,003

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water		Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)
H-005	1,548,778	949,239	2.498016154	1.548777542
H-006	50,428,010	30,907,094	81.335103394	50.428000952
H-007	23,325,132	14,704,850	38.029982	23.325132
H-008	28,667,760	18,073,000	46.74076	28.66776
H-008	9,447,330	5,955,875	15.403205	9.44733
H-009	39,027,246	24,603,925	63.631171	39.027246
MV-001	740,730	453,990	1.19472	0.74073
MV-001	45,873,501	28,116,083	73.98958414	45.87350087
MV-001	9,763,838	0	9.7638375	9.7638375
MV-001	94,653,400	0	94.6534	94.6534
MV-002	1,046,406,250	0	1046.40625	1046.40625
MV-002	83,357,246	51,090,046	134.447292	83.357246
MV-002	112,803,750	0	112.80375	112.80375
MV-003	670,625,000	0	670.625	670.625
MV-004	8,066,550	4,943,951	13.0105008	8.0665497
MV-005	708,044,719	0	708.0447188	708.0447188
MV-005	41,368,477	25,354,933	66.72341034	41.36847717
MV-005	245,455,456	0	245.4554563	245.4554563
MV-006	38,985,567	23,895,094	62.88066065	38.98556652
MV-007	156,209,375	0	156.209375	156.209375
MV-008	46,295,625	28,374,375	74.67	46.295625
MV-008	367,659,330	70,029,930	437.68926	367.65933
MV-009	8,795,790	5,545,125	14.340915	8.79579
MV-010	129,268,750	0	129.26875	129.26875
MV-011	4,962,891	3,041,733	8.004624	4.962891
MV-001	22,555,229	13,823,996	36.379224	22.5552285
MV-002	17,070,348	10,761,650	27.831998	17.070348
MV-002	14,073,264	8,872,200	22.945464	14.073264
MV-003	439,606,250	0	439.60625	439.60625
MV-003	84,868,750	0	84.86875	84.86875
MV-004	216,741,375	0	216.741375	216.741375
MV-005	8,619,134	5,282,628	13.90176192	8.61913428
MV-006	173,437,500	0	173.4375	173.4375
MV-007	2,019,774	1,273,325	3.293099	2.019774
MV-008	3,778,932	2,382,350	6.161282	3.778932
MV-009	716,694	451,825	1.168519	0.716694
MV-010	3,062,238	1,930,525	4.992763	3.062238
MV-011	1,563,696	985,800	2.549496	1.563696
MV-012	10,038,480	1,912,080	11.95056	10.03848
MV-013	5,332,020	3,268,020	8.60004	5.33202
MV-014	6,971,478	4,395,025	11.366503	6.971478

Project ID	Electricity from Water (kWh)			
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
H-005	24,298	277	3,177	2,960
H-006	791,147	9,028	103,458	96,368
H-007	369,918	4,221	48,374	44,574
H-008	454,647	5,188	59,454	54,784
H-008	149,827	1,710	19,593	18,054
H-009	618,940	7,063	80,939	74,581
MV-001	11,621	133	1,520	1,416
MV-001	719,697	8,213	94,115	87,664
MV-001	94,973	1,084	12,420	18,659
MV-001	920,694	10,507	120,399	180,883
MV-002	10,178,394	116,151	1,331,029	1,999,682
MV-002	1,307,769	14,924	171,017	159,296
MV-002	1,097,242	12,521	143,486	215,568
MV-003	6,523,169	74,439	853,035	1,281,564
MV-004	126,553	1,444	16,549	15,415
MV-005	6,887,151	78,593	900,633	1,353,073
MV-005	649,019	7,406	84,872	79,055
MV-005	2,387,545	27,246	312,219	469,065
MV-006	611,640	6,980	79,984	74,501
MV-007	1,519,449	17,339	198,698	298,516
MV-008	726,315	8,288	94,980	88,471
MV-008	4,257,403	48,584	556,741	702,597
MV-009	139,494	1,592	18,242	16,809
MV-010	1,257,397	14,349	164,430	247,033
MV-011	77,861	889	10,182	9,484
MV-001	353,861	4,038	46,274	43,103
MV-002	270,722	3,089	35,402	32,621
MV-002	223,191	2,547	29,187	26,894
MV-003	4,276,050	48,796	559,179	840,088
MV-003	825,518	9,420	107,953	162,184
MV-004	2,108,243	24,058	275,695	414,193
MV-005	135,222	1,543	17,683	16,471
MV-006	1,687,027	19,252	220,613	331,439
MV-007	32,032	366	4,189	3,860
MV-008	59,931	684	7,837	7,222
MV-009	11,366	130	1,486	1,370
MV-010	48,565	554	6,351	5,852
MV-011	24,799	283	3,243	2,988
MV-012	116,243	1,327	15,201	19,184
MV-013	83,653	955	10,939	10,189
MV-014	110,562	1,262	14,458	13,322

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water		Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)
MV-015	4,104,702	2,587,725	6.692427	4.104702
MV-016	2,084,928	1,314,400	3.399328	2.084928
MV-017	6,254,784	3,943,200	10.197984	6.254784
MV-018	407,402	249,695	0.657096	0.4074015
MV-019	9,056,406	5,709,425	14.765831	9.056406
MV-020	6,947,159	4,257,881	11.20503994	6.947158524
MV-021	10,038,480	1,912,080	11.950556	10.03848
MV-022	2,606,160	1,643,000	4.24916	2.60616
MV-023	27,169,218	17,128,275	44.297493	27.169218
MV-024	10,359,486	6,530,925	16.890411	10.359486
MV-025	5,277,474	3,327,075	8.604549	5.277474
MV-026	6,515,400	4,107,500	10.6229	6.5154
MV-027	3,518,316	2,218,050	5.736366	3.518316
MV-028	5,863,860	3,696,750	9.56061	5.86386
MV-029	17,917,350	11,295,625	29.212975	17.91735
MV-030	5,407,782	3,409,225	8.817007	5.407782
MV-031	3,453,162	2,176,975	5.630137	3.453162
MV-032	7,492,710	4,723,625	12.216335	7.49271
MV-033	3,518,316	2,218,050	5.736366	3.518316
MV-034	3,388,008	2,135,900	5.523908	3.388008
MV-035	1,628,850	1,026,875	2.655725	1.62885
MV-036	3,648,624	2,300,200	5.948824	3.648624
MV-037	373,730,756	0	373.7307563	373.7307563
MV-038	100,362,500	0	100.3625	100.3625
MV-039	370,000,000	0	370	370
MV-040	22,753,844	0	22.75384375	22.75384375
MV-041	335,312,500	0	335.3125	335.3125
MV-042	103,218,438	0	103.2184375	103.2184375
MV-043	128,498,688	0	128.4986875	128.4986875
MV-044	256,543,663	0	256.5436625	256.5436625
MV-045	6,453,240	3,955,161	10.40840064	6.45323976
MV-046	88,402,250	0	88.40225	88.40225
MV-047	1,042,464	657,200	1.699664	1.042464
MV-048	263,845,590	161,716,650	425.5622395	263.8455898
MV-049	277,273,216	169,946,731	447.2199469	277.2732158
MV-050	82,049,813	0	82.0498125	82.0498125
MV-051	177,905,250	0	177.90525	177.90525
MV-052	203,259,500	0	203.2595	203.2595
MV-053	289,062,500	0	289.0625	289.0625
MV-054	401,912,500	0	401.9125	401.9125
MV-056	1,042,464	657,200	1.699664	1.042464

Project ID	Electricity from Water (kWh)			
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
MV-015	65,097	743	8,513	7,844
MV-016	33,065	377	4,324	3,984
MV-017	99,196	1,132	12,972	11,953
MV-018	6,392	73	836	779
MV-019	143,627	1,639	18,782	17,307
MV-020	108,991	1,244	14,253	13,276
MV-021	116,243	1,327	15,201	19,184
MV-022	41,332	472	5,405	4,980
MV-023	430,882	4,917	56,346	51,920
MV-024	164,293	1,875	21,485	19,797
MV-025	83,696	955	10,945	10,085
MV-026	103,329	1,179	13,512	12,451
MV-027	55,798	637	7,297	6,724
MV-028	92,996	1,061	12,161	11,206
MV-029	284,155	3,243	37,159	34,240
MV-030	85,763	979	11,215	10,334
MV-031	54,764	625	7,162	6,599
MV-032	118,828	1,356	15,539	14,319
MV-033	55,798	637	7,297	6,724
MV-034	53,731	613	7,026	6,474
MV-035	25,832	295	3,378	3,113
MV-036	57,864	660	7,567	6,973
MV-037	3,635,279	41,484	475,386	714,199
MV-038	976,226	11,140	127,661	191,793
MV-039	3,598,990	41,070	470,640	707,070
MV-040	221,327	2,526	28,943	43,483
MV-041	3,261,585	37,220	426,518	640,782
MV-042	1,004,006	11,457	131,294	197,250
MV-043	1,249,907	14,263	163,450	245,561
MV-044	2,495,400	28,476	326,324	490,255
MV-045	101,243	1,155	13,239	12,332
MV-046	859,889	9,813	112,448	168,937
MV-047	16,533	189	2,162	1,992
MV-048	4,139,444	47,237	541,315	504,209
MV-049	4,350,108	49,641	568,864	529,869
MV-050	798,099	9,108	104,367	156,797
MV-051	1,730,484	19,747	226,295	339,977
MV-052	1,977,105	22,562	258,546	388,429
MV-053	2,811,711	32,086	367,688	552,398
MV-054	3,909,403	44,612	511,233	768,055
MV-056	16,533	189	2,162	1,992

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
MV-057	2,410,698	1,519,775	3.930473	2.410698	
MV-058	521,232	328,600	0.849832	0.521232	
MV-059	4,104,702	2,587,725	6.692427	4.104702	
MV-060	5,994,168	3,778,900	9.773068	5.994168	
MV-061	13,333,140	8,171,820	21.50496	13.33314	
MV-062	35,378,622	22,303,725	57.682347	35.378622	
MV-063	14,399,034	9,077,575	23.476609	14.399034	
MV-064	5,668,398	3,573,525	9.241923	5.668398	
MV-065	3,388,008	2,135,900	5.523908	3.388008	
MV-066	16,353,654	10,309,825	26.663479	16.353654	
MV-067	10,489,794	6,613,075	17.102869	10.489794	
MV-068	47,888,638	0	47.8886375	47.8886375	
MV-069	94,719,538	0	94.7195375	94.7195375	
MV-070	15,702,114	9,899,075	25.601189	15.702114	
MV-071	3,192,546	2,012,675	5.205221	3.192546	
MV-072	1,563,696	985,800	2.549496	1.563696	
MV-073	6,254,784	3,943,200	10.197984	6.254784	
MV-074	12,314,106	7,763,175	20.077281	12.314106	
MV-075	95,189,994	60,010,575	155.200569	95.189994	
MV-076	23,083,591	14,147,827	37.23141778	23.08359121	
MV-077	123,256,250	0	123.25625	123.25625	
MV-078	120,250,000	0	120.25	120.25	
MV-079	84,868,750	0	84.86875	84.86875	
MV-080	3,281,434	2,011,176	5.2926096	3.2814339	
MV-081	161,875,000	0	161.875	161.875	
MV-082	115,625,000	0	115.625	115.625	
MV-083	82,325,000	0	82.325	82.325	
MV-084	23,119,913	0	23.1199125	23.1199125	
MV-085	10,370,220	6,355,860	16.72608	10.37022	
MV-086	4,625,934	2,916,325	7.542259	4.625934	
MV-087	3,909,240	2,464,500	6.37374	3.90924	
MV-088	781,848	492,900	1.274748	0.781848	
MV-089	781,848	492,900	1.274748	0.781848	
MV-090	541,474	331,867	0.87334032	0.54147363	
MV-091	5,668,398	3,573,525	9.241923	5.668398	
MV-093	7,297,248	4,600,400	11.897648	7.297248	
MV-094	17,330,964	10,925,950	28.256914	17.330964	
MV-095	12,962,775	7,944,825	20.9076	12.962775	
MV-096	5,082,012	3,203,850	8.285862	5.082012	
MV-097	13,942,956	8,790,050	22.733006	13.942956	
MV-098	1,042,464	657,200	1.699664	1.042464	

Project ID	Electricity from Water (kWh)			Wastewater Treatment
	Water Supply	Water Treatment	Water Distribution	
MV-057	38,232	436	5,000	4,607
MV-058	8,266	94	1,081	996
MV-059	65,097	743	8,513	7,844
MV-060	95,063	1,085	12,431	11,455
MV-061	209,179	2,387	27,354	25,480
MV-062	561,076	6,403	73,372	67,609
MV-063	228,357	2,606	29,862	27,517
MV-064	89,896	1,026	11,756	10,832
MV-065	53,731	613	7,026	6,474
MV-066	259,356	2,960	33,916	31,252
MV-067	166,360	1,898	21,755	20,046
MV-068	465,813	5,316	60,914	91,515
MV-069	921,337	10,514	120,483	181,009
MV-070	249,023	2,842	32,565	30,007
MV-071	50,631	578	6,621	6,101
MV-072	24,799	283	3,243	2,988
MV-073	99,196	1,132	12,972	11,953
MV-074	195,292	2,229	25,538	23,532
MV-075	1,509,636	17,227	197,415	181,908
MV-076	362,150	4,133	47,358	44,113
MV-077	1,198,914	13,681	156,782	235,543
MV-078	1,169,672	13,348	152,958	229,798
MV-079	825,518	9,420	107,953	162,184
MV-080	51,481	587	6,732	6,271
MV-081	1,574,558	17,968	205,905	309,343
MV-082	1,124,684	12,834	147,075	220,959
MV-083	800,775	9,138	104,717	157,323
MV-084	224,887	2,566	29,409	44,182
MV-085	162,695	1,857	21,276	19,817
MV-086	73,364	837	9,594	8,840
MV-087	61,997	707	8,107	7,471
MV-088	12,399	141	1,621	1,494
MV-089	12,399	141	1,621	1,494
MV-090	8,495	97	1,111	1,035
MV-091	89,896	1,026	11,756	10,832
MV-093	115,728	1,321	15,134	13,945
MV-094	274,855	3,137	35,943	33,119
MV-095	203,368	2,321	26,594	24,772
MV-096	80,597	920	10,540	9,712
MV-097	221,124	2,523	28,916	26,645
MV-098	16,533	189	2,162	1,992

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
MV-099	6,254,784	3,943,200	10.197984	6.254784	
MV-100	12,639,876	7,968,550	20.608426	12.639876	
MV-101	666,657	408,591	1.075248	0.666657	
MV-102	14,929,656	9,150,456	24.080112	14.929656	
MV-103	42,550,000	0	42.55	42.55	
MV-104	86,263,188	0	86.2631875	86.2631875	
MV-105	781,848	492,900	1.274748	0.781848	
MV-106	781,848	492,900	1.274748	0.781848	
MV-107	586,386	369,675	0.956061	0.586386	
MV-108	220,219	134,971	0.355190256	0.220219029	
MV-109	71,995,170	45,387,875	117.383045	71.99517	
MV-110	3,909,240	2,464,500	6.37374	3.90924	
MV-111	1,042,464	657,200	1.699664	1.042464	
MV-112	977,310	616,125	1.593435	0.97731	
MV-113	9,382,176	5,914,800	15.296976	9.382176	
MV-114	422,216	258,774	0.6809904	0.4222161	
MV-115	4,088	2,505	0.006593364	0.004087882	
MV-116	1,628,850	1,026,875	2.655725	1.62885	
MV-117	9,242,168	5,664,568	14.906736	9.242168	
MV-118	586,386	369,675	0.956061	0.586386	
MV-119	2,280,390	1,437,625	3.718015	2.28039	
MV-120	14,038,315	8,604,018	22.64233344	14.03831496	
MV-121	322,292	197,531	0.519822672	0.322291623	
MV-123	1,037,022	635,586	1.672608	1.037022	
MV-124	10,370,220	6,355,860	16.72608	10.37022	
MV-125	1,563,696	985,800	2.549496	1.563696	
MV-126	15,311,190	9,652,625	24.963815	15.31119	
MV-127	78,627,313	0	78.6273125	78.6273125	
MV-129	365,375,000	0	365.375	365.375	
MV-130	51,304,894	0	51.30489375	51.30489375	
MV-131	346,875,000	0	346.875	346.875	
MV-132	254,375,000	0	254.375	254.375	
P-001	8,926,098	5,627,275	14.553373	8.926098	
P-002	138,750,000	0	138.75	138.75	
P-003	106,906,875	0	106.906875	106.906875	
P-004	39,775,000	0	39.775	39.775	
P-005	106,375,000	0	106.375	106.375	
P-006	138,750,000	0	138.75	138.75	
P-007	275,155,125	0	275.155125	275.155125	
P-008	55,731,250	0	55.73125	55.73125	
P-009	148,462,500	0	148.4625	148.4625	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
MV-099	99,196	1,132	12,972	11,953	
MV-100	200,458	2,288	26,214	24,155	
MV-101	10,459	119	1,368	1,274	
MV-102	234,227	2,673	30,630	28,531	
MV-103	413,884	4,723	54,124	81,313	
MV-104	839,082	9,575	109,727	164,849	
MV-105	12,399	141	1,621	1,494	
MV-106	12,399	141	1,621	1,494	
MV-107	9,300	106	1,216	1,121	
MV-108	3,455	39	452	421	
MV-109	1,141,785	13,030	149,311	137,583	
MV-110	61,997	707	8,107	7,471	
MV-111	16,533	189	2,162	1,992	
MV-112	15,499	177	2,027	1,868	
MV-113	148,794	1,698	19,458	17,929	
MV-114	6,624	76	866	807	
MV-115	64	1	8	8	
MV-116	25,832	295	3,378	3,113	
MV-117	144,998	1,655	18,961	17,662	
MV-118	9,300	106	1,216	1,121	
MV-119	36,165	413	4,729	4,358	
MV-120	220,242	2,513	28,801	26,827	
MV-121	5,056	58	661	616	
MV-123	16,269	186	2,128	1,982	
MV-124	162,695	1,857	21,276	19,817	
MV-125	24,799	283	3,243	2,988	
MV-126	242,823	2,771	31,754	29,260	
MV-127	764,808	8,728	100,014	150,257	
MV-129	3,554,003	40,557	464,757	698,232	
MV-130	499,043	5,695	65,260	98,044	
MV-131	3,374,053	38,503	441,225	662,878	
MV-132	2,474,306	28,236	323,565	486,111	
P-001	141,561	1,615	18,512	17,058	
P-002	1,349,621	15,401	176,490	265,151	
P-003	1,039,883	11,867	135,986	204,299	
P-004	386,891	4,415	50,594	76,010	
P-005	1,034,710	11,808	135,309	203,283	
P-006	1,349,621	15,401	176,490	265,151	
P-007	2,676,434	30,542	349,997	525,821	
P-008	542,098	6,186	70,890	106,502	
P-009	1,444,095	16,479	188,844	283,712	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
P-010	393,125,000	0	393.125	393.125	
P-011	283,279,631	0	283.2796313	283.2796313	
P-012	105,007,850	0	105.00785	105.00785	
P-014	277,500,000	0	277.5	277.5	
P-015	180,563,469	0	180.5634688	180.5634688	
P-016	302,937,500	0	302.9375	302.9375	
P-017	134,125,000	0	134.125	134.125	
P-018	357,743,750	0	357.74375	357.74375	
P-019	161,320,000	0	161.32	161.32	
P-020	201,534,375	0	201.534375	201.534375	
P-021	39,312,500	0	39.3125	39.3125	
P-022	87,875,000	0	87.875	87.875	
P-023	41,625,000	0	41.625	41.625	
P-024	338,550,000	0	338.55	338.55	
P-025	240,037,500	0	240.0375	240.0375	
P-026	187,687,125	0	187.687125	187.687125	
P-027	199,800,000	0	199.8	199.8	
P-028	154,937,500	0	154.9375	154.9375	
P-030	32,055,768	20,208,900	52.264668	32.055768	
P-031	4,886,550	3,080,625	7.967175	4.88655	
P-032	47,628,939	29,191,557	76.820496	47.628939	
P-033	121,186,440	76,399,500	197.58594	121.18644	
P-034	732,335,681	0	732.3356813	732.3356813	
P-035	2,606,160	1,643,000	4.24916	2.60616	
P-036	797,519,738	0	797.5197375	797.5197375	
P-036	3,703,650	2,269,950	5.9736	3.70365	
P-037	11,923,182	7,516,725	19.439907	11.923182	
P-038	14,529,342	9,159,725	23.689067	14.529342	
P-039	181,230,625	0	181.230625	181.230625	
P-040	7,948,788	5,011,150	12.959938	7.948788	
P-041	34,626,913	0	34.6269125	34.6269125	
P-042	3,974,394	2,505,575	6.479969	3.974394	
P-043	3,713,778	2,341,275	6.055053	3.713778	
P-044	6,124,476	3,861,050	9.985526	6.124476	
P-045	4,886,550	3,080,625	7.967175	4.88655	
P-046	27,951,066	17,621,175	45.572241	27.951066	
P-047	33,945,234	21,400,075	55.345309	33.945234	
P-048	4,886,550	3,080,625	7.967175	4.88655	
P-049	7,427,556	4,682,550	12.110106	7.427556	
P-050	5,925,840	3,631,920	9.55776	5.92584	
P-051	2,280,390	1,437,625	3.718015	2.28039	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
P-010	3,823,927	43,637	500,055	751,262	
P-011	2,755,461	31,444	360,332	541,347	
P-012	1,021,411	11,656	133,570	200,670	
P-014	2,699,243	30,803	352,980	530,303	
P-015	1,756,341	20,043	229,677	345,057	
P-016	2,946,673	33,626	385,337	578,914	
P-017	1,304,634	14,888	170,607	256,313	
P-018	3,479,773	39,710	455,050	683,648	
P-019	1,569,160	17,907	205,199	308,283	
P-020	1,960,325	22,370	256,352	385,132	
P-021	382,393	4,364	50,006	75,126	
P-022	854,760	9,754	111,777	167,929	
P-023	404,886	4,620	52,947	79,545	
P-024	3,293,076	37,579	430,636	646,969	
P-025	2,334,845	26,644	305,328	458,712	
P-026	1,825,633	20,833	238,738	358,670	
P-027	1,943,455	22,178	254,146	381,818	
P-028	1,507,077	17,198	197,081	296,086	
P-030	508,378	5,801	66,481	61,259	
P-031	77,497	884	10,134	9,338	
P-032	747,233	8,527	97,716	91,019	
P-033	1,921,918	21,932	251,329	231,587	
P-034	7,123,429	81,289	931,531	1,399,493	
P-035	41,332	472	5,405	4,980	
P-036	7,757,474	88,525	1,014,445	1,524,060	
P-036	58,105	663	7,598	7,078	
P-037	189,092	2,158	24,728	22,785	
P-038	230,424	2,629	30,132	27,766	
P-039	1,762,830	20,117	230,525	346,332	
P-040	126,061	1,439	16,485	15,190	
P-041	336,816	3,844	44,045	66,172	
P-042	63,031	719	8,243	7,595	
P-043	58,898	672	7,702	7,097	
P-044	97,129	1,108	12,702	11,704	
P-045	77,497	884	10,134	9,338	
P-046	443,281	5,059	57,968	53,414	
P-047	538,344	6,143	70,399	64,869	
P-048	77,497	884	10,134	9,338	
P-049	117,795	1,344	15,404	14,194	
P-050	92,968	1,061	12,157	11,324	
P-051	36,165	413	4,729	4,358	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
P-052	5,342,628	3,368,150	8.710778	5.342628	
P-053	10,489,794	6,613,075	17.102869	10.489794	
P-054	15,506,652	9,775,850	25.282502	15.506652	
P-055	33,332,850	20,429,550	53.7624	33.33285	
P-056	2,278,738	0	2.2787375	2.2787375	
P-057	9,631,563	0	9.6315625	9.6315625	
P-058	87,412,500	0	87.4125	87.4125	
P-059	15,832,422	9,981,225	25.813647	15.832422	
P-060	333,329	204,296	0.537624	0.3333285	
P-061	80,937,500	0	80.9375	80.9375	
R-001	244,414,287	149,806,785	394.2210724	244.414287	
R-002	134,766,025	0	134.766025	134.766025	
R-003	150,779,163	0	150.7791625	150.7791625	
R-004	14,073,264	8,872,200	22.945464	14.073264	
R-005	62,740,500	11,950,500	74.691	62.7405	
R-006	5,016,858	3,162,775	8.179633	5.016858	
R-007	4,155,569	2,546,929	6.702498672	4.155569373	
R-008	2,410,698	1,519,775	3.930473	2.410698	
R-009	650,184,556	398,495,115	1048.679671	650.1845562	
R-010	1,745,530	1,069,827	2.81535768	1.745530245	
R-011	60,546,264	37,110,111	97.65637506	60.54626441	
R-012	4,546,436	2,786,490	7.332926419	4.546436476	
R-013	195,462	123,225	0.318687	0.195462	
R-014	285,774	175,149	0.460922976	0.285773634	
R-015	11,186,681	7,052,413	18.23909438	11.18668118	
R-016	99,405	62,668	0.162073585	0.099405458	
R-017	17,917,350	11,295,625	29.212975	17.91735	
R-018	2,089,997,910	0	2089.99791	2089.99791	
R-019	3,583,470	2,259,125	5.842595	3.58347	
R-020	337,960,081	0	337.9600813	337.9600813	
R-021	977,310	616,125	1.593435	0.97731	
R-022	586,386	369,675	0.956061	0.586386	
R-023	595,473	364,963	0.960435408	0.595472847	
R-024	325,770,000	205,375,000	531.145	325.77	
R-025	13,552,032	8,543,600	22.095632	13.552032	
R-026	22,070,080	13,526,650	35.59673019	22.07007998	
R-026	218,186,595	0	218.186595	218.186595	
R-026	61,781,902	37,867,460	99.6493623	61.78190246	
R-027	267,996	164,254	0.432249696	0.267996114	
R-028	8,730,636	5,504,050	14.234686	8.730636	
R-029	281,107	172,289	0.45339624	0.281107035	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
P-052	84,730	967	11,080	10,210	
P-053	166,360	1,898	21,755	20,046	
P-054	245,923	2,806	32,159	29,633	
P-055	522,947	5,968	68,386	63,699	
P-056	22,165	253	2,899	4,355	
P-057	93,686	1,069	12,251	18,406	
P-058	850,261	9,703	111,189	167,045	
P-059	251,089	2,865	32,835	30,256	
P-060	5,229	60	684	637	
P-061	787,279	8,984	102,953	154,672	
R-001	3,834,588	43,759	501,449	467,076	
R-002	1,310,869	14,959	171,422	257,538	
R-003	1,466,629	16,736	191,791	288,139	
R-004	223,191	2,547	29,187	26,894	
R-005	726,519	8,291	95,007	119,897	
R-006	79,563	908	10,404	9,587	
R-007	65,195	744	8,526	7,941	
R-008	38,232	436	5,000	4,607	
R-009	10,200,507	116,403	1,333,921	1,242,503	
R-010	27,385	313	3,581	3,336	
R-011	949,904	10,840	124,219	115,704	
R-012	71,327	814	9,327	8,688	
R-013	3,100	35	405	374	
R-014	4,483	51	586	546	
R-015	177,412	2,025	23,200	21,378	
R-016	1,576	18	206	190	
R-017	284,155	3,243	37,159	34,240	
R-018	20,329,410	231,990	2,658,477	3,993,986	
R-019	56,831	649	7,432	6,848	
R-020	3,287,338	37,514	429,885	645,842	
R-021	15,499	177	2,027	1,868	
R-022	9,300	106	1,216	1,121	
R-023	9,342	107	1,222	1,138	
R-024	5,166,447	58,957	675,616	622,546	
R-025	214,924	2,453	28,106	25,898	
R-026	346,249	3,951	45,279	42,176	
R-026	2,122,301	24,219	277,533	416,955	
R-026	969,289	11,061	126,754	118,065	
R-027	4,204	48	550	512	
R-028	138,461	1,580	18,107	16,684	
R-029	4,410	50	577	537	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
R-030	15,449,056	9,468,655	24.91771113	15.44905599	
R-031	2,345,544	1,478,700	3.824244	2.345544	
R-032	1,649,754	1,011,127	2.660880384	1.649753856	
R-033	1,954,620	1,232,250	3.18687	1.95462	
R-034	2,162,312	1,325,291	3.487602888	2.162311844	
R-035	6,645,708	4,189,650	10.835358	6.645708	
R-036	4,039,548	2,546,650	6.586198	4.039548	
R-037	444,438	272,394	0.716832	0.444438	
R-038	259,256	158,897	0.418152	0.2592555	
R-039	26,191,908	16,512,150	42.704058	26.191908	
R-040	177,775	108,958	0.2867328	0.1777752	
R-041	4,109,921	2,518,990	6.628910832	4.109921016	
R-042	38,962,092	24,562,850	63.524942	38.962092	
R-043	3,257,700	2,053,750	5.31145	3.2577	
R-044	296,292	181,596	0.477888	0.296292	
R-045	6,743,050	4,132,847	10.87589725	6.743050226	
R-046	2,335,315	1,472,251	3.807566047	2.335314822	
R-047	24,913,025	0	24.913025	24.913025	
R-048	5,577,697	3,418,545	8.9962416	5.5776969	
R-049	20,197,740	12,733,250	32.93099	20.19774	
R-050	249,703	157,420	0.407122643	0.249702705	
R-051	174,886	107,187	0.282073392	0.174886353	
R-052	2,084,928	1,314,400	3.399328	2.084928	
R-053	1,889,466	1,191,175	3.080641	1.889466	
R-054	1,628,850	1,026,875	2.655725	1.62885	
R-055	1,303,080	821,500	2.12458	1.30308	
R-056	23,283,154	14,270,354	37.553508	23.283154	
R-057	39,686,200	0	39.6862	39.6862	
R-058	203,404	124,666	0.328070112	0.203404458	
R-059	299,996	183,866	0.4838616	0.29999565	
R-060	18,054,220	11,065,820	29.12004018	18.05421972	
R-061	31,514,136	19,314,868	50.82900398	31.51413563	
R-062	135,628	83,126	0.218753232	0.135627663	
R-063	1,368,234	862,575	2.230809	1.368234	
R-064	325,770	205,375	0.531145	0.32577	
R-065	4,039,548	2,546,650	6.586198	4.039548	
R-066	455,549	279,204	0.7347528	0.45554895	
RC-001	81,507,654	51,384,825	132.892479	81.507654	
RC-002	130,308,000	82,150,000	212.458	130.308	
RC-003	222,305,448	140,147,900	362.453348	222.305448	
RC-005	48,865,500	30,806,250	79.67175	48.8655	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
R-030	242,375	2,766	31,695	29,523	
R-031	37,198	424	4,864	4,482	
R-032	25,882	295	3,385	3,153	
R-033	30,999	354	4,054	3,735	
R-034	33,924	387	4,436	4,132	
R-035	105,396	1,203	13,783	12,700	
R-036	64,064	731	8,378	7,720	
R-037	6,973	80	912	849	
R-038	4,067	46	532	495	
R-039	415,382	4,740	54,320	50,053	
R-040	2,789	32	365	340	
R-041	64,479	736	8,432	7,854	
R-042	617,907	7,051	80,804	74,457	
R-043	51,664	590	6,756	6,225	
R-044	4,648	53	608	566	
R-045	105,790	1,207	13,834	12,886	
R-046	37,036	423	4,843	4,463	
R-047	242,329	2,765	31,689	47,609	
R-048	87,506	999	11,443	10,659	
R-049	320,320	3,655	41,888	38,598	
R-050	3,960	45	518	477	
R-051	2,744	31	359	334	
R-052	33,065	377	4,324	3,984	
R-053	29,965	342	3,919	3,611	
R-054	25,832	295	3,378	3,113	
R-055	20,666	236	2,702	2,490	
R-056	365,283	4,168	47,768	44,494	
R-057	386,028	4,405	50,481	75,840	
R-058	3,191	36	417	389	
R-059	4,707	54	615	573	
R-060	283,251	3,232	37,041	34,502	
R-061	494,414	5,642	64,654	60,224	
R-062	2,128	24	278	259	
R-063	21,699	248	2,838	2,615	
R-064	5,166	59	676	623	
R-065	64,064	731	8,378	7,720	
R-066	7,147	82	935	871	
RC-001	1,292,645	14,751	169,039	155,761	
RC-002	2,066,579	23,583	270,247	249,019	
RC-003	3,525,584	40,232	461,041	424,826	
RC-005	774,967	8,844	101,342	93,382	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
RC-006	106,640,400	65,362,200	172.0026	106.6404	
RC-007	366,911,656	0	366.9116563	366.9116563	
RC-009	6,042,956	3,703,756	9.746712	6.042956	
RC-009	271,189,188	0	271.1891875	271.1891875	
RC-010	1,433,750,000	0	1433.75	1433.75	
RC-011	188,237,500	0	188.2375	188.2375	
RC-012	97,972,531	0	97.97253125	97.97253125	
RC-013	32,381,538	20,414,275	52.795813	32.381538	
RC-014	20,849,280	13,144,000	33.99328	20.84928	
RC-015	9,251,868	5,832,650	15.084518	9.251868	
RC-017	687,397	421,303	1.10870016	0.68739744	
RC-018	977,310	616,125	1.593435	0.97731	
RC-019	3,910,906	2,396,976	6.307882656	3.910906254	
RC-020	207,404	127,117	0.3345216	0.2074044	
RC-021	1,850,000	0	1.85	1.85	
RC-022	8,535,174	5,380,825	13.915999	8.535174	
RC-023	12,129,063	0	12.1290625	12.1290625	
RC-024	44,122,963	0	44.1229625	44.1229625	
RC-025	19,656,250	0	19.65625	19.65625	
RC-026	130,308	82,150	0.212458	0.130308	
RC-027	43,637,319	0	43.637319	43.637319	
RC-028	414,809	254,234	0.6690432	0.4148088	
RC-029	603,102	369,639	0.972741024	0.603102366	
RC-030	291,155,313	0	291.1553125	291.1553125	
RC-031	41,763,750	0	41.76375	41.76375	
RC-032	47,301,804	29,820,450	77.122254	47.301804	
RC-033	25,019,136	15,772,800	40.791936	25.019136	
RC-034	28,146,528	17,744,400	45.890928	28.146528	
RC-035	180,802,350	113,983,125	294.785475	180.80235	
RC-035	14,218,720	8,714,720	22.93344	14.21872	
RC-035	6,645,708	4,189,650	10.835358	6.645708	
RC-036	30,492,072	19,223,100	49.715172	30.492072	
RC-037	36,616,548	23,084,150	59.700698	36.616548	
RC-038	421,744,500	0	421.7445	421.7445	
RC-039	2,541,006	1,601,925	4.142931	2.541006	
RD-001	5,342,628	3,368,150	8.710778	5.342628	
RD-002	3,583,470	2,259,125	5.842595	3.58347	
RD-003	6,710,862	4,230,725	10.941587	6.710862	
RD-004	4,365,318	2,752,025	7.117343	4.365318	
RD-005	115,764,213	0	115.7642125	115.7642125	
RD-006	3,572,096	2,189,321	5.761417728	3.572096352	

Project ID	Electricity from Water (kWh)					
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment		
RC-006	1,673,069	19,092	218,787	203,790		
RC-007	3,568,950	40,727	466,712	701,168		
RC-009	94,806	1,082	12,398	11,548		
RC-009	2,637,857	30,102	344,953	518,243		
RC-010	13,946,086	159,146	1,823,730	2,739,896		
RC-011	1,830,986	20,894	239,438	359,722		
RC-012	952,979	10,875	124,621	187,226		
RC-013	513,545	5,860	67,156	61,881		
RC-014	330,653	3,773	43,239	39,843		
RC-015	146,727	1,674	19,188	17,680		
RC-017	10,784	123	1,410	1,314		
RC-018	15,499	177	2,027	1,868		
RC-019	61,357	700	8,024	7,474		
RC-020	3,254	37	426	396		
RC-021	17,995	205	2,353	3,535		
RC-022	135,361	1,545	17,701	16,311		
RC-023	117,979	1,346	15,428	23,179		
RC-024	429,184	4,898	56,124	84,319		
RC-025	191,196	2,182	25,003	37,563		
RC-026	2,067	24	270	249		
RC-027	424,460	4,844	55,507	83,391		
RC-028	6,508	74	851	793		
RC-029	9,462	108	1,237	1,153		
RC-030	2,832,068	32,318	370,350	556,398		
RC-031	406,236	4,636	53,123	79,811		
RC-032	750,168	8,561	98,100	90,394		
RC-033	396,783	4,528	51,887	47,812		
RC-034	446,381	5,094	58,373	53,788		
RC-035	2,867,378	32,721	374,967	345,513		
RC-035	223,074	2,546	29,171	27,172		
RC-035	105,396	1,203	13,783	12,700		
RC-036	483,579	5,518	63,238	58,270		
RC-037	580,709	6,627	75,939	69,974		
RC-038	4,102,309	46,814	536,459	805,954		
RC-039	40,298	460	5,270	4,856		
RD-001	84,730	967	11,080	10,210		
RD-002	56,831	649	7,432	6,848		
RD-003	106,429	1,215	13,918	12,824		
RD-004	69,230	790	9,053	8,342		
RD-005	1,126,038	12,850	147,252	221,225		
RD-006	56,041	640	7,329	6,826		

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
RD-007	9,462,529	5,799,541	15.26207011	9.462529458	
RD-008	5,212,320	3,286,000	8.49832	5.21232	
RD-009	3,244,546	1,988,567	5.233112544	3.244545546	
RD-010	33,590,219	0	33.59021875	33.59021875	
RD-011	4,108,459	2,518,056	6.62651448	4.108458945	
RD-012	139,047,619	0	139.0476188	139.0476188	
RD-013	234,256,250	0	234.25625	234.25625	
RD-014	178,525,000	0	178.525	178.525	
RD-015	97,818,750	0	97.81875	97.81875	
RD-016	165,282,006	0	165.2820063	165.2820063	
SB-001	142,063,350	0	142.06335	142.06335	
SB-002	72,489,938	0	72.4899375	72.4899375	
SB-003	137,261,444	0	137.2614438	137.2614438	
SB-004	179,824,625	0	179.824625	179.824625	
SB-005	65,212,500	0	65.2125	65.2125	
SB-006	125,563,431	0	125.5634313	125.5634313	
SB-007	2,215,236	1,396,550	3.611786	2.215236	
SB-008	2,606,160	1,643,000	4.24916	2.60616	
SJ-001	124,312,630	76,190,637	200.5032673	124.3126299	
SJ-002	20,914,434	13,185,075	34.099509	20.914434	
SJ-003	37,789,320	23,823,500	61.61282	37.78932	
SJ-004	39,939,402	25,178,975	65.118377	39.939402	
WLC-001	3,909,240	2,464,500	6.37374	3.90924	

Project ID	Electricity from Water (kWh)			Wastewater Treatment
	Water Supply	Water Treatment	Water Distribution	
RD-007	148,454	1,694	19,413	18,083
RD-008	82,663	943	10,810	9,961
RD-009	50,902	581	6,657	6,200
RD-010	326,732	3,729	42,727	64,191
RD-011	64,456	736	8,429	7,851
RD-012	1,352,516	15,434	176,869	265,720
RD-013	2,278,611	26,002	297,974	447,664
RD-014	1,736,513	19,816	227,084	341,161
RD-015	951,483	10,858	124,425	186,932
RD-016	1,607,698	18,346	210,239	315,854
SB-001	1,381,850	15,769	180,705	271,483
SB-002	705,110	8,046	92,207	138,528
SB-003	1,335,142	15,236	174,597	262,307
SB-004	1,749,154	19,961	228,737	343,645
SB-005	634,322	7,239	82,950	124,621
SB-006	1,221,355	13,938	159,717	239,952
SB-007	35,132	401	4,594	4,233
SB-008	41,332	472	5,405	4,980
SJ-001	1,950,295	22,256	255,040	237,561
SJ-002	331,686	3,785	43,375	39,967
SJ-003	599,308	6,839	78,372	72,215
SJ-004	633,406	7,228	82,831	76,324
WLC-001	61,997	707	8,107	7,471

---

## **2      Natural Gas**

---

World Logistic Center  
Cumulative Energy - Natural gas

**Cumulative Natural Gas Consumption - Summary**

Project ID	Annual MMBtu	Project ID	Annual MMBtu	Project ID	Annual MMBtu
B-001	100,934	MV-078	16,895	R-015	5,252
B-002	8,447	MV-079	745	R-016	47
B-003	28,200	MV-080	98	R-017	4,068
B-004	56,338	MV-081	1,421	R-018	293,639
B-005	83,359	MV-082	1,015	R-019	814
B-006	5,411	MV-083	11,566	R-020	2,967
B-007	12,326	MV-084	3,248	R-021	459
B-008	19,820	MV-085	311	R-022	275
B-009	136,108	MV-086	2,172	R-023	18
B-010	2,906	MV-087	888	R-024	152,931
B-011	500	MV-088	178	R-025	3,077
B-012	4,128	MV-089	178	R-026	661
B-013	57,808	MV-090	16	R-026	30,655
B-014	21,410	MV-091	2,661	R-026	1,015
C-001	444	MV-093	1,657	R-027	8
C-002	2,220	MV-094	3,935	R-028	2,087
C-002	4,611	MV-095	389	R-029	8
C-003	161	MV-096	2,386	R-030	463
H-001	17,985	MV-097	6,545	R-031	533
H-002	13,458	MV-098	489	R-032	49
H-003	28,476	MV-099	1,420	R-033	444
H-004	23,880	MV-100	2,870	R-034	42
H-004	2,906	MV-101	20	R-035	1,509
H-005	46	MV-102	291	R-036	917
H-006	1,511	MV-103	5,978	R-037	13
H-007	5,576	MV-104	757	R-038	8
H-008	6,853	MV-105	178	R-039	12,296
H-008	4,435	MV-106	178	R-040	5
H-009	9,329	MV-107	275	R-041	80
M-001	22	MV-108	7	R-042	18,291
M-001	896	MV-109	33,798	R-043	1,529
M-001	1,372	MV-110	888	R-044	9
M-001	13,299	MV-111	237	R-045	132
M-002	9,186	MV-112	222	R-046	1,096
M-002	1,627	MV-113	4,404	R-047	219
M-002	15,849	MV-114	13	R-048	167
M-003	5,887	MV-115	0	R-049	4,828
M-004	242	MV-116	765	R-050	117
M-005	6,215	MV-117	180	R-051	5
M-005	808	MV-118	275	R-052	979
M-005	34,486	MV-119	1,071	R-053	887
M-006	640	MV-120	421	R-054	765
M-007	1,371	MV-121	10	R-055	612

World Logistic Center  
Cumulative Energy - Natural gas

**Cumulative Natural Gas Consumption - Summary**

Project ID	Annual MMBtu	Project ID	Annual MMBtu	Project ID	Annual MMBtu
M-008	1,388	MV-123	31	R-056	455
M-008	10,167	MV-124	311	R-057	5,576
M-009	4,129	MV-125	355	R-058	6
M-010	1,135	MV-126	7,188	R-059	9
M-011	149	MV-127	690	R-060	297
MV-001	676	MV-129	51,334	R-061	944
MV-002	8,014	MV-130	450	R-062	4
MV-002	3,196	MV-131	3,045	R-063	311
MV-003	3,859	MV-132	2,233	R-064	153
MV-003	11,924	P-001	4,190	R-065	1,896
MV-004	30,452	P-002	1,218	R-066	14
MV-005	258	P-003	938	RC-001	38,263
MV-006	1,523	P-004	5,588	RC-002	61,172
MV-007	948	P-005	934	RC-003	104,360
MV-008	1,774	P-006	19,494	RC-005	22,940
MV-009	336	P-007	38,659	RC-006	1,752
MV-010	1,438	P-008	7,830	RC-007	3,221
MV-011	734	P-009	20,859	RC-009	118
MV-012	278	P-010	3,451	RC-009	38,101
MV-013	104	P-011	39,800	RC-010	201,438
MV-014	3,273	P-012	14,753	RC-011	1,652
MV-015	1,927	P-014	2,436	RC-012	13,765
MV-016	979	P-015	1,585	RC-013	15,201
MV-017	2,936	P-016	2,659	RC-014	4,734
MV-018	12	P-017	1,177	RC-015	4,343
MV-019	2,165	P-018	3,140	RC-017	21
MV-020	208	P-019	1,416	RC-018	459
MV-021	278	P-020	1,769	RC-019	117
MV-022	1,223	P-021	345	RC-020	6
MV-023	6,169	P-022	771	RC-021	16
MV-024	4,863	P-023	365	RC-022	4,007
MV-025	2,477	P-024	2,972	RC-023	1,704
MV-026	3,059	P-025	2,107	RC-024	6,199
MV-027	799	P-026	26,370	RC-025	2,762
MV-028	1,331	P-027	1,754	RC-026	61
MV-029	8,411	P-028	21,768	RC-027	6,131
MV-030	2,539	P-030	15,048	RC-028	12
MV-031	1,621	P-031	1,110	RC-029	18
MV-032	3,517	P-032	1,427	RC-030	2,556
MV-033	1,652	P-033	56,890	RC-031	5,868
MV-034	1,590	P-034	6,429	RC-032	22,206
MV-035	765	P-035	592	RC-033	11,745
MV-036	828	P-036	7,001	RC-034	13,213

World Logistic Center  
Cumulative Energy - Natural gas

**Cumulative Natural Gas Consumption - Summary**

Project ID	Annual MMBtu	Project ID	Annual MMBtu	Project ID	Annual MMBtu
MV-037	52,508	P-036	111	RC-035	84,877
MV-038	14,101	P-037	5,597	RC-035	278
MV-039	51,984	P-038	6,821	RC-035	1,509
MV-040	200	P-039	1,591	RC-036	14,314
MV-041	2,944	P-040	3,732	RC-037	17,189
MV-042	906	P-041	4,865	RC-038	3,702
MV-043	18,054	P-042	1,866	RC-039	1,193
MV-044	2,252	P-043	1,743	RD-001	2,508
MV-045	193	P-044	1,391	RD-002	1,682
MV-046	776	P-045	1,110	RD-003	3,150
MV-047	489	P-046	6,681	RD-004	2,049
MV-048	4,335	P-047	15,935	RD-005	1,016
MV-049	4,555	P-048	2,294	RD-006	107
MV-050	11,528	P-049	3,487	RD-007	284
MV-051	24,995	P-050	178	RD-008	1,184
MV-052	28,557	P-051	1,071	RD-009	97
MV-053	2,538	P-052	2,508	RD-010	4,719
MV-054	3,528	P-053	4,924	RD-011	123
MV-056	489	P-054	7,280	RD-012	1,221
MV-057	1,132	P-055	999	RD-013	2,056
MV-058	245	P-056	320	RD-014	1,567
MV-059	1,927	P-057	85	RD-015	859
MV-060	2,814	P-058	12,281	RD-016	1,451
MV-061	400	P-059	7,432	SB-001	1,247
MV-062	16,608	P-060	10	SB-002	636
MV-063	6,760	P-061	711	SB-003	1,205
MV-064	2,661	R-001	4,015	SB-004	1,579
MV-065	769	R-002	1,183	SB-005	572
MV-066	3,713	R-003	21,184	SB-006	1,102
MV-067	4,924	R-004	3,196	SB-007	1,040
MV-068	6,728	R-005	1,735	SB-008	1,223
MV-069	13,308	R-006	1,139	SJ-001	4
MV-070	3,565	R-007	125	SJ-002	9,818
MV-071	725	R-008	576	SJ-003	17,740
MV-072	355	R-009	19,486	SJ-004	18,749
MV-073	1,420	R-010	52	WLC-001	1,835
MV-074	2,944	R-011	995	<b>Total Cum.</b>	3,211,448
MV-075	22,754	R-012	136	<b>Net Project</b>	84,771
MV-076	692	R-013	92	<b>Total</b>	3,296,219
MV-077	17,317	R-014	9	SoCalGas	873,793,575
				%SoCalGas	0.38%

Source: ESA, 2019

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

10

Climate Zone

	Electricity (kWh/unit)				Natural Gas (kBtu/unit)	
	T24	NT24	Light	T24	NT24	NT24
BP	3.07	2.60	4.24	2.92	0.000	
HI	2.20	5.02	2.93	15.36	17.130	
LI	2.20	5.02	2.93	15.36	17.130	
MF	772.17	3054.10	741.44	8764.08	6030.000	
MO	3.07	2.79	3.66	3.47	0.000	
OG	3.07	2.79	3.66	3.47	0.000	
RC	4.58	2.44	5.61	1.92	0.300	
SF	951.67	6155.97	1608.84	24556.15	6030.000	
SR	877.14	3172.76	1001.10	9544.50	6030.000	
WH	0.37	0.82	1.17	2.00	0.030	

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kWh	kBTU	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
B-001	SF	3,300.00	3,140,511	20,314,701	5,309,172	81,035,295	19,899,000	28,764,384	100,934			
B-002	MF	571.00	440,909	1,743,891	423,362	5,004,290	3,443,130	2,608,162	8,447			
B-003	SF	922.00	877,440	5,675,804	1,483,350	22,640,770	5,559,660	8,036,595	28,200			
B-004	LI	1,734.00	3,814,800	8,704,680	5,080,620	26,634,240	29,703,420	17,600,100	56,338			
B-005	HI	2,565.68	5,644,505	12,879,734	7,517,454	39,408,906	43,950,167	26,041,693	83,359			
B-006	BP	1,853.25	5,689,482	4,818,454	7,857,786	5,411,494	0	18,365,722	5,411			
B-007	SF	403.00	383,523	2,480,856	648,363	9,896,128	2,430,090	3,512,741	12,326			
B-008	SF	648.00	616,682	3,989,069	1,042,528	15,912,385	3,907,440	5,648,279	19,820			
B-009	SF	4,450.00	4,234,932	27,394,067	7,159,338	109,274,868	26,833,500	38,788,336	136,108			
B-010	SF	95.00	90,409	584,817	152,840	2,332,834	572,850	828,066	2,906			
B-011	RC	225.00	1,030,500	549,000	1,262,250	432,000	67,500	2,841,750	500			
B-012	MF	279.00	215,435	852,094	206,862	2,445,178	1,682,370	1,274,391	4,128			
B-013	SF	1,890.00	1,798,656	11,634,783	3,040,708	46,411,124	11,396,700	16,474,147	57,808			
B-014	SF	700.00	666,169	4,309,179	1,126,188	17,189,305	4,221,000	6,101,536	21,410			
C-001	RC	200.00	916,000	488,000	1,122,000	384,000	60,000	2,526,000	444			
C-002	RC	1,000.00	4,580,000	2,440,000	5,610,000	1,920,000	300,000	12,630,000	2,220			
C-002	BP	1,579.00	4,847,530	4,105,400	6,694,960	4,610,680	0	15,647,890	4,611			
C-003	RC	72.70	332,966	177,388	407,847	139,584	21,810	918,201	161			
H-001	SF	588.00	559,582	3,619,710	945,998	14,439,016	3,545,640	5,125,290	17,985			
H-002	SF	440.00	418,735	2,708,627	707,890	10,804,706	2,653,200	3,835,251	13,458			
H-003	SF	931.00	886,005	5,731,208	1,497,830	22,861,776	5,613,930	8,115,043	28,476			
H-004	LI	734.98	1,616,965	3,689,620	2,153,503	11,289,354	12,590,276	7,460,088	23,880			
H-004	BP	995.15	3,055,120	2,587,398	4,219,449	2,905,847	0	9,861,966	2,906			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kBtu	kBtu	kWh	kBtu	Electricity (kWh)	NG (MMBtu)	
H-005	RC	20.91	95,762	51,017	117,298	40,145	6,273	264,078	46			
H-006	RC	680.79	3,118,009	1,661,123	3,819,221	1,307,113	204,236	8,598,352	1,511			
H-007	SR	358.00	314,016	1,135,848	358,394	3,416,931	2,158,740	1,808,258	5,576			
H-008	SR	440.00	385,942	1,396,014	440,484	4,199,580	2,653,200	2,222,440	6,853			
H-009	SF	145.00	137,992	892,616	233,282	3,560,642	874,350	1,263,890	4,435			
M-001	RC	599.00	525,407	1,900,483	599,659	5,717,156	3,611,970	3,025,549	9,329			
M-001	RC	10.00	45,800	24,400	56,100	19,200	3,000	126,300	22			
M-001	OG	258.10	792,373	720,105	944,653	895,614	0	2,457,131	896			
M-001	LI	42.22	92,888	211,954	123,710	648,530	723,263	428,553	1,372			
M-001	HI	409.31	900,486	2,054,746	1,199,284	6,287,032	7,011,515	4,154,517	13,299			
M-002	WH	4,525.00	1,674,250	3,710,500	5,294,250	9,050,000	135,750	10,679,000	9,186			
M-002	OG	469.00	1,439,830	1,308,510	1,716,540	1,627,430	0	4,464,880	1,627			
M-002	LI	487.80	1,073,160	2,448,756	1,429,254	7,492,608	8,356,014	4,951,170	15,849			
M-003	WH	2,900.00	1,073,000	2,378,000	3,393,000	5,800,000	87,000	6,844,000	5,887			
M-004	RC	108.90	498,762	265,716	610,929	209,088	32,670	1,375,407	242			
M-005	WH	3,061.82	1,132,872	2,510,688	3,582,324	6,123,630	91,854	7,225,883	6,215			
M-005	OG	232.76	714,558	649,386	851,883	807,660	0	2,215,828	808			
M-005	LI	1,061.43	2,335,144	5,328,374	3,109,987	16,303,549	18,182,279	10,773,504	34,486			
M-006	BP	219.35	673,398	570,304	930,035	640,496	0	2,173,737	640			
M-007	WH	675.50	249,935	553,910	790,335	1,351,000	20,265	1,594,180	1,371			
M-008	RC	625.00	2,862,500	1,525,000	3,506,250	1,200,000	187,500	7,893,750	1,388			
M-008	MO	2,930.00	8,995,100	8,174,700	10,723,800	10,167,100	0	27,893,600	10,167			
M-009	SF	135.00	128,475	831,056	217,193	3,315,080	814,050	1,176,725	4,129			
M-010	WH	559.00	206,830	458,380	654,030	1,118,000	16,770	1,319,240	1,135			
M-011	RC	67.00	306,860	163,480	375,870	128,640	20,100	846,210	149			
MV-001	RC	304.50	1,394,610	742,980	1,708,245	584,640	91,350	3,845,835	676			
MV-002	SF	262.00	249,338	1,612,864	421,516	6,433,711	1,579,860	2,283,718	8,014			
MV-002	MF	216.00	166,789	659,686	160,151	1,893,041	1,302,480	986,625	3,196			
MV-003	WH	1,901.00	703,370	1,558,820	2,224,170	3,802,000	57,030	4,486,360	3,859			
MV-003	LI	367.00	807,400	1,842,340	1,075,310	5,637,120	6,286,710	3,725,050	11,924			
MV-004	LI	937.26	2,061,972	4,705,045	2,746,172	14,396,314	16,055,264	9,513,189	30,452			
MV-005	RC	116.36	532,929	283,918	652,780	223,411	34,908	1,469,627	258			
MV-006	WH	750.00	277,500	615,000	877,500	1,500,000	22,500	1,770,000	1,523			
MV-007	SF	31.00	29,502	190,835	49,874	761,241	186,930	270,211	948			
MV-008	SF	58.00	55,197	357,046	93,313	1,424,257	349,740	505,556	1,774			
MV-009	SF	11.00	10,468	67,716	17,697	270,118	66,330	95,881	336			
MV-010	SF	47.00	44,728	289,331	75,615	1,154,139	283,410	409,675	1,438			
MV-011	SF	24.00	22,840	147,743	38,612	589,348	144,720	209,196	734			
MV-012	MO	80.00	245,600	223,200	292,800	277,600	0	761,600	278			
MV-013	OG	30.00	92,100	83,700	109,800	104,100	0	285,600	104			
MV-014	SF	107.00	101,829	658,689	172,146	2,627,508	645,210	932,663	3,273			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kBtu	kBtu	kBtu	Electricity (kWh)	NG (MMBtu)		
MV-015	SF	63.00	59,955	387,826	101,357	1,547,037	379,890	549,138	1,927			
MV-016	SF	32.00	30,453	196,991	51,483	785,797	192,960	278,927	979			
MV-017	SF	96.00	91,360	590,973	154,449	2,357,390	578,880	836,782	2,936			
MV-018	RC	5.50	25,190	13,420	30,855	10,560	1,650	69,465	12			
MV-019	SR	139.00	121,922	441,014	139,153	1,326,686	838,170	702,089	2,165			
MV-020	RC	93.79	429,549	228,843	526,151	180,073	28,136	1,184,542	208			
MV-021	MO	80.00	245,600	223,200	292,800	277,600	0	761,600	278			
MV-022	SF	40.00	38,067	246,239	64,354	982,246	241,200	348,659	1,223			
MV-023	MF	417.00	321,995	1,273,560	309,180	3,654,621	2,514,510	1,904,735	6,169			
MV-024	SF	159.00	151,316	978,799	255,806	3,904,428	958,770	1,385,920	4,863			
MV-025	SF	81.00	77,085	498,634	130,316	1,989,048	488,430	706,035	2,477			
MV-026	SF	100.00	95,167	615,597	160,884	2,455,615	603,000	871,648	3,059			
MV-027	MF	54.00	41,697	164,921	40,038	473,260	325,620	246,656	799			
MV-028	MF	90.00	69,495	274,869	66,730	788,767	542,700	411,094	1,331			
MV-029	SF	275.00	261,709	1,692,892	442,431	6,752,941	1,658,250	2,397,032	8,411			
MV-030	SF	83.00	78,989	510,946	133,534	2,038,160	500,490	723,468	2,539			
MV-031	SF	53.00	50,439	326,266	85,269	1,301,476	319,590	461,973	1,621			
MV-032	SF	115.00	109,442	707,937	185,017	2,823,957	693,450	1,002,395	3,517			
MV-033	SF	54.00	51,390	332,422	86,877	1,326,032	325,620	470,690	1,652			
MV-034	SF	52.00	49,487	320,110	83,660	1,276,920	313,560	453,257	1,590			
MV-035	SF	25.00	23,792	153,899	40,221	613,904	150,750	217,912	765			
MV-036	MF	56.00	43,242	171,030	41,521	490,788	337,680	255,792	828			
MV-037	HI	1,616.13	3,555,493	8,112,988	4,735,270	24,823,803	27,684,358	16,403,750	52,508			
MV-038	LI	434.00	954,800	2,178,680	1,271,620	6,666,240	7,434,420	4,405,100	14,101			
MV-039	LI	1,600.00	3,520,000	8,032,000	4,688,000	24,576,000	27,408,000	16,240,000	51,984			
MV-040	WH	98.40	36,406	80,684	115,122	196,790	2,952	232,212	200			
MV-041	WH	1,450.00	536,500	1,189,000	1,696,500	2,900,000	43,500	3,422,000	2,944			
MV-042	WH	446.35	165,150	366,007	522,230	892,700	13,391	1,053,386	906			
MV-043	HI	555.67	1,222,474	2,789,463	1,628,113	8,535,091	9,518,627	5,640,051	18,054			
MV-044	WH	1,109.38	410,470	909,690	1,297,972	2,218,756	33,281	2,618,132	2,252			
MV-045	RC	87.12	399,010	212,573	488,743	167,270	26,136	1,100,326	193			
MV-046	WH	382.28	141,444	313,470	447,268	764,560	11,468	902,181	776			
MV-047	SF	16.00	15,227	98,496	25,741	392,898	96,480	139,464	489			
MV-048	BP	1,484.50	4,557,406	3,859,692	6,294,267	4,334,731	0	14,711,365	4,335			
MV-049	BP	1,560.05	4,789,341	4,056,120	6,614,595	4,555,334	0	15,460,056	4,555			
MV-050	LI	354.81	780,582	1,781,146	1,039,593	5,449,882	6,077,895	3,601,322	11,528			
MV-051	LI	769.32	1,692,504	3,861,986	2,254,108	11,816,755	13,178,452	7,808,598	24,995			
MV-052	LI	878.96	1,933,712	4,412,379	2,575,353	13,500,826	15,056,585	8,921,444	28,557			
MV-053	WH	1,250.00	462,500	1,025,000	1,462,500	2,500,000	37,500	2,950,000	2,538			
MV-054	WH	1,738.00	643,060	1,425,160	2,033,460	3,476,000	52,140	4,101,680	3,528			
MV-056	SF	16.00	15,227	98,496	25,741	392,898	96,480	139,464	489			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
MV-057	SF	37.00	35,212	227,771	59,527	908,578	223,110	322,510	1,132	
MV-058	SF	8.00	7,613	49,248	12,871	196,449	48,240	69,732	245	
MV-059	SF	63.00	59,955	387,826	101,357	1,547,037	379,890	549,138	1,927	
MV-060	SF	92.00	87,554	566,349	148,013	2,259,166	554,760	801,916	2,814	
MV-061	RC	180.00	824,400	439,200	1,009,800	345,600	54,000	2,273,400	400	
MV-062	SF	543.00	516,757	3,342,692	873,600	13,333,989	3,274,290	4,733,049	16,608	
MV-063	SF	221.00	210,319	1,360,469	355,554	5,426,909	1,332,630	1,926,342	6,760	
MV-064	SF	87.00	82,795	535,569	139,969	2,136,385	524,610	758,334	2,661	
MV-065	MF	52.00	40,153	158,813	38,555	455,732	313,560	237,521	769	
MV-066	MF	251.00	193,815	766,579	186,101	2,199,784	1,513,530	1,146,495	3,713	
MV-067	SF	161.00	153,219	991,111	259,023	3,953,540	970,830	1,403,353	4,924	
MV-068	HI	207.09	455,589	1,039,572	606,762	3,180,841	3,547,383	2,101,923	6,728	
MV-069	HI	409.60	901,116	2,056,182	1,200,122	6,291,425	7,016,414	4,157,420	13,308	
MV-070	MF	241.00	186,093	736,038	178,687	2,112,143	1,453,230	1,100,818	3,565	
MV-071	MF	49.00	37,836	149,651	36,331	429,440	295,470	223,818	725	
MV-072	MF	24.00	18,532	73,298	17,795	210,338	144,720	109,625	355	
MV-073	MF	96.00	74,128	293,194	71,178	841,352	578,880	438,500	1,420	
MV-074	SR	189.00	165,779	599,652	189,208	1,803,911	1,139,670	954,639	2,944	
MV-075	SR	1,461.00	1,281,502	4,635,402	1,462,607	13,944,515	8,809,830	7,379,511	22,754	
MV-076	RC	311.63	1,427,279	760,385	1,748,261	598,335	93,490	3,935,925	692	
MV-077	LI	533.00	1,172,600	2,675,660	1,561,690	8,186,880	9,130,290	5,409,950	17,317	
MV-078	LI	520.00	1,144,000	2,610,400	1,523,600	7,987,200	8,907,600	5,278,000	16,895	
MV-079	WH	367.00	135,790	300,940	429,390	734,000	11,010	866,120	745	
MV-080	RC	44.30	202,894	108,092	248,523	85,056	13,290	559,509	98	
MV-081	WH	700.00	259,000	574,000	819,000	1,400,000	21,000	1,652,000	1,421	
MV-082	WH	500.00	185,000	410,000	585,000	1,000,000	15,000	1,180,000	1,015	
MV-083	LI	356.00	783,200	1,787,120	1,043,080	5,468,160	6,098,280	3,613,400	11,566	
MV-084	LI	99.98	219,952	501,890	292,936	1,535,662	1,712,623	1,014,777	3,248	
MV-085	RC	140.00	641,200	341,600	785,400	268,800	42,000	1,768,200	311	
MV-086	SF	71.00	67,569	437,074	114,228	1,743,487	428,130	618,870	2,172	
MV-087	MF	60.00	46,330	183,246	44,486	525,845	361,800	274,063	888	
MV-088	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178	
MV-089	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178	
MV-090	RC	7.31	33,480	17,836	41,009	14,035	2,193	92,325	16	
MV-091	SF	87.00	82,795	535,569	139,969	2,136,385	524,610	758,334	2,661	
MV-093	MF	112.00	86,483	342,059	83,041	981,577	675,360	511,584	1,657	
MV-094	MF	266.00	205,397	812,391	197,223	2,331,245	1,603,980	1,215,011	3,935	
MV-095	RC	175.00	801,500	427,000	981,750	336,000	52,500	2,210,250	389	
MV-096	SF	78.00	74,230	480,166	125,490	1,915,380	470,340	679,885	2,386	
MV-097	SF	214.00	203,657	1,317,378	344,292	5,255,016	1,290,420	1,865,327	6,545	
MV-098	SF	16.00	15,227	98,496	25,741	392,898	96,480	139,464	489	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)		
MV-099	MF	96.00	74,128	293,194	71,178	841,352	578,880	438,500	1,420			
MV-100	MF	194.00	149,801	592,495	143,839	1,700,232	1,169,820	886,136	2,870			
MV-101	RC	9.00	41,220	21,960	50,490	17,280	2,700	113,670	20			
MV-102	OG	84.00	257,880	234,360	307,440	291,480	0	799,680	291			
MV-103	LI	184.00	404,800	923,680	539,120	2,826,240	3,151,920	1,867,600	5,978			
MV-104	WH	373.03	138,021	305,885	436,445	746,060	11,191	880,351	757			
MV-105	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178			
MV-106	MF	12.00	9,266	36,649	8,897	105,169	72,360	54,813	178			
MV-107	SF	9.00	8,565	55,404	14,480	221,005	54,270	78,448	275			
MV-108	RC	2.97	13,616	7,254	16,679	5,708	892	37,549	7			
MV-109	SF	1,105.00	1,051,595	6,802,347	1,777,768	27,134,546	6,663,150	9,631,710	33,798			
MV-110	MF	60.00	46,330	183,246	44,486	525,845	361,800	274,063	888			
MV-111	MF	16.00	12,355	48,866	11,863	140,225	96,480	73,083	237			
MV-112	MF	15.00	11,583	45,812	11,122	131,461	90,450	68,516	222			
MV-113	SF	144.00	137,040	886,460	231,673	3,536,086	868,320	1,255,173	4,404			
MV-114	RC	5.70	26,106	13,908	31,977	10,944	1,710	71,991	13			
MV-115	OG	0.02	71	64	84	80	0	219	0			
MV-116	SF	25.00	23,792	153,899	40,221	613,904	150,750	217,912	765			
MV-117	OG	52.00	159,640	145,080	190,320	180,440	0	495,040	180			
MV-118	SF	9.00	8,565	55,404	14,480	221,005	54,270	78,448	275			
MV-119	SF	35.00	33,308	215,459	56,309	859,465	211,050	305,077	1,071			
MV-120	RC	189.52	868,002	462,429	1,063,207	363,878	56,856	2,393,638	421			
MV-121	RC	4.35	19,928	10,616	24,409	8,354	1,305	54,953	10			
MV-123	RC	14.00	64,120	34,160	78,540	26,880	4,200	176,820	31			
MV-124	RC	140.00	641,200	341,600	785,400	268,800	42,000	1,768,200	311			
MV-125	MF	24.00	18,532	73,298	17,795	210,338	144,720	109,625	355			
MV-126	SF	235.00	223,642	1,446,653	378,077	5,770,695	1,417,050	2,048,373	7,188			
MV-127	WH	340.01	125,804	278,808	397,812	680,020	10,200	802,424	690			
MV-129	LI	1,580.00	3,476,000	7,931,600	4,629,400	24,268,800	27,065,400	16,037,000	51,334			
MV-130	WH	221.86	82,088	181,924	259,575	443,718	6,656	523,587	450			
MV-131	WH	1,500.00	555,000	1,230,000	1,755,000	3,000,000	45,000	3,540,000	3,045			
MV-132	WH	1,100.00	407,000	902,000	1,287,000	2,200,000	33,000	2,596,000	2,233			
P-001	SF	137.00	130,379	843,368	220,411	3,364,193	826,110	1,194,158	4,190			
P-002	WH	600.00	222,000	492,000	702,000	1,200,000	18,000	1,416,000	1,218			
P-003	WH	462.30	171,051	379,086	540,891	924,600	13,869	1,091,028	938			
P-004	LI	172.00	378,400	863,440	503,960	2,641,920	2,946,360	1,745,800	5,588			
P-005	WH	460.00	170,200	377,200	538,200	920,000	13,800	1,085,600	934			
P-006	LI	600.00	1,320,000	3,012,000	1,758,000	9,216,000	10,278,000	6,090,000	19,494			
P-007	LI	1,189.86	2,617,692	5,973,097	3,486,290	18,276,250	20,382,302	12,077,079	38,659			
P-008	LI	241.00	530,200	1,209,820	706,130	3,701,760	4,128,330	2,446,150	7,830			
P-009	HI	642.00	1,412,400	3,222,840	1,881,060	9,861,120	10,997,460	6,516,300	20,859			

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
P-010	WH	1,700.00	629,000	1,394,000	1,989,000	3,400,000	51,000	4,012,000	3,451	
P-011	HI	1,224.99	2,694,985	6,149,465	3,589,229	18,815,892	20,984,130	12,433,679	39,800	
P-012	LI	454.09	998,994	2,279,522	1,330,478	6,974,792	7,778,527	4,608,993	14,753	
P-014	WH	1,200.00	444,000	984,000	1,404,000	2,400,000	36,000	2,832,000	2,436	
P-015	WH	780.82	288,902	640,268	913,554	1,561,630	23,424	1,842,723	1,585	
P-016	WH	1,310.00	484,700	1,074,200	1,532,700	2,620,000	39,300	3,091,600	2,659	
P-017	WH	580.00	214,600	475,600	678,600	1,160,000	17,400	1,368,800	1,177	
P-018	WH	1,547.00	572,390	1,268,540	1,809,990	3,094,000	46,410	3,650,920	3,140	
P-019	WH	697.60	258,112	572,032	816,192	1,395,200	20,928	1,646,336	1,416	
P-020	WH	871.50	322,455	714,630	1,019,655	1,743,000	26,145	2,056,740	1,769	
P-021	WH	170.00	62,900	139,400	198,900	340,000	5,100	401,200	345	
P-022	WH	380.00	140,600	311,600	444,600	760,000	11,400	896,800	771	
P-023	WH	180.00	66,600	147,600	210,600	360,000	5,400	424,800	365	
P-024	WH	1,464.00	541,680	1,200,480	1,712,880	2,928,000	43,920	3,455,040	2,972	
P-025	WH	1,038.00	384,060	851,160	1,214,460	2,076,000	31,140	2,449,680	2,107	
P-026	LI	811.62	1,785,564	4,074,332	2,378,047	12,466,483	13,903,051	8,237,943	26,370	
P-027	WH	864.00	319,680	708,480	1,010,880	1,728,000	25,920	2,039,040	1,754	
P-028	LI	670.00	1,474,000	3,363,400	1,963,100	10,291,200	11,477,100	6,800,500	21,768	
P-030	SF	492.00	468,222	3,028,737	791,549	12,081,626	2,966,760	4,288,508	15,048	
P-031	MF	75.00	57,913	229,058	55,608	657,306	452,250	342,578	1,110	
P-032	RC	643.00	2,944,940	1,568,920	3,607,230	1,234,560	192,900	8,121,090	1,427	
P-033	SF	1,860.00	1,770,106	11,450,104	2,992,442	45,674,439	11,215,800	16,212,653	56,890	
P-034	WH	3,166.86	1,171,737	2,596,823	3,705,223	6,333,714	95,006	7,473,783	6,429	
P-035	MF	40.00	30,887	122,164	29,658	350,563	241,200	182,708	592	
P-036	WH	3,448.73	1,276,032	2,827,962	4,035,019	6,897,468	103,462	8,139,012	7,001	
P-036	RC	50.00	229,000	122,000	280,500	96,000	15,000	631,500	111	
P-037	SF	183.00	174,156	1,126,543	294,418	4,493,775	1,103,490	1,595,116	5,597	
P-038	SF	223.00	212,222	1,372,781	358,771	5,476,021	1,344,690	1,943,775	6,821	
P-039	WH	783.70	289,969	642,634	916,929	1,567,400	23,511	1,849,532	1,591	
P-040	SF	122.00	116,104	751,028	196,278	2,995,850	735,660	1,063,411	3,732	
P-041	LI	149.74	329,424	751,685	438,732	2,299,976	2,565,012	1,519,841	4,865	
P-042	SF	61.00	58,052	375,514	98,139	1,497,925	367,830	531,705	1,866	
P-043	SF	57.00	54,245	350,890	91,704	1,399,701	343,710	496,839	1,743	
P-044	MF	94.00	72,584	287,085	69,695	823,824	566,820	429,365	1,391	
P-045	MF	75.00	57,913	229,058	55,608	657,306	452,250	342,578	1,110	
P-046	SR	429.00	376,293	1,361,114	429,472	4,094,591	2,586,870	2,166,879	6,681	
P-047	SF	521.00	495,820	3,207,260	838,206	12,793,754	3,141,630	4,541,286	15,935	
P-048	SF	75.00	71,375	461,698	120,663	1,841,711	452,250	653,736	2,294	
P-049	SF	114.00	108,490	701,781	183,408	2,799,401	687,420	993,679	3,487	
P-050	RC	80.00	366,400	195,200	448,800	153,600	24,000	1,010,400	178	
P-051	SF	35.00	33,308	215,459	56,309	859,465	211,050	305,077	1,071	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
P-052	SF	82.00	78,037	504,790	131,925	2,013,604	494,460	714,751	2,508	
P-053	SF	161.00	153,219	991,111	259,023	3,953,540	970,830	1,403,353	4,924	
P-054	SF	238.00	226,497	1,465,121	382,904	5,844,364	1,435,140	2,074,522	7,280	
P-055	RC	450.00	2,061,000	1,098,000	2,524,500	864,000	135,000	5,683,500	999	
P-056	LI	9.85	21,679	49,467	28,872	151,357	168,799	100,018	320	
P-057	WH	41.65	15,411	34,153	48,731	83,300	1,250	98,294	85	
P-058	HI	378.00	831,600	1,897,560	1,107,540	5,806,080	6,475,140	3,836,700	12,281	
P-059	SF	243.00	231,256	1,495,901	390,948	5,967,144	1,465,290	2,118,105	7,432	
P-060	RC	4.50	20,610	10,980	25,245	8,640	1,350	56,835	10	
P-061	WH	350.00	129,500	287,000	409,500	700,000	10,500	826,000	711	
R-001	BP	1,375.17	4,221,769	3,575,439	5,830,717	4,015,493	0	13,627,925	4,015	
R-002	WH	582.77	2,15,626	477,873	681,843	1,165,544	17,483	1,375,342	1,183	
R-003	LI	652.02	1,434,440	3,273,130	1,910,413	10,014,996	11,169,068	6,617,983	21,184	
R-004	MF	216.00	166,789	659,686	160,151	1,893,041	1,302,480	986,625	3,196	
R-005	MO	500.00	1,535,000	1,395,000	1,830,000	1,735,000	0	4,760,000	1,735	
R-006	MF	77.00	59,457	235,166	57,091	674,834	464,310	351,714	1,139	
R-007	RC	56.10	256,943	136,886	314,727	107,714	16,830	708,556	125	
R-008	SR	37.00	32,454	117,392	37,041	353,147	223,110	186,887	576	
R-009	RC	8,777.62	40,201,494	21,417,390	49,242,441	16,853,028	2,633,286	110,861,325	19,486	
R-010	RC	23.57	107,928	57,499	132,200	45,245	7,070	297,626	52	
R-011	BP	340.66	1,045,816	885,707	1,444,384	994,717	0	3,375,907	995	
R-012	RC	61.38	281,110	149,762	344,329	117,845	18,413	775,201	136	
R-013	SF	3.00	2,855	18,468	4,827	73,668	18,090	26,149	92	
R-014	RC	3.86	17,670	9,414	21,643	7,407	1,157	48,727	9	
R-015	SF	171.70	163,398	1,056,955	276,231	4,216,193	1,035,327	1,496,585	5,252	
R-016	SF	1.53	1,452	9,392	2,455	37,465	9,200	13,299	47	
R-017	MF	275.00	212,347	839,878	203,896	2,410,122	1,658,250	1,256,120	4,068	
R-018	LI	9,037.83	19,883,223	45,369,901	26,480,838	138,821,050	154,818,007	91,733,962	293,639	
R-019	MF	55.00	42,469	167,976	40,779	482,024	331,650	251,224	814	
R-020	WH	1,461.45	540,736	1,198,388	1,709,895	2,922,898	43,843	3,449,020	2,967	
R-021	SF	15.00	14,275	92,340	24,133	368,342	90,450	130,747	459	
R-022	SF	9.00	8,565	55,404	14,480	221,005	54,270	78,448	275	
R-023	RC	8.04	36,819	19,615	45,099	15,435	2,412	101,533	18	
R-024	SF	5,000.00	4,758,350	30,779,850	8,044,200	122,780,750	30,150,000	43,582,400	152,931	
R-025	MF	208.00	160,611	635,253	154,220	1,822,929	1,254,240	950,084	3,077	
R-026	RC	297.95	1,364,613	726,999	1,671,502	572,065	89,385	3,763,114	661	
R-026	LI	943.51	2,075,721	4,736,418	2,764,483	14,492,307	16,162,319	9,576,622	30,655	
R-026	BP	347.61	1,067,159	903,783	1,473,861	1,015,018	0	3,444,803	1,015	
R-027	RC	3.62	16,570	8,828	20,297	6,947	1,085	45,695	8	
R-028	SR	134.00	117,537	425,150	134,147	1,278,963	808,020	676,834	2,087	
R-029	RC	3.80	17,381	9,260	21,290	7,286	1,139	47,931	8	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	kWh	Electricity (kWh)	NG (MMBtu)
R-030	RC	208.57	955,229	508,899	1,170,051	400,445	62,570	2,634,179	463	
R-031	MF	36.00	27,798	109,948	26,692	315,507	217,080	164,438	533	
R-032	RC	22.27	102,006	54,344	124,946	42,762	6,682	281,295	49	
R-033	MF	30.00	23,165	91,623	22,243	262,922	180,900	137,031	444	
R-034	OG	12.17	37,350	33,943	44,528	42,216	0	115,820	42	
R-035	MF	102.00	78,761	311,518	75,627	893,936	615,060	465,906	1,509	
R-036	MF	62.00	47,875	189,354	45,969	543,373	373,860	283,198	917	
R-037	RC	6.00	27,480	14,640	33,660	11,520	1,800	75,780	13	
R-038	RC	3.50	16,030	8,540	19,635	6,720	1,050	44,205	8	
R-039	SF	402.00	382,571	2,474,700	646,754	9,871,572	2,424,060	3,504,025	12,296	
R-040	RC	2.40	10,992	5,856	13,464	4,608	720	30,312	5	
R-041	OG	23.12	70,991	64,516	84,634	80,240	0	220,140	80	
R-042	SF	598.00	569,099	3,681,270	962,086	14,684,578	3,605,940	5,212,455	18,291	
R-043	SF	50.00	47,584	307,799	80,442	1,227,808	301,500	435,824	1,529	
R-044	RC	4.00	18,320	9,760	22,440	7,680	1,200	50,520	9	
R-045	OG	37.94	116,473	105,850	138,857	131,648	0	361,179	132	
R-046	SF	35.84	34,111	220,648	57,666	880,166	216,133	312,425	1,096	
R-047	WH	107.73	39,861	88,340	126,046	215,464	3,232	254,248	219	
R-048	RC	75.30	344,874	183,732	422,433	144,576	22,590	951,039	167	
R-049	SR	310.00	271,913	983,556	310,341	2,958,795	1,869,300	1,565,810	4,828	
R-050	SF	3.83	3,647	23,593	6,166	94,111	23,110	33,406	117	
R-051	RC	2.36	10,813	5,761	13,245	4,533	708	29,819	5	
R-052	SF	32.00	30,453	196,991	51,483	785,797	192,960	278,927	979	
R-053	SF	29.00	27,598	178,523	46,656	712,128	174,870	252,778	887	
R-054	SF	25.00	23,792	153,899	40,221	613,904	150,750	217,912	765	
R-055	SF	20.00	19,033	123,119	32,177	491,123	120,600	174,330	612	
R-056	OG	131.00	402,170	365,490	479,460	454,570	0	1,247,120	455	
R-057	LI	171.62	377,555	861,512	502,835	2,636,022	2,939,782	1,741,902	5,576	
R-058	RC	2.75	12,577	6,700	15,405	5,272	824	34,682	6	
R-059	RC	4.05	18,549	9,882	22,721	7,776	1,215	51,152	9	
R-060	BP	101.58	311,851	264,108	430,699	296,614	0	1,006,658	297	
R-061	RC	425.45	1,948,547	1,038,091	2,386,758	816,858	127,634	5,373,396	944	
R-062	RC	1.83	8,386	4,468	10,272	3,516	549	23,126	4	
R-063	MF	21.00	16,216	64,136	15,570	184,046	126,630	95,922	311	
R-064	SF	5.00	4,758	30,780	8,044	122,781	30,150	43,582	153	
R-065	SF	62.00	59,004	381,670	99,748	1,522,481	373,860	540,422	1,896	
R-066	RC	6.15	28,167	15,006	34,502	11,808	1,845	77,675	14	
RC-001	SF	1.251.00	1,190,539	7,701,118	2,012,659	30,719,744	7,543,530	10,904,316	38,263	
RC-002	SF	2,000.00	1,903,340	12,311,940	3,217,680	49,112,300	12,060,000	17,432,960	61,172	
RC-003	SF	3,412.00	3,247,098	21,004,170	5,489,362	83,785,584	20,574,360	29,740,630	104,360	
RC-005	SF	750.00	713,753	4,616,978	1,206,630	18,417,113	4,522,500	6,537,360	22,940	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity				Natural Gas				Total	
			kWh	kWh	kWh	kWh	kBTU	kBTU	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)
RC-006	BP	600.00	1,842,000	1,560,000	2,544,000	1,752,000	0	1,752,000	0	5,946,000	1,752	
RC-007	WH	1,586.65	587,059	1,301,049	1,856,375	3,173,290	47,599	3,173,290	47,599	3,744,482	3,221	
RC-009	OG	34.00	104,380	94,860	124,440	117,980	0	117,980	0	323,680	118	
RC-009	HI	1,172.71	2,579,962	5,887,004	3,436,040	18,012,826	20,088,522	18,012,826	20,088,522	11,903,007	38,101	
RC-010	LI	6,200.00	13,640,000	31,124,000	18,166,000	95,232,000	106,206,000	95,232,000	106,206,000	62,930,000	201,438	
RC-011	WH	814.00	301,180	667,480	952,380	1,628,000	24,420	1,628,000	24,420	1,921,040	1,652	
RC-012	LI	423.67	932,063	2,126,798	1,241,338	6,507,494	7,257,381	6,507,494	7,257,381	4,300,200	13,765	
RC-013	SF	497.00	472,980	3,059,517	799,593	12,204,407	2,996,910	12,204,407	2,996,910	4,332,091	15,201	
RC-014	MF	320.00	247,094	977,312	237,261	2,804,506	1,929,600	2,804,506	1,929,600	1,461,667	4,734	
RC-015	SF	142.00	135,137	874,148	228,455	3,486,973	856,260	3,486,973	856,260	1,237,740	4,343	
RC-017	RC	9.28	42,502	22,643	52,061	17,818	2,784	17,818	2,784	117,206	21	
RC-018	SF	15.00	14,275	92,340	24,133	368,342	90,450	368,342	90,450	130,747	459	
RC-019	RC	52.80	241,815	128,827	296,197	101,372	15,839	101,372	15,839	666,839	117	
RC-020	RC	2.80	12,824	6,832	15,708	5,376	840	5,376	840	35,364	6	
RC-021	WH	8.00	2,960	6,560	9,360	16,000	240	16,000	240	18,880	16	
RC-022	SF	131.00	124,669	806,432	210,758	3,216,856	789,930	3,216,856	789,930	1,141,859	4,007	
RC-023	LI	52.45	115,390	263,299	153,679	805,632	898,469	805,632	898,469	532,368	1,704	
RC-024	LI	190.80	419,764	957,826	559,050	2,930,719	3,268,438	2,930,719	3,268,438	1,936,640	6,199	
RC-025	LI	85.00	187,000	426,700	249,050	1,305,600	1,456,050	1,305,600	1,456,050	862,750	2,762	
RC-026	SF	2.00	1,903	12,312	3,218	49,112	12,060	49,112	12,060	17,433	61	
RC-027	LI	188.70	415,144	947,284	552,897	2,898,461	3,232,464	2,898,461	3,232,464	1,915,324	6,131	
RC-028	RC	5.60	25,648	13,664	31,416	10,752	1,680	10,752	1,680	70,728	12	
RC-029	RC	8.14	37,290	19,866	45,677	15,633	2,443	15,633	2,443	102,833	18	
RC-030	WH	1,259.05	465,849	1,032,421	1,473,089	2,518,100	37,772	2,518,100	37,772	2,971,358	2,556	
RC-031	LI	180.60	397,320	906,612	529,158	2,774,016	3,093,678	2,774,016	3,093,678	1,833,090	5,868	
RC-032	SF	726.00	690,912	4,469,234	1,168,018	17,827,765	4,377,780	17,827,765	4,377,780	6,328,164	22,206	
RC-033	SF	384.00	365,441	2,363,892	617,795	9,429,562	2,315,520	9,429,562	2,315,520	3,347,128	11,745	
RC-034	SF	432.00	411,121	2,659,379	695,019	10,608,257	2,604,960	10,608,257	2,604,960	3,765,519	13,213	
RC-035	SF	2,775.00	2,640,884	17,082,817	4,464,531	68,143,316	16,733,250	68,143,316	16,733,250	24,188,232	84,877	
RC-035	OG	80.00	245,600	223,200	292,800	277,600	0	277,600	0	761,600	278	
RC-035	MF	102.00	78,761	311,518	75,627	893,936	615,060	893,936	615,060	465,906	1,509	
RC-036	SF	468.00	445,382	2,880,994	752,937	11,492,278	2,822,040	11,492,278	2,822,040	4,079,313	14,314	
RC-037	SF	562.00	534,839	3,459,655	904,168	13,800,556	3,388,860	13,800,556	3,388,860	4,898,662	17,189	
RC-038	WH	1,823.76	674,791	1,495,483	2,133,799	3,647,520	54,713	3,647,520	54,713	4,304,074	3,702	
RC-039	SF	39.00	37,115	240,083	62,745	957,690	235,170	957,690	235,170	339,943	1,193	
RD-001	SF	82.00	78,037	504,790	131,925	2,013,604	494,460	2,013,604	494,460	714,751	2,508	
RD-002	SF	55.00	52,342	338,578	88,486	1,350,588	331,650	1,350,588	331,650	479,406	1,682	
RD-003	SF	103.00	98,022	634,065	165,711	2,529,283	621,090	2,529,283	621,090	897,797	3,150	
RD-004	SF	67.00	63,762	412,450	107,792	1,645,262	404,010	1,645,262	404,010	584,004	2,049	
RD-005	WH	500.60	185,223	410,494	585,704	1,001,204	15,018	1,001,204	15,018	1,181,421	1,016	
RD-006	RC	48.22	220,866	117,667	270,537	92,590	14,467	92,590	14,467	609,069	107	

World Logistic Center  
 Cumulative Energy - Electricity Natural Gas

Energy Consumption - Electricity & Natural Gas

Project ID	Induse_Cod	Landuse_qty	Electricity			Natural Gas			Total	
			kWh	kWh	kWh	kBTU	kBTU	Electricity (kWh)	NG (MMBtu)	
RD-007	RC	127.75	585,077	311,700	716,655	245,272	38,324	1,613,432	284	
RD-008	MF	80.00	61,774	244,328	59,315	701,126	482,400	365,417	1,184	
RD-009	RC	43.80	200,613	106,877	245,729	84,100	13,141	553,219	97	
RD-010	LI	145.26	319,561	729,180	425,597	2,231,117	2,488,218	1,474,338	4,719	
RD-011	RC	55.47	254,030	135,335	311,159	106,493	16,640	700,523	123	
RD-012	WH	601.29	222,476	493,055	703,506	1,202,574	18,039	1,419,037	1,221	
RD-013	WH	1,013.00	374,810	830,660	1,185,210	2,026,000	30,390	2,390,680	2,056	
RD-014	WH	772.00	285,640	633,040	903,240	1,544,000	23,160	1,821,920	1,567	
RD-015	WH	423.00	156,510	346,860	494,910	846,000	12,690	998,280	859	
RD-016	WH	714.73	264,451	586,081	836,238	1,429,466	21,442	1,686,770	1,451	
SB-001	WH	614.33	227,301	503,749	718,764	1,228,656	18,430	1,449,814	1,247	
SB-002	WH	313.47	115,984	257,045	366,760	626,940	9,404	739,789	636	
SB-003	WH	593.56	219,618	486,722	694,469	1,187,126	17,807	1,400,809	1,205	
SB-004	WH	777.62	287,719	637,648	909,815	1,555,240	23,329	1,835,183	1,579	
SB-005	WH	282.00	104,340	231,240	329,940	564,000	8,460	665,520	572	
SB-006	WH	542.98	200,901	445,241	635,283	1,085,954	16,289	1,281,426	1,102	
SB-007	SF	34.00	32,356,780	209,302,980	54,700,560	834,909	205,020	296,360,320	1,040	
SB-008	SF	40.00	38,067	246,239	64,354	982,246	241,200	348,659	1,223	
SJ-001	RC	1,678.24	7,686,361	4,094,917	9,414,954	3,222	503	21,196,232	4	
SJ-002	SF	321.00	305,486	1,976,066	516,438	7,882,524	1,935,630	2,797,990	9,818	
SJ-003	SF	580.00	551,969	3,570,463	933,127	14,242,567	3,497,400	5,055,558	17,740	
SJ-004	SF	613.00	583,374	3,773,610	986,219	15,052,920	3,696,390	5,343,202	18,749	
WLC-001	SF	60.00	57,100	369,358	96,530	1,473,369	361,800	522,989	1,835	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

	Water Usage (gal/ unit)		
	Indoor	Outdoor	
BP	Office Park	177,734	108,937
HI	Heavy Industrial	231,250	0
LI	Light Industrial	231,250	0
MF	Multi-Family - Mid Rise Apartment	65,154	41,075
MO	Medical Office	125,481	23,901
OG	General Office	177,734	108,934
RC	Retail Commercial	74,073	45,399
SF	Single Family Residential	65,154	41,075
SR	Senior Residential	65,154	41,075
WH	Warehouse - Unrefrigerated No Rail	231,250	0

Electricity Intensity Rates (kWhr/Million Gallons)

	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
	9727	111	1272	1911

Energy Consumption - Electricity from Potable Water Use

Project ID	Water		Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)
B-001	215,008,200	135,547,500	350.5557	215.0082
B-002	37,202,934	23,453,825	60.656759	37.202934
B-003	60,071,988	37,871,150	97.943138	60.071988
B-004	400,987,500	0	400.9875	400.9875
B-005	593,314,425	0	593.314425	593.314425
B-006	329,385,800	201,887,657	531.2734573	329.3858
B-007	26,257,062	16,553,225	42.810287	26.257062
B-008	42,219,792	26,616,600	68.856392	42.219792
B-009	289,935,300	182,783,750	472.71905	289.9353
B-010	6,189,630	3,902,125	10.091755	6.18963
B-011	16,666,425	10,214,775	26.8812	16.666425
B-012	18,177,966	11,459,925	29.637891	18.177966
B-013	123,141,060	77,631,750	200.77281	123.14106
B-014	45,607,800	28,752,500	74.3603	45.6078
C-001	14,814,600	9,079,800	23.8944	14.8146
C-002	74,073,000	45,399,000	119.472	74.073
C-002	280,641,986	172,011,523	452.653509	280.641986
C-003	5,385,107	3,300,507	8.6856144	5.3851071
H-001	38,310,552	24,152,100	62.462652	38.310552
H-002	28,667,760	18,073,000	46.74076	28.66776
H-003	60,658,374	38,240,825	98.899199	60.658374
H-004	169,965,050	0	169.96505	169.96505
H-004	176,872,523	108,408,982	285.2815057	176.8725233

	Electricity from Water (kWh)			
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
	3,409,855	38,912	445,907	410,881
	590,008	6,733	77,155	71,095
	952,693	10,872	124,584	114,798
	3,900,405	44,510	510,056	766,287
	5,771,169	65,858	754,696	1,133,824
	5,167,697	58,971	675,780	629,456
	416,416	4,752	54,455	50,177
	669,572	7,641	87,560	80,682
	4,598,138	52,472	601,299	554,066
	98,163	1,120	12,837	11,828
	261,473	2,984	34,193	31,850
	288,288	3,290	37,699	34,738
	1,952,917	22,286	255,383	235,323
	723,303	8,254	94,586	87,157
	232,421	2,652	30,394	28,311
	1,162,104	13,261	151,968	141,554
	4,402,961	50,245	575,775	536,307
	84,485	964	11,048	10,291
	607,574	6,933	79,452	73,211
	454,647	5,188	59,454	54,784
	961,993	10,978	125,800	115,918
	1,653,250	18,866	216,196	324,803
	2,774,933	31,666	362,878	338,003

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water		Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)
H-005	1,548,778	949,239	2.498016154	1.548777542
H-006	50,428,010	30,907,094	81.335103394	50.428000952
H-007	23,325,132	14,704,850	38.029982	23.325132
H-008	28,667,760	18,073,000	46.74076	28.66776
H-008	9,447,330	5,955,875	15.403205	9.44733
H-009	39,027,246	24,603,925	63.631171	39.027246
MV-001	740,730	453,990	1.19472	0.74073
MV-001	45,873,501	28,116,083	73.98958414	45.87350087
MV-001	9,763,838	0	9.7638375	9.7638375
MV-001	94,653,400	0	94.6534	94.6534
MV-002	1,046,406,250	0	1046.40625	1046.40625
MV-002	83,357,246	51,090,046	134.447292	83.357246
MV-002	112,803,750	0	112.80375	112.80375
MV-003	670,625,000	0	670.625	670.625
MV-004	8,066,550	4,943,951	13.0105008	8.0665497
MV-005	708,044,719	0	708.0447188	708.0447188
MV-005	41,368,477	25,354,933	66.72341034	41.36847717
MV-005	245,455,456	0	245.4554563	245.4554563
MV-006	38,985,567	23,895,094	62.88066065	38.98556652
MV-007	156,209,375	0	156.209375	156.209375
MV-008	46,295,625	28,374,375	74.67	46.295625
MV-008	367,659,330	70,029,930	437.68926	367.65933
MV-009	8,795,790	5,545,125	14.340915	8.79579
MV-010	129,268,750	0	129.26875	129.26875
MV-011	4,962,891	3,041,733	8.004624	4.962891
MV-001	22,555,229	13,823,996	36.379224	22.5552285
MV-002	17,070,348	10,761,650	27.831998	17.070348
MV-002	14,073,264	8,872,200	22.945464	14.073264
MV-003	439,606,250	0	439.60625	439.60625
MV-003	84,868,750	0	84.86875	84.86875
MV-004	216,741,375	0	216.741375	216.741375
MV-005	8,619,134	5,282,628	13.90176192	8.61913428
MV-006	173,437,500	0	173.4375	173.4375
MV-007	2,019,774	1,273,325	3.293099	2.019774
MV-008	3,778,932	2,382,350	6.161282	3.778932
MV-009	716,694	451,825	1.168519	0.716694
MV-010	3,062,238	1,930,525	4.992763	3.062238
MV-011	1,563,696	985,800	2.549496	1.563696
MV-012	10,038,480	1,912,080	11.95056	10.03848
MV-013	5,332,020	3,268,020	8.60004	5.33202
MV-014	6,971,478	4,395,025	11.366503	6.971478

Project ID	Electricity from Water (kWh)			
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
H-005	24,298	277	3,177	2,960
H-006	791,147	9,028	103,458	96,368
H-007	369,918	4,221	48,374	44,574
H-008	454,647	5,188	59,454	54,784
H-008	149,827	1,710	19,593	18,054
H-009	618,940	7,063	80,939	74,581
MV-001	11,621	133	1,520	1,416
MV-001	719,697	8,213	94,115	87,664
MV-001	94,973	1,084	12,420	18,659
MV-001	920,694	10,507	120,399	180,883
MV-002	10,178,394	116,151	1,331,029	1,999,682
MV-002	1,307,769	14,924	171,017	159,296
MV-002	1,097,242	12,521	143,486	215,568
MV-003	6,523,169	74,439	853,035	1,281,564
MV-004	126,553	1,444	16,549	15,415
MV-005	6,887,151	78,593	900,633	1,353,073
MV-005	649,019	7,406	84,872	79,055
MV-005	2,387,545	27,246	312,219	469,065
MV-006	611,640	6,980	79,984	74,501
MV-007	1,519,449	17,339	198,698	298,516
MV-008	726,315	8,288	94,980	88,471
MV-008	4,257,403	48,584	556,741	702,597
MV-009	139,494	1,592	18,242	16,809
MV-010	1,257,397	14,349	164,430	247,033
MV-011	77,861	889	10,182	9,484
MV-001	353,861	4,038	46,274	43,103
MV-002	270,722	3,089	35,402	32,621
MV-002	223,191	2,547	29,187	26,894
MV-003	4,276,050	48,796	559,179	840,088
MV-003	825,518	9,420	107,953	162,184
MV-004	2,108,243	24,058	275,695	414,193
MV-005	135,222	1,543	17,683	16,471
MV-006	1,687,027	19,252	220,613	331,439
MV-007	32,032	366	4,189	3,860
MV-008	59,931	684	7,837	7,222
MV-009	11,366	130	1,486	1,370
MV-010	48,565	554	6,351	5,852
MV-011	24,799	283	3,243	2,988
MV-012	116,243	1,327	15,201	19,184
MV-013	83,653	955	10,939	10,189
MV-014	110,562	1,262	14,458	13,322

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water		Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)
MV-015	4,104,702	2,587,725	6.692427	4.104702
MV-016	2,084,928	1,314,400	3.399328	2.084928
MV-017	6,254,784	3,943,200	10.197984	6.254784
MV-018	407,402	249,695	0.657096	0.4074015
MV-019	9,056,406	5,709,425	14.765831	9.056406
MV-020	6,947,159	4,257,881	11.20503994	6.947158524
MV-021	10,038,480	1,912,080	11.950556	10.03848
MV-022	2,606,160	1,643,000	4.24916	2.60616
MV-023	27,169,218	17,128,275	44.297493	27.169218
MV-024	10,359,486	6,530,925	16.890411	10.359486
MV-025	5,277,474	3,327,075	8.604549	5.277474
MV-026	6,515,400	4,107,500	10.6229	6.5154
MV-027	3,518,316	2,218,050	5.736366	3.518316
MV-028	5,863,860	3,696,750	9.56061	5.86386
MV-029	17,917,350	11,295,625	29.212975	17.91735
MV-030	5,407,782	3,409,225	8.817007	5.407782
MV-031	3,453,162	2,176,975	5.630137	3.453162
MV-032	7,492,710	4,723,625	12.216335	7.49271
MV-033	3,518,316	2,218,050	5.736366	3.518316
MV-034	3,388,008	2,135,900	5.523908	3.388008
MV-035	1,628,850	1,026,875	2.655725	1.62885
MV-036	3,648,624	2,300,200	5.948824	3.648624
MV-037	373,730,756	0	373.7307563	373.7307563
MV-038	100,362,500	0	100.3625	100.3625
MV-039	370,000,000	0	370	370
MV-040	22,753,844	0	22.75384375	22.75384375
MV-041	335,312,500	0	335.3125	335.3125
MV-042	103,218,438	0	103.2184375	103.2184375
MV-043	128,498,688	0	128.4986875	128.4986875
MV-044	256,543,663	0	256.5436625	256.5436625
MV-045	6,453,240	3,955,161	10.40840064	6.45323976
MV-046	88,402,250	0	88.40225	88.40225
MV-047	1,042,464	657,200	1.699664	1.042464
MV-048	263,845,590	161,716,650	425.5622395	263.8455898
MV-049	277,273,216	169,946,731	447.2199469	277.2732158
MV-050	82,049,813	0	82.0498125	82.0498125
MV-051	177,905,250	0	177.90525	177.90525
MV-052	203,259,500	0	203.2595	203.2595
MV-053	289,062,500	0	289.0625	289.0625
MV-054	401,912,500	0	401.9125	401.9125
MV-056	1,042,464	657,200	1.699664	1.042464

Project ID	Electricity from Water (kWh)			
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment
MV-015	65,097	743	8,513	7,844
MV-016	33,065	377	4,324	3,984
MV-017	99,196	1,132	12,972	11,953
MV-018	6,392	73	836	779
MV-019	143,627	1,639	18,782	17,307
MV-020	108,991	1,244	14,253	13,276
MV-021	116,243	1,327	15,201	19,184
MV-022	41,332	472	5,405	4,980
MV-023	430,882	4,917	56,346	51,920
MV-024	164,293	1,875	21,485	19,797
MV-025	83,696	955	10,945	10,085
MV-026	103,329	1,179	13,512	12,451
MV-027	55,798	637	7,297	6,724
MV-028	92,996	1,061	12,161	11,206
MV-029	284,155	3,243	37,159	34,240
MV-030	85,763	979	11,215	10,334
MV-031	54,764	625	7,162	6,599
MV-032	118,828	1,356	15,539	14,319
MV-033	55,798	637	7,297	6,724
MV-034	53,731	613	7,026	6,474
MV-035	25,832	295	3,378	3,113
MV-036	57,864	660	7,567	6,973
MV-037	3,635,279	41,484	475,386	714,199
MV-038	976,226	11,140	127,661	191,793
MV-039	3,598,990	41,070	470,640	707,070
MV-040	221,327	2,526	28,943	43,483
MV-041	3,261,585	37,220	426,518	640,782
MV-042	1,004,006	11,457	131,294	197,250
MV-043	1,249,907	14,263	163,450	245,561
MV-044	2,495,400	28,476	326,324	490,255
MV-045	101,243	1,155	13,239	12,332
MV-046	859,889	9,813	112,448	168,937
MV-047	16,533	189	2,162	1,992
MV-048	4,139,444	47,237	541,315	504,209
MV-049	4,350,108	49,641	568,864	529,869
MV-050	798,099	9,108	104,367	156,797
MV-051	1,730,484	19,747	226,295	339,977
MV-052	1,977,105	22,562	258,546	388,429
MV-053	2,811,711	32,086	367,688	552,398
MV-054	3,909,403	44,612	511,233	768,055
MV-056	16,533	189	2,162	1,992

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
MV-057	2,410,698	1,519,775	3.930473	2.410698	
MV-058	521,232	328,600	0.849832	0.521232	
MV-059	4,104,702	2,587,725	6.692427	4.104702	
MV-060	5,994,168	3,778,900	9.773068	5.994168	
MV-061	13,333,140	8,171,820	21.50496	13.33314	
MV-062	35,378,622	22,303,725	57.682347	35.378622	
MV-063	14,399,034	9,077,575	23.476609	14.399034	
MV-064	5,668,398	3,573,525	9.241923	5.668398	
MV-065	3,388,008	2,135,900	5.523908	3.388008	
MV-066	16,353,654	10,309,825	26.663479	16.353654	
MV-067	10,489,794	6,613,075	17.102869	10.489794	
MV-068	47,888,638	0	47.8886375	47.8886375	
MV-069	94,719,538	0	94.7195375	94.7195375	
MV-070	15,702,114	9,899,075	25.601189	15.702114	
MV-071	3,192,546	2,012,675	5.205221	3.192546	
MV-072	1,563,696	985,800	2.549496	1.563696	
MV-073	6,254,784	3,943,200	10.197984	6.254784	
MV-074	12,314,106	7,763,175	20.077281	12.314106	
MV-075	95,189,994	60,010,575	155.200569	95.189994	
MV-076	23,083,591	14,147,827	37.23141778	23.08359121	
MV-077	123,256,250	0	123.25625	123.25625	
MV-078	120,250,000	0	120.25	120.25	
MV-079	84,868,750	0	84.86875	84.86875	
MV-080	3,281,434	2,011,176	5.2926096	3.2814339	
MV-081	161,875,000	0	161.875	161.875	
MV-082	115,625,000	0	115.625	115.625	
MV-083	82,325,000	0	82.325	82.325	
MV-084	23,119,913	0	23.1199125	23.1199125	
MV-085	10,370,220	6,355,860	16.72608	10.37022	
MV-086	4,625,934	2,916,325	7.542259	4.625934	
MV-087	3,909,240	2,464,500	6.37374	3.90924	
MV-088	781,848	492,900	1.274748	0.781848	
MV-089	781,848	492,900	1.274748	0.781848	
MV-090	541,474	331,867	0.87334032	0.54147363	
MV-091	5,668,398	3,573,525	9.241923	5.668398	
MV-093	7,297,248	4,600,400	11.897648	7.297248	
MV-094	17,330,964	10,925,950	28.256914	17.330964	
MV-095	12,962,775	7,944,825	20.9076	12.962775	
MV-096	5,082,012	3,203,850	8.285862	5.082012	
MV-097	13,942,956	8,790,050	22.733006	13.942956	
MV-098	1,042,464	657,200	1.699664	1.042464	

Project ID	Electricity from Water (kWh)			Wastewater Treatment
	Water Supply	Water Treatment	Water Distribution	
MV-057	38,232	436	5,000	4,607
MV-058	8,266	94	1,081	996
MV-059	65,097	743	8,513	7,844
MV-060	95,063	1,085	12,431	11,455
MV-061	209,179	2,387	27,354	25,480
MV-062	561,076	6,403	73,372	67,609
MV-063	228,357	2,606	29,862	27,517
MV-064	89,896	1,026	11,756	10,832
MV-065	53,731	613	7,026	6,474
MV-066	259,356	2,960	33,916	31,252
MV-067	166,360	1,898	21,755	20,046
MV-068	465,813	5,316	60,914	91,515
MV-069	921,337	10,514	120,483	181,009
MV-070	249,023	2,842	32,565	30,007
MV-071	50,631	578	6,621	6,101
MV-072	24,799	283	3,243	2,988
MV-073	99,196	1,132	12,972	11,953
MV-074	195,292	2,229	25,538	23,532
MV-075	1,509,636	17,227	197,415	181,908
MV-076	362,150	4,133	47,358	44,113
MV-077	1,198,914	13,681	156,782	235,543
MV-078	1,169,672	13,348	152,958	229,798
MV-079	825,518	9,420	107,953	162,184
MV-080	51,481	587	6,732	6,271
MV-081	1,574,558	17,968	205,905	309,343
MV-082	1,124,684	12,834	147,075	220,959
MV-083	800,775	9,138	104,717	157,323
MV-084	224,887	2,566	29,409	44,182
MV-085	162,695	1,857	21,276	19,817
MV-086	73,364	837	9,594	8,840
MV-087	61,997	707	8,107	7,471
MV-088	12,399	141	1,621	1,494
MV-089	12,399	141	1,621	1,494
MV-090	8,495	97	1,111	1,035
MV-091	89,896	1,026	11,756	10,832
MV-093	115,728	1,321	15,134	13,945
MV-094	274,855	3,137	35,943	33,119
MV-095	203,368	2,321	26,594	24,772
MV-096	80,597	920	10,540	9,712
MV-097	221,124	2,523	28,916	26,645
MV-098	16,533	189	2,162	1,992

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
MV-099	6,254,784	3,943,200	10.197984	6.254784	
MV-100	12,639,876	7,968,550	20.608426	12.639876	
MV-101	666,657	408,591	1.075248	0.666657	
MV-102	14,929,656	9,150,456	24.080112	14.929656	
MV-103	42,550,000	0	42.55	42.55	
MV-104	86,263,188	0	86.2631875	86.2631875	
MV-105	781,848	492,900	1.274748	0.781848	
MV-106	781,848	492,900	1.274748	0.781848	
MV-107	586,386	369,675	0.956061	0.586386	
MV-108	220,219	134,971	0.355190256	0.220219029	
MV-109	71,995,170	45,387,875	117.383045	71.99517	
MV-110	3,909,240	2,464,500	6.37374	3.90924	
MV-111	1,042,464	657,200	1.699664	1.042464	
MV-112	977,310	616,125	1.593435	0.97731	
MV-113	9,382,176	5,914,800	15.296976	9.382176	
MV-114	422,216	258,774	0.6809904	0.4222161	
MV-115	4,088	2,505	0.006593364	0.004087882	
MV-116	1,628,850	1,026,875	2.655725	1.62885	
MV-117	9,242,168	5,664,568	14.906736	9.242168	
MV-118	586,386	369,675	0.956061	0.586386	
MV-119	2,280,390	1,437,625	3.718015	2.28039	
MV-120	14,038,315	8,604,018	22.64233344	14.03831496	
MV-121	322,292	197,531	0.519822672	0.322291623	
MV-123	1,037,022	635,586	1.672608	1.037022	
MV-124	10,370,220	6,355,860	16.72608	10.37022	
MV-125	1,563,696	985,800	2.549496	1.563696	
MV-126	15,311,190	9,652,625	24.963815	15.31119	
MV-127	78,627,313	0	78.6273125	78.6273125	
MV-129	365,375,000	0	365.375	365.375	
MV-130	51,304,894	0	51.30489375	51.30489375	
MV-131	346,875,000	0	346.875	346.875	
MV-132	254,375,000	0	254.375	254.375	
P-001	8,926,098	5,627,275	14.553373	8.926098	
P-002	138,750,000	0	138.75	138.75	
P-003	106,906,875	0	106.906875	106.906875	
P-004	39,775,000	0	39.775	39.775	
P-005	106,375,000	0	106.375	106.375	
P-006	138,750,000	0	138.75	138.75	
P-007	275,155,125	0	275.155125	275.155125	
P-008	55,731,250	0	55.73125	55.73125	
P-009	148,462,500	0	148.4625	148.4625	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
MV-099	99,196	1,132	12,972	11,953	
MV-100	200,458	2,288	26,214	24,155	
MV-101	10,459	119	1,368	1,274	
MV-102	234,227	2,673	30,630	28,531	
MV-103	413,884	4,723	54,124	81,313	
MV-104	839,082	9,575	109,727	164,849	
MV-105	12,399	141	1,621	1,494	
MV-106	12,399	141	1,621	1,494	
MV-107	9,300	106	1,216	1,121	
MV-108	3,455	39	452	421	
MV-109	1,141,785	13,030	149,311	137,583	
MV-110	61,997	707	8,107	7,471	
MV-111	16,533	189	2,162	1,992	
MV-112	15,499	177	2,027	1,868	
MV-113	148,794	1,698	19,458	17,929	
MV-114	6,624	76	866	807	
MV-115	64	1	8	8	
MV-116	25,832	295	3,378	3,113	
MV-117	144,998	1,655	18,961	17,662	
MV-118	9,300	106	1,216	1,121	
MV-119	36,165	413	4,729	4,358	
MV-120	220,242	2,513	28,801	26,827	
MV-121	5,056	58	661	616	
MV-123	16,269	186	2,128	1,982	
MV-124	162,695	1,857	21,276	19,817	
MV-125	24,799	283	3,243	2,988	
MV-126	242,823	2,771	31,754	29,260	
MV-127	764,808	8,728	100,014	150,257	
MV-129	3,554,003	40,557	464,757	698,232	
MV-130	499,043	5,695	65,260	98,044	
MV-131	3,374,053	38,503	441,225	662,878	
MV-132	2,474,306	28,236	323,565	486,111	
P-001	141,561	1,615	18,512	17,058	
P-002	1,349,621	15,401	176,490	265,151	
P-003	1,039,883	11,867	135,986	204,299	
P-004	386,891	4,415	50,594	76,010	
P-005	1,034,710	11,808	135,309	203,283	
P-006	1,349,621	15,401	176,490	265,151	
P-007	2,676,434	30,542	349,997	525,821	
P-008	542,098	6,186	70,890	106,502	
P-009	1,444,095	16,479	188,844	283,712	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
P-010	393,125,000	0	393.125	393.125	
P-011	283,279,631	0	283.2796313	283.2796313	
P-012	105,007,850	0	105.00785	105.00785	
P-014	277,500,000	0	277.5	277.5	
P-015	180,563,469	0	180.5634688	180.5634688	
P-016	302,937,500	0	302.9375	302.9375	
P-017	134,125,000	0	134.125	134.125	
P-018	357,743,750	0	357.74375	357.74375	
P-019	161,320,000	0	161.32	161.32	
P-020	201,534,375	0	201.534375	201.534375	
P-021	39,312,500	0	39.3125	39.3125	
P-022	87,875,000	0	87.875	87.875	
P-023	41,625,000	0	41.625	41.625	
P-024	338,550,000	0	338.55	338.55	
P-025	240,037,500	0	240.0375	240.0375	
P-026	187,687,125	0	187.687125	187.687125	
P-027	199,800,000	0	199.8	199.8	
P-028	154,937,500	0	154.9375	154.9375	
P-030	32,055,768	20,208,900	52.264668	32.055768	
P-031	4,886,550	3,080,625	7.967175	4.88655	
P-032	47,628,939	29,191,557	76.820496	47.628939	
P-033	121,186,440	76,399,500	197.58594	121.18644	
P-034	732,335,681	0	732.3356813	732.3356813	
P-035	2,606,160	1,643,000	4.24916	2.60616	
P-036	797,519,738	0	797.5197375	797.5197375	
P-036	3,703,650	2,269,950	5.9736	3.70365	
P-037	11,923,182	7,516,725	19.439907	11.923182	
P-038	14,529,342	9,159,725	23.689067	14.529342	
P-039	181,230,625	0	181.230625	181.230625	
P-040	7,948,788	5,011,150	12.959938	7.948788	
P-041	34,626,913	0	34.6269125	34.6269125	
P-042	3,974,394	2,505,575	6.479969	3.974394	
P-043	3,713,778	2,341,275	6.055053	3.713778	
P-044	6,124,476	3,861,050	9.985526	6.124476	
P-045	4,886,550	3,080,625	7.967175	4.88655	
P-046	27,951,066	17,621,175	45.572241	27.951066	
P-047	33,945,234	21,400,075	55.345309	33.945234	
P-048	4,886,550	3,080,625	7.967175	4.88655	
P-049	7,427,556	4,682,550	12.110106	7.427556	
P-050	5,925,840	3,631,920	9.55776	5.92584	
P-051	2,280,390	1,437,625	3.718015	2.28039	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
P-010	3,823,927	43,637	500,055	751,262	
P-011	2,755,461	31,444	360,332	541,347	
P-012	1,021,411	11,656	133,570	200,670	
P-014	2,699,243	30,803	352,980	530,303	
P-015	1,756,341	20,043	229,677	345,057	
P-016	2,946,673	33,626	385,337	578,914	
P-017	1,304,634	14,888	170,607	256,313	
P-018	3,479,773	39,710	455,050	683,648	
P-019	1,569,160	17,907	205,199	308,283	
P-020	1,960,325	22,370	256,352	385,132	
P-021	382,393	4,364	50,006	75,126	
P-022	854,760	9,754	111,777	167,929	
P-023	404,886	4,620	52,947	79,545	
P-024	3,293,076	37,579	430,636	646,969	
P-025	2,334,845	26,644	305,328	458,712	
P-026	1,825,633	20,833	238,738	358,670	
P-027	1,943,455	22,178	254,146	381,818	
P-028	1,507,077	17,198	197,081	296,086	
P-030	508,378	5,801	66,481	61,259	
P-031	77,497	884	10,134	9,338	
P-032	747,233	8,527	97,716	91,019	
P-033	1,921,918	21,932	251,329	231,587	
P-034	7,123,429	81,289	931,531	1,399,493	
P-035	41,332	472	5,405	4,980	
P-036	7,757,474	88,525	1,014,445	1,524,060	
P-036	58,105	663	7,598	7,078	
P-037	189,092	2,158	24,728	22,785	
P-038	230,424	2,629	30,132	27,766	
P-039	1,762,830	20,117	230,525	346,332	
P-040	126,061	1,439	16,485	15,190	
P-041	336,816	3,844	44,045	66,172	
P-042	63,031	719	8,243	7,595	
P-043	58,898	672	7,702	7,097	
P-044	97,129	1,108	12,702	11,704	
P-045	77,497	884	10,134	9,338	
P-046	443,281	5,059	57,968	53,414	
P-047	538,344	6,143	70,399	64,869	
P-048	77,497	884	10,134	9,338	
P-049	117,795	1,344	15,404	14,194	
P-050	92,968	1,061	12,157	11,324	
P-051	36,165	413	4,729	4,358	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
P-052	5,342,628	3,368,150	8.710778	5.342628	
P-053	10,489,794	6,613,075	17.102869	10.489794	
P-054	15,506,652	9,775,850	25.282502	15.506652	
P-055	33,332,850	20,429,550	53.7624	33.33285	
P-056	2,278,738	0	2.2787375	2.2787375	
P-057	9,631,563	0	9.6315625	9.6315625	
P-058	87,412,500	0	87.4125	87.4125	
P-059	15,832,422	9,981,225	25.813647	15.832422	
P-060	333,329	204,296	0.537624	0.3333285	
P-061	80,937,500	0	80.9375	80.9375	
R-001	244,414,287	149,806,785	394.2210724	244.414287	
R-002	134,766,025	0	134.766025	134.766025	
R-003	150,779,163	0	150.7791625	150.7791625	
R-004	14,073,264	8,872,200	22.945464	14.073264	
R-005	62,740,500	11,950,500	74.691	62.7405	
R-006	5,016,858	3,162,775	8.179633	5.016858	
R-007	4,155,569	2,546,929	6.702498672	4.155569373	
R-008	2,410,698	1,519,775	3.930473	2.410698	
R-009	650,184,556	398,495,115	1048.679671	650.1845562	
R-010	1,745,530	1,069,827	2.81535768	1.745530245	
R-011	60,546,264	37,110,111	97.65637506	60.54626441	
R-012	4,546,436	2,786,490	7.332926419	4.546436476	
R-013	195,462	123,225	0.318687	0.195462	
R-014	285,774	175,149	0.460922976	0.285773634	
R-015	11,186,681	7,052,413	18.23909438	11.18668118	
R-016	99,405	62,668	0.162073585	0.099405458	
R-017	17,917,350	11,295,625	29.212975	17.91735	
R-018	2,089,997,910	0	2089.99791	2089.99791	
R-019	3,583,470	2,259,125	5.842595	3.58347	
R-020	337,960,081	0	337.9600813	337.9600813	
R-021	977,310	616,125	1.593435	0.97731	
R-022	586,386	369,675	0.956061	0.586386	
R-023	595,473	364,963	0.960435408	0.595472847	
R-024	325,770,000	205,375,000	531.145	325.77	
R-025	13,552,032	8,543,600	22.095632	13.552032	
R-026	22,070,080	13,526,650	35.59673019	22.07007998	
R-026	218,186,595	0	218.186595	218.186595	
R-026	61,781,902	37,867,460	99.6493623	61.78190246	
R-027	267,996	164,254	0.432249696	0.267996114	
R-028	8,730,636	5,504,050	14.234686	8.730636	
R-029	281,107	172,289	0.45339624	0.281107035	

Project ID	Electricity from Water (kWh)				
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment	
P-052	84,730	967	11,080	10,210	
P-053	166,360	1,898	21,755	20,046	
P-054	245,923	2,806	32,159	29,633	
P-055	522,947	5,968	68,386	63,699	
P-056	22,165	253	2,899	4,355	
P-057	93,686	1,069	12,251	18,406	
P-058	850,261	9,703	111,189	167,045	
P-059	251,089	2,865	32,835	30,256	
P-060	5,229	60	684	637	
P-061	787,279	8,984	102,953	154,672	
R-001	3,834,588	43,759	501,449	467,076	
R-002	1,310,869	14,959	171,422	257,538	
R-003	1,466,629	16,736	191,791	288,139	
R-004	223,191	2,547	29,187	26,894	
R-005	726,519	8,291	95,007	119,897	
R-006	79,563	908	10,404	9,587	
R-007	65,195	744	8,526	7,941	
R-008	38,232	436	5,000	4,607	
R-009	10,200,507	116,403	1,333,921	1,242,503	
R-010	27,385	313	3,581	3,336	
R-011	949,904	10,840	124,219	115,704	
R-012	71,327	814	9,327	8,688	
R-013	3,100	35	405	374	
R-014	4,483	51	586	546	
R-015	177,412	2,025	23,200	21,378	
R-016	1,576	18	206	190	
R-017	284,155	3,243	37,159	34,240	
R-018	20,329,410	231,990	2,658,477	3,993,986	
R-019	56,831	649	7,432	6,848	
R-020	3,287,338	37,514	429,885	645,842	
R-021	15,499	177	2,027	1,868	
R-022	9,300	106	1,216	1,121	
R-023	9,342	107	1,222	1,138	
R-024	5,166,447	58,957	675,616	622,546	
R-025	214,924	2,453	28,106	25,898	
R-026	346,249	3,951	45,279	42,176	
R-026	2,122,301	24,219	277,533	416,955	
R-026	969,289	11,061	126,754	118,065	
R-027	4,204	48	550	512	
R-028	138,461	1,580	18,107	16,684	
R-029	4,410	50	577	537	

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
R-030	15,449,056	9,468,655	24.91771113	15.44905599	
R-031	2,345,544	1,478,700	3.824244	2.345544	
R-032	1,649,754	1,011,127	2.660880384	1.649753856	
R-033	1,954,620	1,232,250	3.18687	1.95462	
R-034	2,162,312	1,325,291	3.487602888	2.162311844	
R-035	6,645,708	4,189,650	10.835358	6.645708	
R-036	4,039,548	2,546,650	6.586198	4.039548	
R-037	444,438	272,394	0.716832	0.444438	
R-038	259,256	158,897	0.418152	0.2592555	
R-039	26,191,908	16,512,150	42.704058	26.191908	
R-040	177,775	108,958	0.2867328	0.1777752	
R-041	4,109,921	2,518,990	6.628910832	4.109921016	
R-042	38,962,092	24,562,850	63.524942	38.962092	
R-043	3,257,700	2,053,750	5.31145	3.2577	
R-044	296,292	181,596	0.477888	0.296292	
R-045	6,743,050	4,132,847	10.87589725	6.743050226	
R-046	2,335,315	1,472,251	3.807566047	2.335314822	
R-047	24,913,025	0	24.913025	24.913025	
R-048	5,577,697	3,418,545	8.9962416	5.5776969	
R-049	20,197,740	12,733,250	32.93099	20.19774	
R-050	249,703	157,420	0.407122643	0.249702705	
R-051	174,886	107,187	0.282073392	0.174886353	
R-052	2,084,928	1,314,400	3.399328	2.084928	
R-053	1,889,466	1,191,175	3.080641	1.889466	
R-054	1,628,850	1,026,875	2.655725	1.62885	
R-055	1,303,080	821,500	2.12458	1.30308	
R-056	23,283,154	14,270,354	37.553508	23.283154	
R-057	39,686,200	0	39.6862	39.6862	
R-058	203,404	124,666	0.328070112	0.203404458	
R-059	299,996	183,866	0.4838616	0.29999565	
R-060	18,054,220	11,065,820	29.12004018	18.05421972	
R-061	31,514,136	19,314,868	50.82900398	31.51413563	
R-062	135,628	83,126	0.218753232	0.135627663	
R-063	1,368,234	862,575	2.230809	1.368234	
R-064	325,770	205,375	0.531145	0.32577	
R-065	4,039,548	2,546,650	6.586198	4.039548	
R-066	455,549	279,204	0.7347528	0.45554895	
RC-001	81,507,654	51,384,825	132.892479	81.507654	
RC-002	130,308,000	82,150,000	212.458	130.308	
RC-003	222,305,448	140,147,900	362.453348	222.305448	
RC-005	48,865,500	30,806,250	79.67175	48.8655	

Project ID	Electricity from Water (kWh)			Wastewater Treatment
	Water Supply	Water Treatment	Water Distribution	
R-030	242,375	2,766	31,695	29,523
R-031	37,198	424	4,864	4,482
R-032	25,882	295	3,385	3,153
R-033	30,999	354	4,054	3,735
R-034	33,924	387	4,436	4,132
R-035	105,396	1,203	13,783	12,700
R-036	64,064	731	8,378	7,720
R-037	6,973	80	912	849
R-038	4,067	46	532	495
R-039	415,382	4,740	54,320	50,053
R-040	2,789	32	365	340
R-041	64,479	736	8,432	7,854
R-042	617,907	7,051	80,804	74,457
R-043	51,664	590	6,756	6,225
R-044	4,648	53	608	566
R-045	105,790	1,207	13,834	12,886
R-046	37,036	423	4,843	4,463
R-047	242,329	2,765	31,689	47,609
R-048	87,506	999	11,443	10,659
R-049	320,320	3,655	41,888	38,598
R-050	3,960	45	518	477
R-051	2,744	31	359	334
R-052	33,065	377	4,324	3,984
R-053	29,965	342	3,919	3,611
R-054	25,832	295	3,378	3,113
R-055	20,666	236	2,702	2,490
R-056	365,283	4,168	47,768	44,494
R-057	386,028	4,405	50,481	75,840
R-058	3,191	36	417	389
R-059	4,707	54	615	573
R-060	283,251	3,232	37,041	34,502
R-061	494,414	5,642	64,654	60,224
R-062	2,128	24	278	259
R-063	21,699	248	2,838	2,615
R-064	5,166	59	676	623
R-065	64,064	731	8,378	7,720
R-066	7,147	82	935	871
RC-001	1,292,645	14,751	169,039	155,761
RC-002	2,066,579	23,583	270,247	249,019
RC-003	3,525,584	40,232	461,041	424,826
RC-005	774,967	8,844	101,342	93,382

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
RC-006	106,640,400	65,362,200	172.0026	106.6404	
RC-007	366,911,656	0	366.9116563	366.9116563	
RC-009	6,042,956	3,703,756	9.746712	6.042956	
RC-009	271,189,188	0	271.1891875	271.1891875	
RC-010	1,433,750,000	0	1433.75	1433.75	
RC-011	188,237,500	0	188.2375	188.2375	
RC-012	97,972,531	0	97.97253125	97.97253125	
RC-013	32,381,538	20,414,275	52.795813	32.381538	
RC-014	20,849,280	13,144,000	33.99328	20.84928	
RC-015	9,251,868	5,832,650	15.084518	9.251868	
RC-017	687,397	421,303	1.10870016	0.68739744	
RC-018	977,310	616,125	1.593435	0.97731	
RC-019	3,910,906	2,396,976	6.307882656	3.910906254	
RC-020	207,404	127,117	0.3345216	0.2074044	
RC-021	1,850,000	0	1.85	1.85	
RC-022	8,535,174	5,380,825	13.915999	8.535174	
RC-023	12,129,063	0	12.1290625	12.1290625	
RC-024	44,122,963	0	44.1229625	44.1229625	
RC-025	19,656,250	0	19.65625	19.65625	
RC-026	130,308	82,150	0.212458	0.130308	
RC-027	43,637,319	0	43.637319	43.637319	
RC-028	414,809	254,234	0.6690432	0.4148088	
RC-029	603,102	369,639	0.972741024	0.603102366	
RC-030	291,155,313	0	291.1553125	291.1553125	
RC-031	41,763,750	0	41.76375	41.76375	
RC-032	47,301,804	29,820,450	77.122254	47.301804	
RC-033	25,019,136	15,772,800	40.791936	25.019136	
RC-034	28,146,528	17,744,400	45.890928	28.146528	
RC-035	180,802,350	113,983,125	294.785475	180.80235	
RC-035	14,218,720	8,714,720	22.93344	14.21872	
RC-035	6,645,708	4,189,650	10.835358	6.645708	
RC-036	30,492,072	19,223,100	49.715172	30.492072	
RC-037	36,616,548	23,084,150	59.700698	36.616548	
RC-038	421,744,500	0	421.7445	421.7445	
RC-039	2,541,006	1,601,925	4.142931	2.541006	
RD-001	5,342,628	3,368,150	8.710778	5.342628	
RD-002	3,583,470	2,259,125	5.842595	3.58347	
RD-003	6,710,862	4,230,725	10.941587	6.710862	
RD-004	4,365,318	2,752,025	7.117343	4.365318	
RD-005	115,764,213	0	115.7642125	115.7642125	
RD-006	3,572,096	2,189,321	5.761417728	3.572096352	

Project ID	Electricity from Water (kWh)					
	Water Supply	Water Treatment	Water Distribution	Wastewater Treatment		
RC-006	1,673,069	19,092	218,787	203,790		
RC-007	3,568,950	40,727	466,712	701,168		
RC-009	94,806	1,082	12,398	11,548		
RC-009	2,637,857	30,102	344,953	518,243		
RC-010	13,946,086	159,146	1,823,730	2,739,896		
RC-011	1,830,986	20,894	239,438	359,722		
RC-012	952,979	10,875	124,621	187,226		
RC-013	513,545	5,860	67,156	61,881		
RC-014	330,653	3,773	43,239	39,843		
RC-015	146,727	1,674	19,188	17,680		
RC-017	10,784	123	1,410	1,314		
RC-018	15,499	177	2,027	1,868		
RC-019	61,357	700	8,024	7,474		
RC-020	3,254	37	426	396		
RC-021	17,995	205	2,353	3,535		
RC-022	135,361	1,545	17,701	16,311		
RC-023	117,979	1,346	15,428	23,179		
RC-024	429,184	4,898	56,124	84,319		
RC-025	191,196	2,182	25,003	37,563		
RC-026	2,067	24	270	249		
RC-027	424,460	4,844	55,507	83,391		
RC-028	6,508	74	851	793		
RC-029	9,462	108	1,237	1,153		
RC-030	2,832,068	32,318	370,350	556,398		
RC-031	406,236	4,636	53,123	79,811		
RC-032	750,168	8,561	98,100	90,394		
RC-033	396,783	4,528	51,887	47,812		
RC-034	446,381	5,094	58,373	53,788		
RC-035	2,867,378	32,721	374,967	345,513		
RC-035	223,074	2,546	29,171	27,172		
RC-035	105,396	1,203	13,783	12,700		
RC-036	483,579	5,518	63,238	58,270		
RC-037	580,709	6,627	75,939	69,974		
RC-038	4,102,309	46,814	536,459	805,954		
RC-039	40,298	460	5,270	4,856		
RD-001	84,730	967	11,080	10,210		
RD-002	56,831	649	7,432	6,848		
RD-003	106,429	1,215	13,918	12,824		
RD-004	69,230	790	9,053	8,342		
RD-005	1,126,038	12,850	147,252	221,225		
RD-006	56,041	640	7,329	6,826		

World Logistic Center  
Cumulative Energy - Electricity Natural Gas

Energy Cons Energy Consumption - Electricity from Potable Water Use

Project ID	Water			Water	
	Indoors (gal)	Outdoors (gal)	Water (M gal)	Wastewater (M gal)	
RD-007	9,462,529	5,799,541	15.26207011	9.462529458	
RD-008	5,212,320	3,286,000	8.49832	5.21232	
RD-009	3,244,546	1,988,567	5.233112544	3.244545546	
RD-010	33,590,219	0	33.59021875	33.59021875	
RD-011	4,108,459	2,518,056	6.62651448	4.108458945	
RD-012	139,047,619	0	139.0476188	139.0476188	
RD-013	234,256,250	0	234.25625	234.25625	
RD-014	178,525,000	0	178.525	178.525	
RD-015	97,818,750	0	97.81875	97.81875	
RD-016	165,282,006	0	165.2820063	165.2820063	
SB-001	142,063,350	0	142.06335	142.06335	
SB-002	72,489,938	0	72.4899375	72.4899375	
SB-003	137,261,444	0	137.2614438	137.2614438	
SB-004	179,824,625	0	179.824625	179.824625	
SB-005	65,212,500	0	65.2125	65.2125	
SB-006	125,563,431	0	125.5634313	125.5634313	
SB-007	2,215,236	1,396,550	3.611786	2.215236	
SB-008	2,606,160	1,643,000	4.24916	2.60616	
SJ-001	124,312,630	76,190,637	200.5032673	124.3126299	
SJ-002	20,914,434	13,185,075	34.099509	20.914434	
SJ-003	37,789,320	23,823,500	61.61282	37.78932	
SJ-004	39,939,402	25,178,975	65.118377	39.939402	
WLC-001	3,909,240	2,464,500	6.37374	3.90924	

Project ID	Electricity from Water (kWh)			Wastewater Treatment
	Water Supply	Water Treatment	Water Distribution	
RD-007	148,454	1,694	19,413	18,083
RD-008	82,663	943	10,810	9,961
RD-009	50,902	581	6,657	6,200
RD-010	326,732	3,729	42,727	64,191
RD-011	64,456	736	8,429	7,851
RD-012	1,352,516	15,434	176,869	265,720
RD-013	2,278,611	26,002	297,974	447,664
RD-014	1,736,513	19,816	227,084	341,161
RD-015	951,483	10,858	124,425	186,932
RD-016	1,607,698	18,346	210,239	315,854
SB-001	1,381,850	15,769	180,705	271,483
SB-002	705,110	8,046	92,207	138,528
SB-003	1,335,142	15,236	174,597	262,307
SB-004	1,749,154	19,961	228,737	343,645
SB-005	634,322	7,239	82,950	124,621
SB-006	1,221,355	13,938	159,717	239,952
SB-007	35,132	401	4,594	4,233
SB-008	41,332	472	5,405	4,980
SJ-001	1,950,295	22,256	255,040	237,561
SJ-002	331,686	3,785	43,375	39,967
SJ-003	599,308	6,839	78,372	72,215
SJ-004	633,406	7,228	82,831	76,324
WLC-001	61,997	707	8,107	7,471

---

## **3      Transportation Fuels**

---

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
B-001	811,945	886,209	1,993,672	17,519,159	1,625
B-002			267,495	2,350,577	218
B-003	136,884	83,203	557,020	4,894,747	454
B-004	120,158	90,274	711,650	6,253,541	580
B-005			834,317	7,331,468	680
B-006	134,044	96,431	1,458,987	12,820,679	1,189
B-007	54,788	18,615	243,470	2,139,461	198
B-008	121,463	58,888	391,485	3,440,126	319
B-009	1,343,552	1,592,304	2,688,436	23,624,320	2,192
B-010	50,691	4,861	57,394	504,339	47
B-011	45,372	9,446	305,089	2,680,936	249
B-012			130,702	1,148,531	107
B-013	382,424	339,379	1,141,830	10,033,700	931
B-014	124,123	63,361	422,900	3,716,185	345
C-001	43,602	8,938	271,190	2,383,054	221
C-002	163,552	123,557	2,599,032	22,838,694	2,119
C-003	33,981	3,590	98,578	866,240	80
H-001	59,841	26,798	355,236	3,121,596	290
H-002	55,851	20,221	265,823	2,335,888	217
H-003	137,416	84,199	562,457	4,942,526	459
H-004	129,039	90,032	1,085,086	9,535,072	885
H-005	15,668	1,173	28,351	249,134	23
H-006	83,134	27,853	923,116	8,111,773	753
H-007	55,570	32,744	84,772	744,924	69
H-008	60,183	46,385	191,790	1,685,330	156
H-009			141,839	1,246,395	116
M-001	101,761	38,543	315,755	2,774,658	257
M-002			2,647,578	23,265,282	2,158
M-003	172,547	152,814	1,391,747	12,229,816	1,135
M-004	35,832	5,164	147,663	1,297,573	120
M-005	232,896	227,504	2,041,886	17,942,835	1,665
M-006	45,116	12,072	172,683	1,517,435	141
M-007	78,878	36,132	324,181	2,848,704	264
M-008	205,511	178,369	5,816,670	51,113,311	4,742
M-009	46,928	6,545	81,559	716,693	66
M-010	70,532	29,978	268,271	2,357,402	219
M-011	32,882	3,305	90,849	798,323	74
MV-001	51,273	12,703	412,887	3,628,200	337
MV-002	61,451	31,634	259,474	2,280,100	212
MV-003	143,133	119,796	1,062,934	9,340,413	867
MV-004			384,660	3,380,158	314
MV-005	36,448	5,596	157,779	1,386,461	129

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
MV-006	82,104	40,030	359,935	3,162,883	293
MV-007	36,444	1,929	18,728	164,574	15
MV-008	47,680	3,129	35,040	307,912	29
MV-009	32,920	868	6,646	58,397	5
MV-010	47,410	2,625	28,395	249,515	23
MV-011	36,176	1,549	14,499	127,412	12
MV-012			135,678	1,192,253	111
MV-013	15,979	2,032	17,640	155,011	14
MV-014	51,404	5,319	64,643	568,045	53
MV-015	50,266	3,424	38,061	334,457	31
MV-016	46,873	1,998	19,333	169,883	16
MV-017	50,691	4,861	57,998	509,648	47
MV-018			7,458	65,534	6
MV-019			32,914	289,230	27
MV-020			127,172	1,117,509	104
MV-021	34,602	5,021	135,678	1,192,253	111
MV-022			24,166	212,353	20
MV-023	60,143	37,050	195,351	1,716,621	159
MV-024	47,781	7,746	96,059	844,105	78
MV-025	50,727	4,177	48,936	430,016	40
MV-026	50,691	4,994	60,414	530,884	49
MV-027	34,085	5,571	25,297	222,296	21
MV-028	38,070	8,557	42,162	370,494	34
MV-029	51,067	12,781	166,139	1,459,930	135
MV-030	50,727	4,177	50,144	440,633	41
MV-031	47,412	2,996	32,020	281,368	26
MV-032	51,667	5,692	69,476	610,516	57
MV-033	47,412	2,996	32,624	286,677	27
MV-034	47,411	2,872	31,415	276,059	26
MV-035	36,176	1,549	15,104	132,721	12
MV-036			26,234	230,529	21
MV-037			525,539	4,618,116	428
MV-038			178,118	1,565,188	145
MV-039			656,655	5,770,280	535
MV-040	34,737	6,168	47,221	414,949	38
MV-041	108,981	76,567	695,873	6,114,908	567
MV-042	65,692	24,084	214,209	1,882,337	175
MV-043			180,695	1,587,833	147
MV-044	98,367	57,085	532,405	4,678,444	434
MV-045	34,906	4,164	118,131	1,038,058	96
MV-046			183,461	1,612,143	150
MV-047	35,907	1,179	9,666	84,941	8

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
MV-048			1,168,682	10,269,659	953
MV-049			1,228,159	10,792,302	1,001
MV-050			145,617	1,279,596	119
MV-051			315,736	2,774,495	257
MV-052			360,733	3,169,903	294
MV-053			599,891	5,271,472	489
MV-054	120,158	90,395	834,088	7,329,455	680
MV-056	35,907	1,179	9,666	84,941	8
MV-057	46,874	2,245	22,353	196,427	18
MV-058			4,833	42,471	4
MV-059	50,266	3,424	38,061	334,457	31
MV-060	50,987	4,665	55,581	488,413	45
MV-061	42,739	8,133	244,071	2,144,749	199
MV-062	58,776	24,816	328,050	2,882,698	267
MV-063	49,658	10,493	133,516	1,173,253	109
MV-064	50,986	4,427	52,560	461,869	43
MV-065	34,085	5,439	24,360	214,063	20
MV-066	53,112	23,199	117,585	1,033,266	96
MV-067	48,047	7,746	97,267	854,723	79
MV-068	43,801	12,032	67,341	591,750	55
MV-069			133,194	1,170,430	109
MV-070	52,840	22,315	112,900	992,100	92
MV-071	34,084	5,174	22,955	201,713	19
MV-072	30,418	2,729	11,243	98,798	9
MV-073	38,339	9,183	44,973	395,193	37
MV-074	48,543	17,378	44,754	393,270	36
MV-075	168,241	261,706	345,955	3,040,040	282
MV-076	51,807	12,950	422,559	3,713,191	345
MV-077	72,693	28,602	218,748	1,922,224	178
MV-078			213,413	1,875,341	174
MV-079	51,814	19,833	176,128	1,547,704	144
MV-080	31,956	2,299	60,069	527,846	49
MV-081			335,939	2,952,024	274
MV-082			239,956	2,108,589	196
MV-083			146,106	1,283,887	119
MV-084			41,032	360,563	33
MV-085	40,724	6,380	189,833	1,668,138	155
MV-086			42,894	376,927	35
MV-087	34,375	6,243	28,108	246,996	23
MV-088	15,044	1,456	5,622	49,399	5
MV-089	15,044	1,456	5,622	49,399	5
MV-090	15,041	597	9,912	87,101	8

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
MV-091	50,986	4,427	52,560	461,869	43
MV-093			52,468	461,059	43
MV-094	56,890	24,579	124,612	1,095,015	102
MV-095	42,451	7,868	237,292	2,085,172	193
MV-096	50,823	4,199	47,123	414,089	38
MV-097	49,390	10,247	129,287	1,136,091	105
MV-098	35,907	1,179	9,666	84,941	8
MV-099	38,339	9,183	44,973	395,193	37
MV-100	51,486	18,048	90,883	798,620	74
MV-101	15,041	597	12,204	107,237	10
MV-102	34,603	5,311	49,392	434,031	40
MV-103	42,935	10,820	75,515	663,582	62
MV-104	52,082	20,090	179,022	1,573,134	146
MV-105	15,044	1,456	5,622	49,399	5
MV-106	15,044	1,456	5,622	49,399	5
MV-107	29,796	725	5,437	47,780	4
MV-108	14,732	313	4,031	35,424	3
MV-109	147,517	99,569	667,578	5,866,264	544
MV-110	34,375	6,243	28,108	246,996	23
MV-111	30,107	1,872	7,495	65,866	6
MV-112	15,055	1,747	7,027	61,749	6
MV-113	47,191	6,919	86,997	764,472	71
MV-114	14,732	455	7,729	67,917	6
MV-115	14,732	313	14	119	0
MV-116	36,176	1,549	15,104	132,721	12
MV-117	32,267	3,304	30,576	268,686	25
MV-118	29,796	725	5,437	47,780	4
MV-119	46,873	2,121	21,145	185,809	17
MV-120	43,314	8,541	256,980	2,258,182	210
MV-121	14,732	455	5,900	51,843	5
MV-123	15,359	881	18,983	166,814	15
MV-124	40,724	6,380	189,833	1,668,138	155
MV-125	30,418	2,729	11,243	98,798	9
MV-126	50,003	11,043	141,974	1,247,576	116
MV-127	50,475	18,335	163,175	1,433,883	133
MV-129	113,312	82,271	648,447	5,698,151	529
MV-130	45,286	12,195	106,473	935,619	87
MV-131	107,750	78,093	719,869	6,325,767	587
MV-132	95,297	56,598	527,904	4,638,896	430
P-001			82,768	727,311	67
P-002			287,948	2,530,307	235
P-003			221,864	1,949,601	181

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
P-004	42,359	10,148	70,590	620,305	58
P-005	66,230	24,835	220,760	1,939,902	180
P-006	77,321	32,120	246,246	2,163,855	201
P-007	99,537	61,196	488,330	4,291,141	398
P-008	46,187	13,201	98,909	869,148	81
P-009	79,203	34,373	208,768	1,834,521	170
P-010			815,852	7,169,202	665
P-011			398,347	3,500,430	325
P-012	65,961	24,464	186,362	1,637,634	152
P-014	102,254	61,689	575,895	5,060,613	470
P-015			374,723	3,292,836	306
P-016			628,686	5,524,503	513
P-017			278,349	2,445,963	227
P-018			742,425	6,523,974	605
P-019			334,787	2,941,903	273
P-020			418,244	3,675,270	341
P-021			81,585	716,920	67
P-022	52,350	20,460	182,367	1,602,528	149
P-023	42,648	10,555	86,384	759,092	70
P-024	109,516	77,315	702,592	6,173,948	573
P-025	97,333	56,895	498,149	4,377,431	406
P-026	90,377	43,292	333,096	2,927,047	272
P-027			414,645	3,643,642	338
P-028	80,280	35,885	274,974	2,416,305	224
P-030	57,182	22,579	297,238	2,611,947	242
P-031	36,614	7,588	35,135	308,745	29
P-032	77,768	26,351	871,877	7,661,519	711
P-033	284,116	250,456	1,123,706	9,874,435	916
P-034	184,333	166,949	1,519,815	13,355,199	1,239
P-035	31,042	4,302	18,739	164,664	15
P-036	199,973	182,238	1,722,889	15,139,688	1,405
P-037			110,558	971,517	90
P-038			134,724	1,183,870	110
P-039	83,717	41,903	376,108	3,305,002	307
P-040	51,931	5,934	73,705	647,678	60
P-041	41,207	8,803	61,454	540,019	50
P-042	47,680	3,253	36,853	323,839	30
P-043	47,680	3,129	34,436	302,604	28
P-044	38,338	8,937	44,036	386,960	36
P-045	36,614	7,588	35,135	308,745	29
P-046	55,398	38,815	101,584	892,661	83
P-047	57,979	23,819	314,758	2,765,904	257

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
P-048	50,822	3,944	45,311	398,163	37
P-049	51,667	5,692	68,872	605,207	56
P-050	34,597	3,880	108,476	953,222	88
P-051	46,873	2,121	21,145	185,809	17
P-052	50,727	4,177	49,540	435,325	40
P-053	48,047	7,746	97,267	854,723	79
P-054	50,003	11,175	143,786	1,263,503	117
P-055	70,577	18,567	610,178	5,361,871	497
P-056	15,042	881	4,044	35,538	3
P-057	16,598	2,750	19,988	175,645	16
P-058	52,083	20,336	122,919	1,080,139	100
P-059	50,004	11,419	146,807	1,290,047	120
P-060	14,732	455	6,102	53,619	5
P-061			167,969	1,476,012	137
R-001			1,082,613	9,513,334	883
R-002			279,680	2,457,653	228
R-003			267,594	2,351,454	218
R-004	52,296	20,063	101,189	889,185	82
R-005	76,397	26,843	847,986	7,451,581	691
R-006	36,615	7,863	36,072	316,978	29
R-007	32,572	2,731	76,070	668,459	62
R-008	36,451	3,806	8,761	76,989	7
R-009	854,784	698,839	11,902,028	104,587,698	9,703
R-010	15,669	1,315	31,953	280,783	26
R-011	52,896	18,460	268,185	2,356,641	219
R-012	32,881	3,015	83,225	731,333	68
R-013	14,732	455	1,812	15,927	1
R-014	14,732	455	5,231	45,969	4
R-015	48,316	8,248	103,729	911,506	85
R-016	14,732	313	922	8,100	1
R-017	57,160	25,330	128,828	1,132,064	105
R-018	871,072	942,530	3,709,210	32,594,251	3,024
R-019	34,086	5,703	25,766	226,413	21
R-020	109,516	77,192	701,368	6,163,190	572
R-021	32,921	1,143	9,062	79,633	7
R-022	29,796	725	5,437	47,780	4
R-023	15,041	597	10,900	95,787	9
R-024	1,469,035	1,788,690	3,020,715	26,544,180	2,463
R-025	52,026	19,302	97,441	856,252	79
R-026	116,224	79,217	1,064,889	9,357,592	868
R-027	14,732	455	4,906	43,109	4
R-028	52,307	12,308	31,730	278,826	26

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
R-029	14,732	455	5,146	45,218	4
R-030	44,177	9,345	282,804	2,485,112	231
R-031	30,730	3,877	16,865	148,198	14
R-032	15,669	1,315	30,200	265,377	25
R-033	30,728	3,303	14,054	123,498	11
R-034	15,042	1,030	7,154	62,862	6
R-035	38,341	9,686	47,784	419,893	39
R-036	34,375	6,375	29,045	255,229	24
R-037	14,732	455	8,136	71,492	7
R-038	14,732	455	4,746	41,703	4
R-039	54,524	18,483	242,865	2,134,152	198
R-040	14,732	313	3,254	28,597	3
R-041	15,670	1,599	13,597	119,482	11
R-042	60,107	27,296	361,277	3,174,684	295
R-043	47,411	2,749	30,207	265,442	25
R-044	14,732	455	5,424	47,661	4
R-045	16,597	2,466	22,308	196,032	18
R-046	46,873	2,121	21,654	190,285	18
R-047	35,047	6,742	51,702	454,325	42
R-048	34,289	3,732	102,103	897,220	83
R-049	52,395	28,492	73,406	645,046	60
R-050	29,794	441	2,315	20,346	2
R-051	14,732	313	3,201	28,132	3
R-052	46,873	1,998	19,333	169,883	16
R-053	36,443	1,806	17,520	153,956	14
R-054	36,176	1,549	15,104	132,721	12
R-055	36,175	1,426	12,083	106,177	10
R-056	40,343	7,866	77,029	676,881	63
R-057	42,359	10,148	70,433	618,920	57
R-058	14,732	313	3,723	32,719	3
R-059	14,732	455	5,492	48,257	4
R-060	35,529	6,310	79,970	702,724	65
R-061	57,297	17,591	576,886	5,069,316	470
R-062	14,732	313	2,483	21,817	2
R-063	30,417	2,446	9,838	86,449	8
R-064	29,794	441	3,021	26,544	2
R-065	47,681	3,376	37,457	329,148	31
R-066	15,040	455	8,339	73,279	7
RC-001	232,273	169,005	755,783	6,641,354	616
RC-002	394,126	358,691	1,208,286	10,617,672	985
RC-003	831,089	916,704	2,061,336	18,113,748	1,681
RC-005	127,311	67,813	453,107	3,981,627	369

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
RC-006	75,918	32,116	472,355	4,150,763	385
RC-007	111,699	82,645	761,451	6,691,164	621
RC-009	100,314	62,171	401,338	3,526,710	327
RC-010	314,831	323,833	2,544,538	22,359,835	2,074
RC-011	85,061	43,415	390,649	3,432,783	318
RC-012	54,226	22,718	173,876	1,527,916	142
RC-013	57,446	22,701	300,259	2,638,491	245
RC-014	58,125	30,342	149,909	1,317,311	122
RC-015	47,191	6,919	85,788	753,855	70
RC-017	15,041	597	12,583	110,574	10
RC-018	32,921	1,143	9,062	79,633	7
RC-019	32,264	2,589	71,592	629,102	58
RC-020	14,732	313	3,797	33,363	3
RC-021	15,041	739	3,839	33,737	3
RC-022	46,927	6,424	79,143	695,458	65
RC-023	32,265	3,446	21,526	189,157	18
RC-024	43,224	11,228	78,307	688,113	64
RC-025	33,812	5,310	34,885	306,546	28
RC-026	14,732	313	1,208	10,618	1
RC-027	42,936	11,085	77,445	680,539	63
RC-028	14,732	455	7,593	66,726	6
RC-029	15,041	597	11,040	97,014	9
RC-030	104,845	64,722	604,234	5,309,638	493
RC-031	42,648	10,555	74,120	651,320	60
RC-032	125,718	65,841	438,608	3,854,215	358
RC-033	54,256	17,741	231,991	2,038,593	189
RC-034	55,586	19,855	260,990	2,293,417	213
RC-035	635,794	688,311	1,771,321	15,565,275	1,444
RC-036	56,649	21,461	282,739	2,484,535	231
RC-037	59,308	25,680	339,528	2,983,566	277
RC-038	123,845	94,836	875,246	7,691,120	714
RC-039	47,142	2,368	23,562	207,045	19
RD-001			49,540	435,325	40
RD-002			33,228	291,986	27
RD-003	50,958	5,240	62,227	546,810	51
RD-004	50,544	3,680	40,478	355,692	33
RD-005			240,245	2,111,128	196
RD-006	31,956	2,447	65,389	574,602	53
RD-007	36,757	6,028	173,217	1,522,128	141
RD-008	37,800	7,685	37,477	329,328	31
RD-009	31,956	2,299	59,393	521,913	48
RD-010	40,919	8,671	59,614	523,851	49

World Logistic Center  
Cumulative Energy - Transportation Fuel

**Cumulative Transportation Fuel Consumption (Annual Average) - Summary**

Project ID	Construction		Operational		
	Diesel Gallons	Gasoline Gallons	Diesel Gallons	Gasoline Gallons	Natural Gas (MMBTU)
RD-011	32,572	2,731	75,208	660,880	61
RD-012			288,565	2,535,734	235
RD-013			486,152	4,272,001	396
RD-014			370,493	3,255,661	302
RD-015			203,003	1,783,866	166
RD-016			343,009	3,014,156	280
SB-001			294,824	2,590,730	240
SB-002			150,438	1,321,959	123
SB-003			284,858	2,503,161	232
SB-004			373,190	3,279,362	304
SB-005			135,335	1,189,244	110
SB-006			260,582	2,289,831	212
SB-007	46,873	2,121	20,541	180,500	17
SB-008	47,142	2,368	24,166	212,353	20
SJ-001	126,588	66,774	2,275,619	19,996,740	1,855
SJ-002	52,396	14,895	193,930	1,704,136	158
SJ-003	59,839	26,422	350,403	3,079,125	286
SJ-004	60,638	27,916	370,340	3,254,316	302
WLC-001	47,680	3,253	36,249	318,530	30
<b>Total Cum.</b>	23,204,429	14,744,142	118,674,194	1,042,835,763	96,752
<b>Net Project</b>	1,553,812	54,103	45,345	30,327	1,094
<b>Total</b>	24,758,241	14,798,245	118,719,539	1,042,866,090	97,846
County/ SoCalGas	275,000,000	1,052,000,000	275,000,000	1,052,000,000	873,793,575
%County/ SoCalGas	9%	1%	43.17%	99%	0.01%
Source: ESA, 2019					

## World Logistic Center Cumulative Energy - Transportation Fuel

10.21 kgCO<sub>2</sub>/gal     [https://www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](https://www.eia.gov/environment/emissions/co2_vol_mass.php)  
2204.623 lbs/Metric Ton

Total Diesel Consumption:	54,828,262 gallons
Max Annual Consumption:	331,154 gallons
Min Annual Consumption:	14,423 gallons
Average Annual Consumption:	42,431 gallons
Straight Average Annual Consumption:	70,313 gallons

### Off-Road Construction Diesel Fuel Usage

Project ID	ConDays	ConYrs	CO2E_TOT (lbs)	MT CO2e	Gallons	Gallons/year
B-001	3401	11.22	62,872,528.69	28,518.49	2,793,192	248,850
B-003	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
B-004	859	2.83	2,878,599.99	1,305.71	127,885	45,110
B-006	1105	3.65	4,432,085.14	2,010.36	196,901	53,992
B-007	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
B-008	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
B-009	3401	11.22	83,666,867.38	37,950.65	3,717,007	331,154
B-010	545	1.80	1,730,946.09	785.14	76,899	42,753
B-011	305	1.01	750,479.21	340.41	33,341	33,122
B-013	3401	11.22	42,078,190.00	19,086.34	1,869,377	166,546
B-014	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
C-001	301	0.99	738,143.44	334.82	32,793	33,011
C-002	1453	4.80	5,428,618.95	2,462.38	241,173	50,293
C-003	270	0.89	590,329.73	267.77	26,226	29,432
H-001	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
H-002	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
H-003	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
H-004	1105	3.65	4,432,085.14	2,010.36	196,901	53,992
H-005	119	0.39	127,583.54	57.87	5,668	14,432
H-006	422	1.39	1,663,183.38	754.41	73,889	53,053
H-007	1264	4.17	4,229,448.94	1,918.45	187,899	45,042
H-008	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
M-001	382	1.26	1,398,993.43	634.57	62,152	49,299
M-003	1264	4.17	4,229,448.94	1,918.45	187,899	45,042
M-004	270	0.89	590,329.73	267.77	26,226	29,432
M-005	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
M-006	305	1.01	750,479.21	340.41	33,341	33,122
M-007	329	1.09	1,074,950.42	487.59	47,756	43,982
M-008	1890	6.24	7,089,835.09	3,215.89	314,975	50,496
M-009	819	2.70	2,614,410.05	1,185.88	116,149	42,971
M-010	325	1.07	1,044,678.29	473.86	46,411	43,269
M-011	253	0.83	554,218.69	251.39	24,622	29,488
MV-001	309	1.02	762,062.06	345.67	33,856	33,198
MV-002	1890	6.24	6,644,047.35	3,013.69	295,170	47,321
MV-003	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
MV-005	270	0.89	590,329.73	267.77	26,226	29,432
MV-006	329	1.09	1,074,950.42	487.59	47,756	43,982
MV-007	300	0.99	736,000.66	333.84	32,698	33,025
MV-008	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-009	279	0.92	670,341.87	304.06	29,781	32,343
MV-010	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-011	300	0.99	736,000.66	333.84	32,698	33,025
MV-013	119	0.39	127,583.54	57.87	5,668	14,432
MV-014	819	2.70	2,614,410.05	1,185.88	116,149	42,971
MV-015	387	1.28	1,253,155.71	568.42	55,673	43,589
MV-016	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-017	545	1.80	1,730,946.09	785.14	76,899	42,753
MV-021	270	0.89	590,329.73	267.77	26,226	29,432

**World Logistic Center**  
**Cumulative Energy - Transportation Fuel**

*Off-Road Construction Diesel Fuel Usage*

Project ID	ConDays	ConYrs	CO2E_TOT (lbs)	MT CO2e	Gallons	Gallons/year
MV-023	495	1.63	1,577,358.30	715.48	70,076	42,895
MV-024	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
MV-025	495	1.63	1,577,358.30	715.48	70,076	42,895
MV-026	545	1.80	1,730,946.09	785.14	76,899	42,753
MV-027	279	0.92	670,341.87	304.06	29,781	32,343
MV-028	300	0.99	736,000.66	333.84	32,698	33,025
MV-029	1701	5.61	5,444,877.33	2,469.75	241,896	43,089
MV-030	495	1.63	1,577,358.30	715.48	70,076	42,895
MV-031	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-032	819	2.70	2,614,410.05	1,185.88	116,149	42,971
MV-033	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-034	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-035	300	0.99	736,000.66	333.84	32,698	33,025
MV-040	253	0.83	554,218.69	251.39	24,622	29,488
MV-041	579	1.91	1,949,727.84	884.38	86,619	45,329
MV-042	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-044	529	1.75	1,796,140.04	814.72	79,796	45,705
MV-045	270	0.89	590,329.73	267.77	26,226	29,432
MV-047	300	0.99	736,000.66	333.84	32,698	33,025
MV-054	859	2.83	2,878,599.99	1,305.71	127,885	45,110
MV-056	300	0.99	736,000.66	333.84	32,698	33,025
MV-057	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-059	387	1.28	1,253,155.71	568.42	55,673	43,589
MV-060	495	1.63	1,577,358.30	715.48	70,076	42,895
MV-061	301	0.99	738,143.44	334.82	32,793	33,011
MV-062	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
MV-063	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
MV-064	495	1.63	1,577,358.30	715.48	70,076	42,895
MV-065	279	0.92	670,341.87	304.06	29,781	32,343
MV-066	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-067	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
MV-068	296	0.98	723,664.89	328.25	32,150	32,910
MV-070	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-071	279	0.92	670,341.87	304.06	29,781	32,343
MV-072	249	0.82	545,409.41	247.39	24,231	29,485
MV-073	300	0.99	736,000.66	333.84	32,698	33,025
MV-074	819	2.70	2,614,410.05	1,185.88	116,149	42,971
MV-075	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
MV-076	309	1.02	762,062.06	345.67	33,856	33,198
MV-077	329	1.09	1,074,950.42	487.59	47,756	43,982
MV-079	305	1.01	750,479.21	340.41	33,341	33,122
MV-080	253	0.83	554,218.69	251.39	24,622	29,488
MV-085	301	0.99	738,143.44	334.82	32,793	33,011
MV-087	279	0.92	670,341.87	304.06	29,781	32,343
MV-088	113	0.37	121,070.68	54.92	5,379	14,423
MV-089	113	0.37	121,070.68	54.92	5,379	14,423
MV-090	113	0.37	121,070.68	54.92	5,379	14,423
MV-091	495	1.63	1,577,358.30	715.48	70,076	42,895
MV-094	329	1.09	1,074,950.42	487.59	47,756	43,982
MV-095	301	0.99	738,143.44	334.82	32,793	33,011
MV-096	387	1.28	1,253,155.71	568.42	55,673	43,589
MV-097	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
MV-098	300	0.99	736,000.66	333.84	32,698	33,025
MV-099	300	0.99	736,000.66	333.84	32,698	33,025
MV-100	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-101	113	0.37	121,070.68	54.92	5,379	14,423
MV-102	270	0.89	590,329.73	267.77	26,226	29,432
MV-103	296	0.98	723,664.89	328.25	32,150	32,910

**World Logistic Center**  
**Cumulative Energy - Transportation Fuel**

*Off-Road Construction Diesel Fuel Usage*

Project ID	ConDays	ConYrs	CO2E_TOT (lbs)	MT CO2e	Gallons	Gallons/year
MV-104	305	1.01	750,479.21	340.41	33,341	33,122
MV-105	113	0.37	121,070.68	54.92	5,379	14,423
MV-106	113	0.37	121,070.68	54.92	5,379	14,423
MV-107	249	0.82	545,409.41	247.39	24,231	29,485
MV-108	113	0.37	121,070.68	54.92	5,379	14,423
MV-109	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
MV-110	279	0.92	670,341.87	304.06	29,781	32,343
MV-111	249	0.82	545,409.41	247.39	24,231	29,485
MV-112	119	0.39	127,583.54	57.87	5,668	14,432
MV-113	819	2.70	2,614,410.05	1,185.88	116,149	42,971
MV-114	113	0.37	121,070.68	54.92	5,379	14,423
MV-115	113	0.37	121,070.68	54.92	5,379	14,423
MV-116	300	0.99	736,000.66	333.84	32,698	33,025
MV-117	253	0.83	554,218.69	251.39	24,622	29,488
MV-118	249	0.82	545,409.41	247.39	24,231	29,485
MV-119	325	1.07	1,044,678.29	473.86	46,411	43,269
MV-120	301	0.99	738,143.44	334.82	32,793	33,011
MV-121	113	0.37	121,070.68	54.92	5,379	14,423
MV-123	119	0.39	127,583.54	57.87	5,668	14,432
MV-124	301	0.99	738,143.44	334.82	32,793	33,011
MV-125	249	0.82	545,409.41	247.39	24,231	29,485
MV-126	1701	5.61	5,444,877.33	2,469.75	241,896	43,089
MV-127	305	1.01	750,479.21	340.41	33,341	33,122
MV-129	859	2.83	2,878,599.99	1,305.71	127,885	45,110
MV-130	300	0.99	736,000.66	333.84	32,698	33,025
MV-131	819	2.70	2,614,410.05	1,185.88	116,149	42,971
MV-132	495	1.63	1,577,358.30	715.48	70,076	42,895
P-004	296	0.98	723,664.89	328.25	32,150	32,910
P-005	325	1.07	1,044,678.29	473.86	46,411	43,269
P-006	348	1.15	1,180,211.69	535.33	52,432	45,652
P-007	569	1.88	2,060,329.98	934.55	91,533	48,742
P-008	305	1.01	750,479.21	340.41	33,341	33,122
P-009	348	1.15	1,180,211.69	535.33	52,432	45,652
P-012	325	1.07	1,044,678.29	473.86	46,411	43,269
P-014	529	1.75	1,796,140.04	814.72	79,796	45,705
P-022	305	1.01	750,479.21	340.41	33,341	33,122
P-023	296	0.98	723,664.89	328.25	32,150	32,910
P-024	579	1.91	1,949,727.84	884.38	86,619	45,329
P-025	406	1.34	1,358,416.97	616.17	60,349	45,039
P-026	382	1.26	1,398,993.43	634.57	62,152	49,299
P-028	348	1.15	1,180,211.69	535.33	52,432	45,652
P-030	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
P-031	296	0.98	723,664.89	328.25	32,150	32,910
P-032	382	1.26	1,398,993.43	634.57	62,152	49,299
P-033	3401	11.22	31,681,020.65	14,370.27	1,407,470	125,394
P-034	1264	4.17	4,229,448.94	1,918.45	187,899	45,042
P-035	253	0.83	554,218.69	251.39	24,622	29,488
P-036	1890	6.24	6,644,047.35	3,013.69	295,170	47,321
P-039	329	1.09	1,074,950.42	487.59	47,756	43,982
P-040	819	2.70	2,614,410.05	1,185.88	116,149	42,971
P-041	296	0.98	723,664.89	328.25	32,150	32,910
P-042	325	1.07	1,044,678.29	473.86	46,411	43,269
P-043	325	1.07	1,044,678.29	473.86	46,411	43,269
P-044	300	0.99	736,000.66	333.84	32,698	33,025
P-045	296	0.98	723,664.89	328.25	32,150	32,910
P-046	1701	5.61	5,444,877.33	2,469.75	241,896	43,089
P-047	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
P-048	387	1.28	1,253,155.71	568.42	55,673	43,589

**World Logistic Center**  
**Cumulative Energy - Transportation Fuel**

*Off-Road Construction Diesel Fuel Usage*

Project ID	ConDays	ConYrs	CO2E_TOT (lbs)	MT CO2e	Gallons	Gallons/year
P-049	819	2.70	2,614,410.05	1,185.88	116,149	42,971
P-050	270	0.89	590,329.73	267.77	26,226	29,432
P-051	325	1.07	1,044,678.29	473.86	46,411	43,269
P-052	495	1.63	1,577,358.30	715.48	70,076	42,895
P-053	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
P-054	1701	5.61	5,444,877.33	2,469.75	241,896	43,089
P-055	348	1.15	1,180,211.69	535.33	52,432	45,652
P-056	113	0.37	121,070.68	54.92	5,379	14,423
P-057	119	0.39	127,583.54	57.87	5,668	14,432
P-058	305	1.01	750,479.21	340.41	33,341	33,122
P-059	1701	5.61	5,444,877.33	2,469.75	241,896	43,089
P-060	113	0.37	121,070.68	54.92	5,379	14,423
R-004	325	1.07	1,044,678.29	473.86	46,411	43,269
R-005	382	1.26	1,398,993.43	634.57	62,152	49,299
R-006	296	0.98	723,664.89	328.25	32,150	32,910
R-007	253	0.83	554,218.69	251.39	24,622	29,488
R-008	300	0.99	736,000.66	333.84	32,698	33,025
R-009	3401	11.22	23,154,451.98	10,502.68	1,028,666	91,645
R-010	119	0.39	127,583.54	57.87	5,668	14,432
R-011	309	1.02	762,062.06	345.67	33,856	33,198
R-012	253	0.83	554,218.69	251.39	24,622	29,488
R-013	113	0.37	121,070.68	54.92	5,379	14,423
R-014	113	0.37	121,070.68	54.92	5,379	14,423
R-015	1207	3.98	3,875,133.79	1,757.73	172,158	43,218
R-016	113	0.37	121,070.68	54.92	5,379	14,423
R-017	329	1.09	1,074,950.42	487.59	47,756	43,982
R-018	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
R-019	279	0.92	670,341.87	304.06	29,781	32,343
R-020	579	1.91	1,949,727.84	884.38	86,619	45,329
R-021	279	0.92	670,341.87	304.06	29,781	32,343
R-022	249	0.82	545,409.41	247.39	24,231	29,485
R-023	113	0.37	121,070.68	54.92	5,379	14,423
R-024	3401	11.22	83,666,867.38	37,950.65	3,717,007	331,154
R-025	325	1.07	1,044,678.29	473.86	46,411	43,269
R-026	916	3.02	3,232,915.14	1,466.43	143,626	47,510
R-027	113	0.37	121,070.68	54.92	5,379	14,423
R-028	495	1.63	1,577,358.30	715.48	70,076	42,895
R-029	113	0.37	121,070.68	54.92	5,379	14,423
R-030	301	0.99	738,143.44	334.82	32,793	33,011
R-031	249	0.82	545,409.41	247.39	24,231	29,485
R-032	119	0.39	127,583.54	57.87	5,668	14,432
R-033	249	0.82	545,409.41	247.39	24,231	29,485
R-034	113	0.37	121,070.68	54.92	5,379	14,423
R-035	300	0.99	736,000.66	333.84	32,698	33,025
R-036	279	0.92	670,341.87	304.06	29,781	32,343
R-037	113	0.37	121,070.68	54.92	5,379	14,423
R-038	113	0.37	121,070.68	54.92	5,379	14,423
R-039	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
R-040	113	0.37	121,070.68	54.92	5,379	14,423
R-041	119	0.39	127,583.54	57.87	5,668	14,432
R-042	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
R-043	325	1.07	1,044,678.29	473.86	46,411	43,269
R-044	113	0.37	121,070.68	54.92	5,379	14,423
R-045	119	0.39	127,583.54	57.87	5,668	14,432
R-046	325	1.07	1,044,678.29	473.86	46,411	43,269
R-047	253	0.83	554,218.69	251.39	24,622	29,488
R-048	270	0.89	590,329.73	267.77	26,226	29,432
R-049	1207	3.98	3,875,133.79	1,757.73	172,158	43,218

**World Logistic Center**  
**Cumulative Energy - Transportation Fuel**

*Off-Road Construction Diesel Fuel Usage*

Project ID	ConDays	ConYrs	CO2E_TOT (lbs)	MT CO2e	Gallons	Gallons/year
R-050	249	0.82	545,409.41	247.39	24,231	29,485
R-051	113	0.37	121,070.68	54.92	5,379	14,423
R-052	325	1.07	1,044,678.29	473.86	46,411	43,269
R-053	300	0.99	736,000.66	333.84	32,698	33,025
R-054	300	0.99	736,000.66	333.84	32,698	33,025
R-055	300	0.99	736,000.66	333.84	32,698	33,025
R-056	296	0.98	723,664.89	328.25	32,150	32,910
R-057	296	0.98	723,664.89	328.25	32,150	32,910
R-058	113	0.37	121,070.68	54.92	5,379	14,423
R-059	113	0.37	121,070.68	54.92	5,379	14,423
R-060	270	0.89	590,329.73	267.77	26,226	29,432
R-061	328	1.08	825,272.43	374.34	36,664	33,869
R-062	113	0.37	121,070.68	54.92	5,379	14,423
R-063	249	0.82	545,409.41	247.39	24,231	29,485
R-064	249	0.82	545,409.41	247.39	24,231	29,485
R-065	325	1.07	1,044,678.29	473.86	46,411	43,269
R-066	113	0.37	121,070.68	54.92	5,379	14,423
RC-001	3401	11.22	31,681,020.65	14,370.27	1,407,470	125,394
RC-002	3401	11.22	42,078,190.00	19,086.34	1,869,377	166,546
RC-003	3401	11.22	62,872,528.69	28,518.49	2,793,192	248,850
RC-005	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
RC-006	382	1.26	1,398,993.43	634.57	62,152	49,299
RC-007	819	2.70	2,614,410.05	1,185.88	116,149	42,971
RC-009	569	1.88	2,060,329.98	934.55	91,533	48,742
RC-010	3401	11.22	11,332,469.69	5,140.32	503,459	44,854
RC-011	329	1.09	1,074,950.42	487.59	47,756	43,982
RC-012	305	1.01	750,479.21	340.41	33,341	33,122
RC-013	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
RC-014	387	1.28	1,253,155.71	568.42	55,673	43,589
RC-015	819	2.70	2,614,410.05	1,185.88	116,149	42,971
RC-017	113	0.37	121,070.68	54.92	5,379	14,423
RC-018	279	0.92	670,341.87	304.06	29,781	32,343
RC-019	253	0.83	554,218.69	251.39	24,622	29,488
RC-020	113	0.37	121,070.68	54.92	5,379	14,423
RC-021	113	0.37	121,070.68	54.92	5,379	14,423
RC-022	819	2.70	2,614,410.05	1,185.88	116,149	42,971
RC-023	249	0.82	545,409.41	247.39	24,231	29,485
RC-024	296	0.98	723,664.89	328.25	32,150	32,910
RC-025	253	0.83	554,218.69	251.39	24,622	29,488
RC-026	113	0.37	121,070.68	54.92	5,379	14,423
RC-027	296	0.98	723,664.89	328.25	32,150	32,910
RC-028	113	0.37	121,070.68	54.92	5,379	14,423
RC-029	113	0.37	121,070.68	54.92	5,379	14,423
RC-030	529	1.75	1,796,140.04	814.72	79,796	45,705
RC-031	296	0.98	723,664.89	328.25	32,150	32,910
RC-032	3401	11.22	21,283,851.30	9,654.19	945,562	84,242
RC-033	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
RC-034	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
RC-035	3401	11.22	52,475,359.34	23,802.42	2,331,285	207,698
RC-036	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
RC-037	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
RC-038	859	2.83	2,878,599.99	1,305.71	127,885	45,110
RC-039	325	1.07	1,044,678.29	473.86	46,411	43,269
RD-003	545	1.80	1,730,946.09	785.14	76,899	42,753
RD-004	387	1.28	1,253,155.71	568.42	55,673	43,589
RD-006	253	0.83	554,218.69	251.39	24,622	29,488
RD-007	270	0.89	590,329.73	267.77	26,226	29,432
RD-008	300	0.99	736,000.66	333.84	32,698	33,025

**World Logistic Center**  
**Cumulative Energy - Transportation Fuel**

*Off-Road Construction Diesel Fuel Usage*

Project ID	ConDays	ConYrs	CO2E_TOT (lbs)	MT CO2e	Gallons	Gallons/year
RD-009	253	0.83	554,218.69	251.39	24,622	29,488
RD-010	296	0.98	723,664.89	328.25	32,150	32,910
RD-011	253	0.83	554,218.69	251.39	24,622	29,488
SB-007	325	1.07	1,044,678.29	473.86	46,411	43,269
SB-008	325	1.07	1,044,678.29	473.86	46,411	43,269
SJ-001	1105	3.65	4,432,085.14	2,010.36	196,901	53,992
SJ-002	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
SJ-003	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
SJ-004	3401	11.22	10,886,681.95	4,938.12	483,655	43,090
WLC-001	325	1.07	1,044,678.29	473.86	46,411	43,269

## World Logistic Center Cumulative Energy -Transportation Fuel

10.21 kgCO<sub>2</sub>/gal      [https://www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](https://www.eia.gov/environment/emissions/co2_vol_mass.php)  
2204.623 lbs/Metric Ton

Total Diesel Consumption:            88,547,190 gallons  
Max Annual Consumption:            1,137,881 gallons  
Min Annual Consumption:            309 gallons  
Average Annual Consumption:        37,584 gallons  
Straigh Average Annual Consumption: 115,400 gallons

### On-Road Construction Diesel Fuel Usage

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
B-001	3401	11.22	142,267,719.23	64,531.54	6,320,425	563,096
B-003	3401	11.22	13,300,173.35	6,032.86	590,877	52,642
B-004	819	2.70	4,566,054.59	2,071.13	202,853	75,048
B-006	819	2.70	4,870,491.67	2,209.22	216,378	80,052
B-007	3401	11.22	2,955,720.52	1,340.69	131,312	11,699
B-008	3401	11.22	9,404,221.31	4,265.68	417,795	37,222
B-009	3401	11.22	255,785,305.76	116,022.24	11,363,589	1,012,399
B-010	545	1.80	321,356.05	145.76	14,277	7,937
B-011	300	0.99	273,004.10	123.83	12,129	12,250
B-013	3401	11.22	54,542,297.76	24,739.97	2,423,111	215,878
B-014	3401	11.22	10,076,219.23	4,570.50	447,649	39,882
C-001	279	0.92	219,520.22	99.57	9,752	10,591
C-002	1207	3.98	10,155,438.97	4,606.43	451,168	113,259
C-003	249	0.82	84,162.40	38.18	3,739	4,550
H-001	3401	11.22	4,232,199.39	1,919.69	188,021	16,751
H-002	3401	11.22	3,224,335.54	1,462.53	143,245	12,762
H-003	3401	11.22	13,434,675.18	6,093.87	596,853	53,174
H-004	819	2.70	4,565,996.02	2,071.10	202,850	75,047
H-005	113	0.37	10,375.99	4.71	461	1,236
H-006	325	1.07	726,253.46	329.42	32,265	30,081
H-007	1207	3.98	943,939.46	428.16	41,936	10,527
H-008	3401	11.22	4,318,651.85	1,958.91	191,862	17,093
M-001	325	1.07	1,266,636.33	574.54	56,272	52,463
M-003	1207	3.98	11,432,787.35	5,185.82	507,916	127,505
M-004	249	0.82	118,389.77	53.70	5,260	6,400
M-005	3401	11.22	47,955,023.08	21,752.03	2,130,463	189,806
M-006	300	0.99	267,293.43	121.24	11,875	11,994
M-007	325	1.07	842,506.61	382.15	37,429	34,896
M-008	1701	5.61	19,588,252.75	8,885.08	870,233	155,015
M-009	819	2.70	240,753.14	109.20	10,696	3,957
M-010	325	1.07	658,206.65	298.56	29,242	27,262
M-011	249	0.82	62,781.05	28.48	2,789	3,394
MV-001	300	0.99	402,811.20	182.71	17,895	18,074
MV-002	1701	5.61	1,785,471.92	809.88	79,322	14,130
MV-003	1207	3.98	8,958,903.64	4,063.69	398,011	99,915
MV-005	249	0.82	129,792.09	58.87	5,766	7,017
MV-006	325	1.07	920,407.34	417.49	40,890	38,122
MV-007	300	0.99	76,196.27	34.56	3,385	3,419
MV-008	325	1.07	106,483.22	48.30	4,731	4,410
MV-009	279	0.92	11,958.93	5.42	531	577
MV-010	325	1.07	99,974.29	45.35	4,441	4,141
MV-011	300	0.99	70,218.89	31.85	3,120	3,151
MV-013	113	0.37	12,988.91	5.89	577	1,547
MV-014	819	2.70	513,092.28	232.73	22,795	8,433
MV-015	387	1.28	191,958.60	87.07	8,528	6,677
MV-016	325	1.07	86,992.97	39.46	3,865	3,603
MV-017	545	1.80	321,356.05	145.76	14,277	7,937

**World Logistic Center  
Cumulative Energy -Transportation Fuel**

***On-Road Construction Diesel Fuel Usage***

<b>Project ID</b>	<b>ConDays</b>	<b>ConYrs</b>	<b>CO2E</b>	<b>MT CO2e</b>	<b>Gallons</b>	<b>Gallons/year</b>
MV-021	249	0.82	95,638.28	43.38	4,249	5,170
MV-023	495	1.63	634,240.16	287.69	28,177	17,248
MV-024	1207	3.98	409,130.69	185.58	18,176	4,563
MV-025	495	1.63	288,003.00	130.64	12,795	7,832
MV-026	545	1.80	321,377.50	145.77	14,278	7,938
MV-027	279	0.92	36,121.68	16.38	1,605	1,743
MV-028	300	0.99	112,446.37	51.00	4,996	5,046
MV-029	1701	5.61	1,008,066.35	457.25	44,785	7,978
MV-030	495	1.63	288,003.00	130.64	12,795	7,832
MV-031	325	1.07	100,009.88	45.36	4,443	4,142
MV-032	819	2.70	529,127.31	240.01	23,507	8,697
MV-033	325	1.07	100,009.88	45.36	4,443	4,142
MV-034	325	1.07	99,998.02	45.36	4,443	4,142
MV-035	300	0.99	70,218.89	31.85	3,120	3,151
MV-040	249	0.82	97,103.33	44.05	4,314	5,249
MV-041	545	1.80	2,577,057.60	1,168.93	114,489	63,652
MV-042	325	1.07	541,351.04	245.55	24,050	22,422
MV-044	495	1.63	1,936,483.62	878.37	86,031	52,661
MV-045	249	0.82	101,260.42	45.93	4,499	5,474
MV-047	300	0.99	64,242.46	29.14	2,854	2,883
MV-054	819	2.70	4,566,083.87	2,071.14	202,854	75,049
MV-056	300	0.99	64,242.46	29.14	2,854	2,883
MV-057	325	1.07	87,016.70	39.47	3,866	3,604
MV-059	387	1.28	191,958.60	87.07	8,528	6,677
MV-060	495	1.63	297,558.38	134.97	13,219	8,092
MV-061	279	0.92	201,622.83	91.45	8,957	9,728
MV-062	3401	11.22	3,963,206.18	1,797.68	176,070	15,686
MV-063	1207	3.98	577,438.28	261.92	25,653	6,440
MV-064	495	1.63	297,523.54	134.95	13,218	8,091
MV-065	279	0.92	36,110.76	16.38	1,604	1,742
MV-066	325	1.07	237,622.39	107.78	10,557	9,842
MV-067	1207	3.98	433,034.63	196.42	19,238	4,829
MV-068	279	0.92	225,719.23	102.38	10,028	10,890
MV-070	325	1.07	231,076.92	104.81	10,266	9,571
MV-071	279	0.92	36,088.93	16.37	1,603	1,741
MV-072	249	0.82	17,256.72	7.83	767	933
MV-073	300	0.99	118,445.57	53.73	5,262	5,315
MV-074	819	2.70	339,044.34	153.79	15,062	5,573
MV-075	3401	11.22	21,222,716.73	9,626.46	942,846	84,000
MV-076	300	0.99	414,720.40	188.11	18,424	18,609
MV-077	325	1.07	693,191.29	314.43	30,796	28,711
MV-079	300	0.99	416,573.63	188.95	18,507	18,692
MV-080	249	0.82	45,651.23	20.71	2,028	2,468
MV-085	279	0.92	159,872.59	72.52	7,103	7,714
MV-087	279	0.92	42,120.79	19.11	1,871	2,032
MV-088	113	0.37	5,217.06	2.37	232	621
MV-089	113	0.37	5,217.06	2.37	232	621
MV-090	113	0.37	5,188.35	2.35	230	618
MV-091	495	1.63	297,523.54	134.95	13,218	8,091
MV-094	325	1.07	311,634.99	141.36	13,845	12,908
MV-095	279	0.92	195,657.32	88.75	8,692	9,440
MV-096	387	1.28	207,965.98	94.33	9,239	7,234
MV-097	1207	3.98	553,446.54	251.04	24,588	6,172
MV-098	300	0.99	64,242.46	29.14	2,854	2,883
MV-099	300	0.99	118,445.57	53.73	5,262	5,315
MV-100	325	1.07	198,364.26	89.98	8,813	8,216
MV-101	113	0.37	5,188.35	2.35	230	618

**World Logistic Center**  
**Cumulative Energy -Transportation Fuel**

**On-Road Construction Diesel Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
MV-102	249	0.82	95,659.64	43.39	4,250	5,171
MV-103	279	0.92	207,788.23	94.25	9,231	10,025
MV-104	300	0.99	422,540.10	191.66	18,772	18,960
MV-105	113	0.37	5,217.06	2.37	232	621
MV-106	113	0.37	5,217.06	2.37	232	621
MV-107	249	0.82	5,738.60	2.60	255	310
MV-108	113	0.37	2,594.65	1.18	115	309
MV-109	3401	11.22	15,986,631.38	7,251.41	710,227	63,275
MV-110	279	0.92	42,120.79	19.11	1,871	2,032
MV-111	249	0.82	11,508.34	5.22	511	622
MV-112	113	0.37	5,226.79	2.37	232	623
MV-113	819	2.70	256,788.17	116.48	11,408	4,221
MV-114	113	0.37	2,599.40	1.18	115	310
MV-115	113	0.37	2,594.65	1.18	115	309
MV-116	300	0.99	70,218.89	31.85	3,120	3,151
MV-117	249	0.82	51,410.53	23.32	2,284	2,779
MV-118	249	0.82	5,738.60	2.60	255	310
MV-119	325	1.07	87,004.83	39.46	3,865	3,604
MV-120	279	0.92	213,543.79	96.86	9,487	10,303
MV-121	113	0.37	2,599.40	1.18	115	310
MV-123	113	0.37	7,782.05	3.53	346	927
MV-124	279	0.92	159,872.59	72.52	7,103	7,714
MV-125	249	0.82	17,256.72	7.83	767	933
MV-126	1701	5.61	873,640.31	396.28	38,813	6,914
MV-127	300	0.99	386,722.34	175.41	17,181	17,352
MV-129	819	2.70	4,149,558.43	1,882.21	184,349	68,203
MV-130	300	0.99	273,248.03	123.94	12,139	12,261
MV-131	819	2.70	3,941,267.73	1,787.73	175,096	64,779
MV-132	495	1.63	1,926,928.24	874.04	85,606	52,401
P-004	279	0.92	195,845.44	88.83	8,701	9,449
P-005	325	1.07	554,344.23	251.45	24,627	22,960
P-006	325	1.07	764,594.96	346.81	33,968	31,669
P-007	495	1.63	1,867,826.46	847.23	82,981	50,794
P-008	300	0.99	291,168.30	132.07	12,936	13,065
P-009	325	1.07	810,035.03	367.43	35,987	33,551
P-012	325	1.07	547,848.11	248.50	24,339	22,691
P-014	495	1.63	2,079,417.84	943.21	92,381	56,548
P-022	300	0.99	428,516.52	194.37	19,037	19,228
P-023	279	0.92	201,822.72	91.55	8,966	9,738
P-024	545	1.80	2,598,730.31	1,178.76	115,452	64,187
P-025	387	1.28	1,503,410.25	681.94	66,791	52,294
P-026	325	1.07	991,786.33	449.87	44,061	41,079
P-028	325	1.07	836,022.35	379.21	37,141	34,627
P-030	3401	11.22	3,560,457.08	1,615.00	158,178	14,092
P-031	279	0.92	76,760.98	34.82	3,410	3,704
P-032	325	1.07	687,346.04	311.77	30,536	28,469
P-033	3401	11.22	40,101,621.58	18,189.79	1,781,566	158,722
P-034	1207	3.98	12,489,603.12	5,665.19	554,867	139,291
P-035	249	0.82	28,743.04	13.04	1,277	1,554
P-036	1701	5.61	19,289,708.41	8,749.66	856,970	152,652
P-039	325	1.07	959,350.35	435.15	42,620	39,735
P-040	819	2.70	545,130.45	247.27	24,218	8,960
P-041	279	0.92	171,959.85	78.00	7,640	8,297
P-042	325	1.07	106,495.08	48.31	4,731	4,411
P-043	325	1.07	106,483.22	48.30	4,731	4,410
P-044	300	0.99	118,423.74	53.72	5,261	5,314
P-045	279	0.92	76,760.98	34.82	3,410	3,704

**World Logistic Center**  
**Cumulative Energy -Transportation Fuel**

**On-Road Construction Diesel Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
P-046	1701	5.61	1,555,369.71	705.50	69,099	12,309
P-047	3401	11.22	3,761,954.21	1,706.39	167,130	14,890
P-048	387	1.28	207,936.75	94.32	9,238	7,233
P-049	819	2.70	529,127.31	240.01	23,507	8,697
P-050	249	0.82	95,554.28	43.34	4,245	5,166
P-051	325	1.07	87,004.83	39.46	3,865	3,604
P-052	495	1.63	288,003.00	130.64	12,795	7,832
P-053	1207	3.98	433,034.63	196.42	19,238	4,829
P-054	1701	5.61	873,706.85	396.31	38,816	6,914
P-055	325	1.07	601,779.60	272.96	26,735	24,925
P-056	113	0.37	5,197.84	2.36	231	619
P-057	113	0.37	18,181.30	8.25	808	2,166
P-058	300	0.99	422,561.93	191.67	18,773	18,961
P-059	1701	5.61	873,829.48	396.36	38,821	6,915
P-060	113	0.37	2,599.40	1.18	115	310
R-004	325	1.07	217,939.46	98.86	9,682	9,027
R-005	325	1.07	654,259.19	296.77	29,066	27,099
R-006	279	0.92	76,783.67	34.83	3,411	3,705
R-007	249	0.82	57,053.55	25.88	2,535	3,084
R-008	300	0.99	76,362.85	34.64	3,393	3,426
R-009	3401	11.22	192,809,167.53	87,456.75	8,565,794	763,139
R-010	113	0.37	10,380.74	4.71	461	1,237
R-011	300	0.99	438,983.95	199.12	19,502	19,697
R-012	249	0.82	62,759.69	28.47	2,788	3,393
R-013	113	0.37	2,599.40	1.18	115	310
R-014	113	0.37	2,599.40	1.18	115	310
R-015	1207	3.98	457,117.73	207.35	20,308	5,098
R-016	113	0.37	2,594.65	1.18	115	309
R-017	325	1.07	318,167.65	144.32	14,135	13,178
R-018	3401	11.22	198,794,786.00	90,171.78	8,831,712	786,830
R-019	279	0.92	36,132.59	16.39	1,605	1,743
R-020	545	1.80	2,598,710.52	1,178.76	115,451	64,187
R-021	279	0.92	11,981.62	5.43	532	578
R-022	249	0.82	5,738.60	2.60	255	310
R-023	113	0.37	5,188.35	2.35	230	618
R-024	3401	11.22	287,488,800.99	130,402.70	12,772,057	1,137,881
R-025	325	1.07	211,405.85	95.89	9,392	8,756
R-026	819	2.70	4,180,707.71	1,896.34	185,733	68,715
R-027	113	0.37	2,599.40	1.18	115	310
R-028	495	1.63	346,097.49	156.99	15,376	9,412
R-029	113	0.37	2,599.40	1.18	115	310
R-030	279	0.92	231,441.19	104.98	10,282	11,167
R-031	249	0.82	23,026.46	10.44	1,023	1,245
R-032	113	0.37	10,380.74	4.71	461	1,237
R-033	249	0.82	22,984.22	10.43	1,021	1,243
R-034	113	0.37	5,202.83	2.36	231	620
R-035	300	0.99	118,490.18	53.75	5,264	5,317
R-036	279	0.92	42,131.71	19.11	1,872	2,033
R-037	113	0.37	2,599.40	1.18	115	310
R-038	113	0.37	2,599.40	1.18	115	310
R-039	3401	11.22	2,888,837.35	1,310.35	128,340	11,434
R-040	113	0.37	2,594.65	1.18	115	309
R-041	113	0.37	10,390.23	4.71	462	1,238
R-042	3401	11.22	4,299,450.31	1,950.20	191,009	17,017
R-043	325	1.07	99,986.15	45.35	4,442	4,141
R-044	113	0.37	2,599.40	1.18	115	310
R-045	113	0.37	18,171.81	8.24	807	2,165

**World Logistic Center  
Cumulative Energy -Transportation Fuel**

**On-Road Construction Diesel Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
R-046	325	1.07	87,004.83	39.46	3,865	3,604
R-047	249	0.82	102,830.83	46.64	4,568	5,559
R-048	249	0.82	89,858.10	40.76	3,992	4,858
R-049	1207	3.98	822,902.29	373.26	36,558	9,177
R-050	249	0.82	5,717.72	2.59	254	309
R-051	113	0.37	2,594.65	1.18	115	309
R-052	325	1.07	86,992.97	39.46	3,865	3,603
R-053	300	0.99	76,185.35	34.56	3,385	3,418
R-054	300	0.99	70,218.89	31.85	3,120	3,151
R-055	300	0.99	70,207.98	31.85	3,119	3,150
R-056	279	0.92	154,051.54	69.88	6,844	7,433
R-057	279	0.92	195,845.44	88.83	8,701	9,449
R-058	113	0.37	2,594.65	1.18	115	309
R-059	113	0.37	2,599.40	1.18	115	310
R-060	249	0.82	112,788.98	51.16	5,011	6,097
R-061	300	0.99	522,118.14	236.83	23,196	23,428
R-062	113	0.37	2,594.65	1.18	115	309
R-063	249	0.82	17,235.84	7.82	766	932
R-064	249	0.82	5,717.72	2.59	254	309
R-065	325	1.07	106,506.95	48.31	4,732	4,411
R-066	113	0.37	5,183.61	2.35	230	617
RC-001	3401	11.22	27,003,460.33	12,248.56	1,199,663	106,880
RC-002	3401	11.22	57,498,719.23	26,080.98	2,554,454	227,580
RC-003	3401	11.22	147,104,385.91	66,725.42	6,535,300	582,239
RC-005	3401	11.22	10,881,696.55	4,935.85	483,433	43,070
RC-006	325	1.07	642,676.68	291.51	28,552	26,619
RC-007	819	2.70	4,181,538.03	1,896.71	185,770	68,728
RC-009	495	1.63	1,896,421.26	860.20	84,251	51,572
RC-010	3401	11.22	68,210,389.39	30,939.71	3,030,334	269,977
RC-011	325	1.07	991,798.20	449.87	44,062	41,079
RC-012	300	0.99	470,322.57	213.33	20,895	21,104
RC-013	3401	11.22	3,627,329.80	1,645.33	161,149	14,357
RC-014	387	1.28	417,901.05	189.56	18,566	14,536
RC-015	819	2.70	256,788.17	116.48	11,408	4,221
RC-017	113	0.37	5,188.35	2.35	230	618
RC-018	279	0.92	11,981.62	5.43	532	578
RC-019	249	0.82	51,357.85	23.30	2,282	2,776
RC-020	113	0.37	2,594.65	1.18	115	309
RC-021	113	0.37	5,193.10	2.36	231	619
RC-022	819	2.70	240,723.86	109.19	10,694	3,957
RC-023	249	0.82	51,420.97	23.32	2,284	2,780
RC-024	279	0.92	213,765.52	96.96	9,497	10,314
RC-025	249	0.82	79,984.43	36.28	3,553	4,324
RC-026	113	0.37	2,594.65	1.18	115	309
RC-027	279	0.92	207,810.07	94.26	9,232	10,026
RC-028	113	0.37	2,599.40	1.18	115	310
RC-029	113	0.37	5,188.35	2.35	230	618
RC-030	495	1.63	2,174,702.07	986.43	96,614	59,139
RC-031	279	0.92	201,822.72	91.55	8,966	9,738
RC-032	3401	11.22	10,479,213.50	4,753.29	465,552	41,477
RC-033	3401	11.22	2,821,341.27	1,279.74	125,342	11,167
RC-034	3401	11.22	3,157,217.65	1,432.09	140,263	12,496
RC-035	3401	11.22	108,159,705.74	49,060.41	4,805,133	428,096
RC-036	3401	11.22	3,425,832.67	1,553.93	152,197	13,559
RC-037	3401	11.22	4,097,574.98	1,858.63	182,040	16,218
RC-038	819	2.70	4,790,382.92	2,172.88	212,819	78,735
RC-039	325	1.07	93,489.08	42.41	4,153	3,872

**World Logistic Center**  
**Cumulative Energy -Transportation Fuel**

*On-Road Construction Diesel Fuel Usage*

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
RD-003	545	1.80	332,193.23	150.68	14,758	8,205
RD-004	387	1.28	199,947.20	90.69	8,883	6,955
RD-006	249	0.82	45,662.15	20.71	2,029	2,469
RD-007	249	0.82	135,509.14	61.47	6,020	7,326
RD-008	300	0.99	106,425.33	48.27	4,728	4,775
RD-009	249	0.82	45,651.23	20.71	2,028	2,468
RD-010	279	0.92	166,005.25	75.30	7,375	8,009
RD-011	249	0.82	57,053.55	25.88	2,535	3,084
SB-007	325	1.07	87,004.83	39.46	3,865	3,604
SB-008	325	1.07	93,489.08	42.41	4,153	3,872
SJ-001	819	2.70	4,416,861.47	2,003.45	196,225	72,596
SJ-002	3401	11.22	2,351,229.12	1,066.50	104,456	9,306
SJ-003	3401	11.22	4,231,821.20	1,919.52	188,004	16,750
SJ-004	3401	11.22	4,433,573.94	2,011.03	196,967	17,548
WLC-001	325	1.07	106,495.08	48.31	4,731	4,411

## World Logistic Center Cumulative Energy - Transportation Fuels

8.89 kgCO<sub>2</sub>/gal      [https://www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](https://www.eia.gov/environment/emissions/co2_vol_mass.php)  
2204.623 lbs/Metric Ton

Total Gasoline Consumption:	127,085,549 gallons
Max Annual Consumption:	1,788,690 gallons
Min Annual Consumption:	313 gallons
Average Annual Consumption:	50,842 gallons
Straight Average Annual Consumption:	165,626 gallons

### On-Road Construction Gasoline Fuel Usage

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
B-001	3401	11.22	194,955,919.05	88,430.50	9,947,188	886,209
B-003	3401	11.22	18,303,688.08	8,302.41	933,905	83,203
B-004	819	2.70	4,782,346.36	2,169.24	244,008	90,274
B-006	819	2.70	5,108,484.58	2,317.17	260,649	96,431
B-007	3401	11.22	4,095,138.22	1,857.52	208,945	18,615
B-008	3401	11.22	12,954,760.09	5,876.18	660,988	58,888
B-009	3401	11.22	350,288,766.12	158,888.28	17,872,698	1,592,304
B-010	545	1.80	171,353.74	77.72	8,743	4,861
B-011	300	0.99	183,300.16	83.14	9,352	9,446
B-013	3401	11.22	74,659,559.82	33,865.00	3,809,336	339,379
B-014	3401	11.22	13,938,673.27	6,322.47	711,190	63,361
C-001	279	0.92	161,295.67	73.16	8,230	8,938
C-002	1207	3.98	9,646,492.25	4,375.57	492,191	123,557
C-003	249	0.82	57,814.90	26.22	2,950	3,590
H-001	3401	11.22	5,895,208.29	2,674.02	300,790	26,798
H-002	3401	11.22	4,448,430.87	2,017.77	226,971	20,221
H-003	3401	11.22	18,522,831.24	8,401.81	945,086	84,199
H-004	819	2.70	4,769,538.67	2,163.43	243,355	90,032
H-005	113	0.37	8,570.78	3.89	437	1,173
H-006	325	1.07	585,527.87	265.59	29,875	27,853
H-007	1207	3.98	2,556,405.10	1,159.57	130,435	32,744
H-008	3401	11.22	10,204,146.27	4,628.52	520,644	46,385
M-001	325	1.07	810,251.97	367.52	41,341	38,543
M-003	1207	3.98	11,930,606.95	5,411.63	608,732	152,814
M-004	249	0.82	83,166.41	37.72	4,243	5,164
M-005	3401	11.22	50,048,333.19	22,701.54	2,553,604	227,504
M-006	300	0.99	234,256.42	106.26	11,952	12,072
M-007	325	1.07	759,573.26	344.54	38,756	36,132
M-008	1701	5.61	19,625,292.39	8,901.88	1,001,336	178,369
M-009	819	2.70	346,721.69	157.27	17,691	6,545
M-010	325	1.07	630,209.27	285.86	32,155	29,978
M-011	249	0.82	53,231.04	24.15	2,716	3,305
MV-001	300	0.99	246,507.21	111.81	12,577	12,703
MV-002	1701	5.61	3,480,554.13	1,578.75	177,587	31,634
MV-003	1207	3.98	9,352,867.53	4,242.39	477,209	119,796
MV-005	249	0.82	90,129.25	40.88	4,599	5,596
MV-006	325	1.07	841,524.38	381.71	42,937	40,030
MV-007	300	0.99	37,425.19	16.98	1,910	1,929
MV-008	325	1.07	65,783.71	29.84	3,356	3,129
MV-009	279	0.92	15,660.86	7.10	799	868
MV-010	325	1.07	55,192.06	25.03	2,816	2,625
MV-011	300	0.99	30,051.44	13.63	1,533	1,549
MV-013	113	0.37	14,852.11	6.74	758	2,032
MV-014	819	2.70	281,762.49	127.81	14,376	5,319
MV-015	387	1.28	85,717.75	38.88	4,374	3,424
MV-016	325	1.07	42,000.60	19.05	2,143	1,998
MV-017	545	1.80	171,353.74	77.72	8,743	4,861

**World Logistic Center**  
**Cumulative Energy - Transportation Fuels**

**On-Road Construction Gasoline Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
MV-021	249	0.82	80,865.20	36.68	4,126	5,021
MV-023	495	1.63	1,186,267.68	538.08	60,527	37,050
MV-024	1207	3.98	604,739.88	274.31	30,855	7,746
MV-025	495	1.63	133,755.74	60.67	6,825	4,177
MV-026	545	1.80	176,045.06	79.85	8,982	4,994
MV-027	279	0.92	100,538.24	45.60	5,130	5,571
MV-028	300	0.99	166,049.02	75.32	8,472	8,557
MV-029	1701	5.61	1,406,289.22	637.88	71,753	12,781
MV-030	495	1.63	133,755.74	60.67	6,825	4,177
MV-031	325	1.07	62,976.32	28.57	3,213	2,996
MV-032	819	2.70	301,557.37	136.78	15,386	5,692
MV-033	325	1.07	62,976.32	28.57	3,213	2,996
MV-034	325	1.07	60,381.56	27.39	3,081	2,872
MV-035	300	0.99	30,051.44	13.63	1,533	1,549
MV-040	249	0.82	99,340.56	45.06	5,069	6,168
MV-041	545	1.80	2,699,181.56	1,224.33	137,720	76,567
MV-042	325	1.07	506,296.59	229.65	25,833	24,084
MV-044	495	1.63	1,827,774.47	829.06	93,258	57,085
MV-045	249	0.82	67,065.58	30.42	3,422	4,164
MV-047	300	0.99	22,885.27	10.38	1,168	1,179
MV-054	819	2.70	4,788,750.21	2,172.14	244,335	90,395
MV-056	300	0.99	22,885.27	10.38	1,168	1,179
MV-057	325	1.07	47,190.10	21.41	2,408	2,245
MV-059	387	1.28	85,717.75	38.88	4,374	3,424
MV-060	495	1.63	149,362.82	67.75	7,621	4,665
MV-061	279	0.92	146,771.85	66.57	7,489	8,133
MV-062	3401	11.22	5,459,205.34	2,476.25	278,544	24,816
MV-063	1207	3.98	819,197.50	371.58	41,798	10,493
MV-064	495	1.63	141,744.63	64.29	7,232	4,427
MV-065	279	0.92	98,151.07	44.52	5,008	5,439
MV-066	325	1.07	487,687.77	221.21	24,883	23,199
MV-067	1207	3.98	604,758.62	274.31	30,856	7,746
MV-068	279	0.92	217,139.38	98.49	11,079	12,032
MV-070	325	1.07	469,104.28	212.78	23,935	22,315
MV-071	279	0.92	93,376.73	42.35	4,764	5,174
MV-072	249	0.82	43,958.08	19.94	2,243	2,729
MV-073	300	0.99	178,197.12	80.83	9,092	9,183
MV-074	819	2.70	920,610.37	417.58	46,972	17,378
MV-075	3401	11.22	57,572,289.27	26,114.35	2,937,497	261,706
MV-076	300	0.99	251,290.87	113.98	12,822	12,950
MV-077	325	1.07	601,280.75	272.74	30,679	28,602
MV-079	300	0.99	384,868.46	174.57	19,637	19,833
MV-080	249	0.82	37,026.42	16.79	1,889	2,299
MV-085	279	0.92	115,145.54	52.23	5,875	6,380
MV-087	279	0.92	112,665.58	51.10	5,749	6,243
MV-088	113	0.37	10,642.53	4.83	543	1,456
MV-089	113	0.37	10,642.53	4.83	543	1,456
MV-090	113	0.37	4,363.23	1.98	223	597
MV-091	495	1.63	141,744.63	64.29	7,232	4,427
MV-094	325	1.07	516,704.48	234.37	26,364	24,579
MV-095	279	0.92	141,992.84	64.41	7,245	7,868
MV-096	387	1.28	105,118.21	47.68	5,363	4,199
MV-097	1207	3.98	799,977.60	362.86	40,817	10,247
MV-098	300	0.99	22,885.27	10.38	1,168	1,179
MV-099	300	0.99	178,197.12	80.83	9,092	9,183
MV-100	325	1.07	379,404.36	172.09	19,358	18,048
MV-101	113	0.37	4,363.23	1.98	223	597

**World Logistic Center**  
**Cumulative Energy - Transportation Fuels**

**On-Road Construction Gasoline Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
MV-102	249	0.82	85,535.76	38.80	4,364	5,311
MV-103	279	0.92	195,267.22	88.57	9,963	10,820
MV-104	300	0.99	389,855.04	176.84	19,891	20,090
MV-105	113	0.37	10,642.53	4.83	543	1,456
MV-106	113	0.37	10,642.53	4.83	543	1,456
MV-107	249	0.82	11,670.46	5.29	595	725
MV-108	113	0.37	2,285.41	1.04	117	313
MV-109	3401	11.22	21,903,932.86	9,935.46	1,117,599	99,569
MV-110	279	0.92	112,665.58	51.10	5,749	6,243
MV-111	249	0.82	30,149.54	13.68	1,538	1,872
MV-112	113	0.37	12,770.23	5.79	652	1,747
MV-113	819	2.70	366,516.57	166.25	18,701	6,919
MV-114	113	0.37	3,323.31	1.51	170	455
MV-115	113	0.37	2,285.41	1.04	117	313
MV-116	300	0.99	30,051.44	13.63	1,533	1,549
MV-117	249	0.82	53,222.13	24.14	2,716	3,304
MV-118	249	0.82	11,670.46	5.29	595	725
MV-119	325	1.07	44,595.35	20.23	2,275	2,121
MV-120	279	0.92	154,129.50	69.91	7,864	8,541
MV-121	113	0.37	3,323.31	1.51	170	455
MV-123	113	0.37	6,441.06	2.92	329	881
MV-124	279	0.92	115,145.54	52.23	5,875	6,380
MV-125	249	0.82	43,958.08	19.94	2,243	2,729
MV-126	1701	5.61	1,215,024.03	551.13	61,994	11,043
MV-127	300	0.99	355,783.95	161.38	18,153	18,335
MV-129	819	2.70	4,358,350.44	1,976.91	222,375	82,271
MV-130	300	0.99	236,648.25	107.34	12,074	12,195
MV-131	819	2.70	4,137,032.13	1,876.53	211,083	78,093
MV-132	495	1.63	1,812,167.39	821.99	92,462	56,598
P-004	279	0.92	183,135.22	83.07	9,344	10,148
P-005	325	1.07	522,082.81	236.81	26,638	24,835
P-006	325	1.07	675,234.97	306.28	34,452	32,120
P-007	495	1.63	1,959,404.43	888.77	99,974	61,196
P-008	300	0.99	256,174.75	116.20	13,071	13,201
P-009	325	1.07	722,598.68	327.77	36,869	34,373
P-012	325	1.07	514,293.49	233.28	26,241	24,464
P-014	495	1.63	1,975,174.44	895.92	100,779	61,689
P-022	300	0.99	397,021.21	180.09	20,257	20,460
P-023	279	0.92	190,488.22	86.40	9,719	10,555
P-024	545	1.80	2,725,529.99	1,236.28	139,064	77,315
P-025	387	1.28	1,424,221.00	646.02	72,668	56,895
P-026	325	1.07	910,081.51	412.81	46,435	43,292
P-028	325	1.07	754,378.69	342.18	38,490	35,885
P-030	3401	11.22	4,967,196.43	2,253.08	253,440	22,579
P-031	279	0.92	136,938.51	62.11	6,987	7,588
P-032	325	1.07	553,945.31	251.27	28,264	26,351
P-033	3401	11.22	55,097,358.26	24,991.74	2,811,219	250,456
P-034	1207	3.98	13,034,200.64	5,912.21	665,041	166,949
P-035	249	0.82	69,291.76	31.43	3,535	4,302
P-036	1701	5.61	20,050,990.51	9,094.97	1,023,057	182,238
P-039	325	1.07	880,891.19	399.57	44,945	41,903
P-040	819	2.70	314,377.56	142.60	16,040	5,934
P-041	279	0.92	158,871.23	72.06	8,106	8,803
P-042	325	1.07	68,378.46	31.02	3,489	3,253
P-043	325	1.07	65,783.71	29.84	3,356	3,129
P-044	300	0.99	173,422.77	78.66	8,849	8,937
P-045	279	0.92	136,938.51	62.11	6,987	7,588

**World Logistic Center**  
**Cumulative Energy - Transportation Fuels**

**On-Road Construction Gasoline Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
P-046	1701	5.61	4,270,690.71	1,937.15	217,902	38,815
P-047	3401	11.22	5,240,009.86	2,376.83	267,360	23,819
P-048	387	1.28	98,724.74	44.78	5,037	3,944
P-049	819	2.70	301,557.37	136.78	15,386	5,692
P-050	249	0.82	62,494.36	28.35	3,189	3,880
P-051	325	1.07	44,595.35	20.23	2,275	2,121
P-052	495	1.63	133,755.74	60.67	6,825	4,177
P-053	1207	3.98	604,758.62	274.31	30,856	7,746
P-054	1701	5.61	1,229,575.39	557.73	62,736	11,175
P-055	325	1.07	390,308.47	177.04	19,915	18,567
P-056	113	0.37	6,439.03	2.92	329	881
P-057	113	0.37	20,097.55	9.12	1,025	2,750
P-058	300	0.99	394,629.38	179.00	20,135	20,336
P-059	1701	5.61	1,256,394.74	569.89	64,105	11,419
P-060	113	0.37	3,323.31	1.51	170	455
R-004	325	1.07	421,765.89	191.31	21,520	20,063
R-005	325	1.07	564,301.11	255.96	28,792	26,843
R-006	279	0.92	141,899.68	64.36	7,240	7,863
R-007	249	0.82	43,989.27	19.95	2,244	2,731
R-008	300	0.99	73,855.50	33.50	3,768	3,806
R-009	3401	11.22	153,736,537.92	69,733.71	7,844,062	698,839
R-010	113	0.37	9,608.68	4.36	490	1,315
R-011	300	0.99	358,213.26	162.48	18,277	18,460
R-012	249	0.82	48,560.49	22.03	2,478	3,015
R-013	113	0.37	3,323.31	1.51	170	455
R-014	113	0.37	3,323.31	1.51	170	455
R-015	1207	3.98	643,958.10	292.09	32,857	8,248
R-016	113	0.37	2,285.41	1.04	117	313
R-017	325	1.07	532,485.63	241.53	27,169	25,330
R-018	3401	11.22	207,345,715.38	94,050.42	10,579,350	942,530
R-019	279	0.92	102,925.41	46.69	5,252	5,703
R-020	545	1.80	2,721,201.94	1,234.32	138,843	77,192
R-021	279	0.92	20,622.02	9.35	1,052	1,143
R-022	249	0.82	11,670.46	5.29	595	725
R-023	113	0.37	4,363.23	1.98	223	597
R-024	3401	11.22	393,491,285.04	178,484.61	20,077,009	1,788,690
R-025	325	1.07	405,777.16	184.06	20,704	19,302
R-026	819	2.70	4,196,566.74	1,903.53	214,120	79,217
R-027	113	0.37	3,323.31	1.51	170	455
R-028	495	1.63	394,095.42	178.76	20,108	12,308
R-029	113	0.37	3,323.31	1.51	170	455
R-030	279	0.92	168,653.32	76.50	8,605	9,345
R-031	249	0.82	62,437.16	28.32	3,186	3,877
R-032	113	0.37	9,608.68	4.36	490	1,315
R-033	249	0.82	53,199.85	24.13	2,714	3,303
R-034	113	0.37	7,528.83	3.42	384	1,030
R-035	300	0.99	187,953.38	85.25	9,590	9,686
R-036	279	0.92	115,052.75	52.19	5,870	6,375
R-037	113	0.37	3,323.31	1.51	170	455
R-038	113	0.37	3,323.31	1.51	170	455
R-039	3401	11.22	4,065,993.55	1,844.30	207,458	18,483
R-040	113	0.37	2,285.41	1.04	117	313
R-041	113	0.37	11,684.48	5.30	596	1,599
R-042	3401	11.22	6,004,779.88	2,723.72	306,380	27,296
R-043	325	1.07	57,786.81	26.21	2,948	2,749
R-044	113	0.37	3,323.31	1.51	170	455
R-045	113	0.37	18,021.75	8.17	920	2,466

**World Logistic Center**  
**Cumulative Energy - Transportation Fuels**

**On-Road Construction Gasoline Fuel Usage**

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
R-046	325	1.07	44,595.35	20.23	2,275	2,121
R-047	249	0.82	108,582.33	49.25	5,540	6,742
R-048	249	0.82	60,102.74	27.26	3,067	3,732
R-049	1207	3.98	2,224,442.72	1,008.99	113,497	28,492
R-050	249	0.82	7,103.70	3.22	362	441
R-051	113	0.37	2,285.41	1.04	117	313
R-052	325	1.07	42,000.60	19.05	2,143	1,998
R-053	300	0.99	35,038.02	15.89	1,788	1,806
R-054	300	0.99	30,051.44	13.63	1,533	1,549
R-055	300	0.99	27,664.27	12.55	1,412	1,426
R-056	279	0.92	141,960.24	64.39	7,243	7,866
R-057	279	0.92	183,135.22	83.07	9,344	10,148
R-058	113	0.37	2,285.41	1.04	117	313
R-059	113	0.37	3,323.31	1.51	170	455
R-060	249	0.82	101,636.58	46.10	5,186	6,310
R-061	300	0.99	341,360.70	154.84	17,417	17,591
R-062	113	0.37	2,285.41	1.04	117	313
R-063	249	0.82	39,391.31	17.87	2,010	2,446
R-064	249	0.82	7,103.70	3.22	362	441
R-065	325	1.07	70,973.21	32.19	3,621	3,376
R-066	113	0.37	3,325.33	1.51	170	455
RC-001	3401	11.22	37,179,106.20	16,864.16	1,896,980	169,005
RC-002	3401	11.22	78,907,995.95	35,792.06	4,026,103	358,691
RC-003	3401	11.22	201,664,295.08	91,473.37	10,289,468	916,704
RC-005	3401	11.22	14,918,124.33	6,766.75	761,164	67,813
RC-006	325	1.07	675,136.65	306.24	34,447	32,116
RC-007	819	2.70	4,378,157.82	1,985.90	223,386	82,645
RC-009	495	1.63	1,990,626.02	902.93	101,567	62,171
RC-010	3401	11.22	71,239,608.24	32,313.74	3,634,841	323,833
RC-011	325	1.07	912,676.26	413.98	46,567	43,415
RC-012	300	0.99	440,853.23	199.97	22,494	22,718
RC-013	3401	11.22	4,994,057.72	2,265.27	254,811	22,701
RC-014	387	1.28	759,531.40	344.52	38,753	30,342
RC-015	819	2.70	366,516.57	166.25	18,701	6,919
RC-017	113	0.37	4,363.23	1.98	223	597
RC-018	279	0.92	20,622.02	9.35	1,052	1,143
RC-019	249	0.82	41,701.43	18.92	2,128	2,589
RC-020	113	0.37	2,285.41	1.04	117	313
RC-021	113	0.37	5,401.13	2.45	276	739
RC-022	819	2.70	340,317.84	154.37	17,364	6,424
RC-023	249	0.82	55,505.51	25.18	2,832	3,446
RC-024	279	0.92	202,620.21	91.91	10,338	11,228
RC-025	249	0.82	85,523.11	38.79	4,364	5,310
RC-026	113	0.37	2,285.41	1.04	117	313
RC-027	279	0.92	200,041.56	90.74	10,207	11,085
RC-028	113	0.37	3,323.31	1.51	170	455
RC-029	113	0.37	4,363.23	1.98	223	597
RC-030	495	1.63	2,072,292.47	939.98	105,734	64,722
RC-031	279	0.92	190,488.22	86.40	9,719	10,555
RC-032	3401	11.22	14,484,300.12	6,569.97	739,029	65,841
RC-033	3401	11.22	3,902,804.02	1,770.28	199,132	17,741
RC-034	3401	11.22	4,367,951.64	1,981.27	222,865	19,855
RC-035	3401	11.22	151,420,561.37	68,683.20	7,725,894	688,311
RC-036	3401	11.22	4,721,244.30	2,141.52	240,891	21,461
RC-037	3401	11.22	5,649,256.16	2,562.46	288,241	25,680
RC-038	819	2.70	5,024,030.40	2,278.86	256,340	94,836
RC-039	325	1.07	49,789.91	22.58	2,540	2,368

**World Logistic Center**  
**Cumulative Energy - Transportation Fuels**

*On-Road Construction Gasoline Fuel Usage*

Project ID	ConDays	ConYrs	CO2E	MT CO2e	Gallons	Gallons/year
RD-003	545	1.80	184,709.59	83.78	9,424	5,240
RD-004	387	1.28	92,117.45	41.78	4,700	3,680
RD-006	249	0.82	39,413.59	17.88	2,011	2,447
RD-007	249	0.82	97,087.64	44.04	4,954	6,028
RD-008	300	0.99	149,126.58	67.64	7,609	7,685
RD-009	249	0.82	37,026.42	16.79	1,889	2,299
RD-010	279	0.92	156,479.40	70.98	7,984	8,671
RD-011	249	0.82	43,989.27	19.95	2,244	2,731
SB-007	325	1.07	44,595.35	20.23	2,275	2,121
SB-008	325	1.07	49,789.91	22.58	2,540	2,368
SJ-001	819	2.70	3,537,407.10	1,604.54	180,488	66,774
SJ-002	3401	11.22	3,276,697.94	1,486.28	167,186	14,895
SJ-003	3401	11.22	5,812,498.00	2,636.50	296,570	26,422
SJ-004	3401	11.22	6,141,212.75	2,785.61	313,342	27,916
WLC-001	325	1.07	68,378.46	31.02	3,489	3,253

World Logistic Center  
Cumulative Energy - Transportation Fuel

Assumptions

8.89 kg CO<sub>2</sub>/gallon gasoline  
10.16 kg CO<sub>2</sub>/gallon diesel  
53.12 kg CO<sub>2</sub>/ thousand cubic feet  
1036 btu/cubic foot

88.45% emissions from Gasoline  
11.50% emissions from Diesel  
0.05% emissions from Natural Gas

**On-Road Operational Transportation Fuel Calculations**

Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu
B-001	176,084.36	155,745,319.62	17,519,159	202,55703.3	1,993,672	83340.33772	1568.90696	1,625
B-002	23,625.56	20,896,630.31	2,350,577	2717744.228	267,495	11181.92336	210.5030752	218
B-003	49,196.90	43,514,298.39	4,894,747	5659320.74	557,020	23284.78527	438.3430961	454
B-004	62,854.09	55,593,978.13	6,253,541	7230362.551	711,650	29748.70079	560.0282528	580
B-005	73,688.29	65,176,749.65	7,331,468	8476665.022	834,317	34876.50442	656.5607006	680
B-006	128,860.14	113,975,838.78	12,820,679	14823307.56	1,458,987	60989.21572	1148.140356	1,189
B-007	21,503.64	19,019,807.21	2,139,461	2473651.039	243,470	10177.62306	191.5968197	198
B-008	34,576.57	30,582,717.31	3,440,126	3977483.557	391,485	16365.01177	308.0762758	319
B-009	237,447.10	210,020,203.73	23,624,320	27314509	2,688,436	112383.1827	2115.647264	2,192
B-010	5,069.10	4,483,577.38	504,339	583118.7314	57,394	2399.19154	45.1655034	47
B-011	26,945.98	23,833,518.79	2,680,936	3099705.895	305,089	12753.47157	240.0879436	249
B-012	11,543.84	10,210,437.58	1,148,531	1327934.57	130,702	5463.671832	102.8552679	107
B-013	100,848.32	89,199,592.14	10,033,700	11600993.71	1,141,830	47731.28433	898.5558044	931
B-014	37,351.23	33,036,885.98	3,716,185	4296664.337	422,900	17678.25346	332.7984461	345
C-001	23,951.98	21,185,350.04	2,383,054	2755294.129	271,190	11336.41917	213.4115055	221
C-002	229,550.81	203,035,993.39	22,838,694	26406166.5	2,599,032	108645.8861	2045.291531	2,119
C-003	8,706.54	7,700,874.74	866,240	1001549.416	98,578	4120.788368	77.57508224	80
H-001	31,375.03	27,750,984.22	3,121,596	3609198.043	355,236	14849.7329	279.5506947	290
H-002	23,477.92	20,766,042.62	2,335,888	2700760.44	265,823	11112.04503	209.1875947	217
H-003	49,677.13	43,939,058.35	4,942,526	5714563.568	562,457	23512.0771	442.6219333	459
H-004	95,836.62	84,766,786.44	9,535,072	11024478.17	1,085,086	45359.26104	853.9017516	885
H-005	2,504.04	2,214,801.23	249,134	288049.4694	28,351	1185.154606	22.31089243	23
H-006	81,531.10	72,113,660.41	8,111,773	9378855.897	923,116	38588.49067	726.4399599	753
H-007	7,487.20	6,622,375.78	744,924	861283.5321	84,772	3543.676533	66.7107781	69
H-008	16,939.19	14,982,587.76	1,685,330	1948584.093	191,790	8017.280562	150.9277214	156
H-009	12,527.47	11,080,455.57	1,246,395	1441086.133	141,839	5929.224142	111.6194304	116
M-001	27,887.97	24,666,707.79	2,774,658	3208067.604	315,755	13199.31644	248.4811077	257
M-002	233,838.42	206,828,354.89	23,265,282	26899388.06	2,647,578	110675.2035	2083.494042	2,158
M-003	122,921.39	108,723,059.93	12,229,816	14140149.12	1,391,747	58178.41945	1095.22627	1,135
M-004	13,041.85	11,535,423.10	1,297,573	1500257.653	147,663	6172.680238	116.2025647	120
M-005	180,342.72	159,511,801.64	17,942,835	20745559.06	2,041,886	85355.80685	1606.848773	1,665
M-006	15,251.68	13,489,994.54	1,517,435	1754462.527	172,683	7218.584186	135.8920216	141
M-007	28,632.21	25,324,974.82	2,848,704	3293679.562	324,181	13551.55943	255.112188	264
M-008	513,737.85	454,397,333.89	51,113,311	59097362.28	5,816,670	243150.9811	4577.390457	4,742

World Logistic Center  
Cumulative Energy - Transportation Fuel

On-Road Operational Transportation Fuel Calculations										
Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu		
MV-009	7,203.45	6,371,399.44	716,693	828642.4078	81,559	3409.377452	64.18255746	66		
MV-010	23,694.16	20,957,307.07	2,357,402	2725635.64	268,271	11214.39189	211.1143051	219		
MV-011	8,023.91	7,097,092.26	798,323	923023.5332	90,849	3797.700422	71.49285433	74		
MV-001	36,466.89	32,254,695.44	3,628,200	4194935.311	412,887	17259.69819	324.9190171	337		
MV-002	22,917.19	20,270,089.36	2,280,100	2636258.457	259,474	10846.6572	204.1915889	212		
MV-003	93,880.12	83,036,270.52	9,340,413	10799413.19	1,062,934	44433.25068	836.4693275	867		
MV-004	33,973.83	30,049,603.20	3,380,158	3908148.561	384,660	16079.73893	302.7059286	314		
MV-005	13,935.26	12,325,636.65	1,386,461	1603030.124	157,779	6595.528673	124.1628139	129		
MV-006	31,790.01	28,118,032.74	3,162,883	3656935.117	359,935	15046.14296	283.2481732	293		
MV-007	1,654.13	1,463,062.09	164,574	190280.8492	18,728	782.8940816	14.7382169	15		
MV-008	3,094.82	2,737,341.98	307,912	356009.3307	35,040	1464.769572	27.57472839	29		
MV-009	586.95	519,151.07	58,397	67519.011	6,646	277.8011257	5.229689867	5		
MV-010	2,507.87	2,218,190.92	249,515	288490.3197	28,395	1186.968446	22.34503852	23		
MV-011	1,280.61	1,132,693.23	127,412	147314.2058	14,499	606.111547	11.41023244	12		
MV-012	11,983.29	10,599,129.42	1,192,253	1378486.502	135,678	5671.663377	106.7707714	111		
MV-013	1,558.01	1,378,047.60	155,011	179224.155	17,640	737.4022705	13.88181985	14		
MV-014	5,709.40	5,049,924.00	568,045	656775.8343	64,643	2702.247314	50.87061961	53		
MV-015	3,361.61	2,973,319.74	334,457	386699.7903	38,061	1591.042811	29.95186015	31		
MV-016	1,707.48	1,510,257.64	169,883	196418.9411	19,333	808.1487294	15.21364325	16		
MV-017	5,122.45	4,530,772.93	509,648	589256.8233	57,998	2424.446188	45.64092975	47		
MV-018	658.68	582,597.13	65,534	75770.58854	7,458	311.7515272	5.8688164	6		
MV-019	2,907.04	2,571,257.64	289,230	334408.9692	32,914	1375.896754	25.90167083	27		
MV-020	11,232.04	9,934,658.05	1,117,509	1292067.629	127,172	5316.100406	100.0771914	104		
MV-021	11,983.29	10,599,129.42	1,192,253	1378486.502	135,678	5671.663377	106.7707714	111		
MV-022	2,134.36	1,887,822.06	212,353	24523.6764	24,166	1010.185912	19.01705406	20		
MV-023	17,253.69	15,260,761.54	1,716,621	1984762.422	195,351	8166.133168	153.7299166	159		
MV-024	8,484.06	7,504,092.67	844,105	975956.6136	96,059	4015.488999	75.59278989	78		
MV-025	4,322.07	3,822,839.66	430,016	497185.4447	48,936	2045.626471	38.50953447	40		
MV-026	5,335.89	4,719,555.14	530,884	613809.1909	60,414	2525.464779	47.54263515	49		
MV-027	2,234.29	1,976,213.72	222,296	257019.5943	25,297	1057.484871	19.90747121	21		
MV-028	3,723.82	3,293,689.54	370,494	428365.9905	42,162	1762.474785	33.17911869	34		
MV-029	14,673.70	12,978,776.63	1,459,930	1687975.275	166,139	6945.028143	130.7422467	135		
MV-030	4,428.79	3,917,230.77	440,633	509461.6285	50,144	2096.135767	39.46038718	41		
MV-031	2,828.02	2,501,364.22	281,368	325318.8712	32,020	1338.496333	25.19759663	26		
MV-032	6,136.27	5,427,488.41	610,516	705880.5696	69,476	2904.284496	54.67403043	57		
MV-033	2,881.38	2,548,559.78	286,677	331456.9631	32,624	1363.750981	25.67302298	27		
MV-034	2,774.66	2,454,168.67	276,059	319180.7793	31,415	1313.241685	24.72217028	26		
MV-035	1,333.97	1,179,888.78	132,721	153452.2977	15,104	631.3661948	11.88565879	12		
MV-036	2,317.04	2,049,406.83	230,529	266538.8385	26,234	1096.650977	20.64478496	21		
MV-037	46,416.50	41,055,054.31	4,618,116	5339479.87	525,539	21968.82769	413.5697985	428		
MV-038	15,731.65	13,914,525.09	1,565,188	1809675.517	178,118	7445.753254	140.1685477	145		
MV-039	57,996.85	51,297,788.36	5,770,280	6671614.81	656,655	27449.78158	516.7504063	535		
MV-040	4,170.64	3,688,898.44	414,949	479765.5078	47,221	1973.953649	37.160272	38		

World Logistic Center  
Cumulative Energy - Transportation Fuel

<b>On-Road Operational Transportation Fuel Calculations</b>									
Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu	
MV-041	61,460.69	54,361,529.96	6,114,908	7070074.559	695,873	29089.20972	547.6131349	567	
MV-042	18,919.30	16,733,978.55	1,882,337	2176363.986	214,209	8954.461214	168.5704295	175	
MV-043	15,959.24	14,115,832.07	1,587,833	1835856.814	180,695	7553.473931	142.1964219	147	
MV-044	47,022.86	41,591,369.23	4,678,444	5409231.155	532,405	22255.81331	418.9723892	434	
MV-045	10,433.48	9,228,338.48	1,038,058	1200206.123	118,131	4938.144191	92.96205178	96	
MV-046	16,203.58	14,331,948.74	1,612,143	1863964.209	183,461	7669.119375	144.3734822	150	
MV-047	853.74	755,128.82	84,941	98209.47055	9,666	404.0743647	7.606821624	8	
MV-048	103,219.93	91,297,264.21	10,269,659	11873809.76	1,168,682	48853.76235	919.6867912	953	
MV-049	108,472.99	95,943,563.27	10,792,302	12478091.51	1,228,159	51340.02732	966.4914782	1,001	
MV-050	12,861.16	11,375,605.18	1,279,596	1479472.282	145,617	6087.160627	114.5926323	119	
MV-051	27,886.34	24,665,259.09	2,774,495	3207879.191	315,736	13198.54123	248.4665141	257	
MV-052	31,860.57	28,180,440.03	3,169,903	3665051.596	360,733	15079.53751	283.8768357	294	
MV-053	52,983.36	46,863,387.90	5,271,472	6094891.861	599,891	25076.90494	472.0802887	489	
MV-054	73,668.06	65,158,854.54	7,329,455	8474337.644	834,088	34866.92862	656.3804334	680	
MV-056	853.74	755,128.82	84,941	98209.47055	9,666	404.0743647	7.606821624	8	
MV-057	1,974.28	1,746,235.40	196,427	227109.4006	22,353	934.4219683	17.59077501	18	
MV-058	426.87	377,564.41	42,471	49104.73528	4,833	202.0371823	3.803410812	4	
MV-059	3,361.61	2,973,319.74	334,457	386699.7903	38,061	1591.042811	29.95186015	31	
MV-060	4,909.02	4,341,990.73	488,413	564704.4557	55,581	2323.427597	43.73922434	45	
MV-061	21,556.78	19,066,815.04	2,144,749	2479764.716	244,071	10202.77725	192.0703549	199	
MV-062	28,973.88	25,627,184.41	2,882,698	3332983.907	328,050	13713.27375	258.1565089	267	
MV-063	11,792.32	10,430,216.86	1,173,253	1356518.312	133,516	5581.277162	105.0692237	109	
MV-064	4,642.22	4,106,012.97	461,869	534013.9961	52,560	2197.154358	41.36209258	43	
MV-065	2,151.54	1,903,020.62	214,063	247500.35	24,360	1018.318764	19.17015746	20	
MV-066	10,385.31	9,185,734.16	1,033,266	1194665.151	117,585	4915.346344	92.53287544	96	
MV-067	8,590.78	7,598,483.78	854,723	988232.7974	97,267	4065.998295	76.5436426	79	
MV-068	5,947.66	5,260,660.46	591,750	684183.4976	67,341	2815.013772	52.99348215	55	
MV-069	11,763.95	10,405,126.39	1,170,430	1353255.132	133,194	5567.85109	104.8164738	109	
MV-070	9,971.56	8,819,768.66	992,100	1147068.93	112,900	4719.515812	88.8463067	92	
MV-071	2,027.41	1,793,230.97	201,713	233221.4837	22,955	959.5696049	18.06418684	19	
MV-072	993.02	878,317.21	98,798	114230.9308	11,243	469.9932759	8.847764983	9	
MV-073	3,972.07	3,513,268.84	395,193	456923.7232	44,973	1879.973104	35.39105993	37	
MV-074	3,952.74	3,496,170.45	393,270	454699.9653	44,754	1870.823644	35.2188186	36	
MV-075	30,555.32	27,025,952.56	3,040,040	3514902.906	345,955	14461.76373	272.2470581	282	
MV-076	37,321.14	33,010,270.94	3,713,191	4293202.876	422,559	17664.01158	332.5303384	345	
MV-077	19,320.20	17,088,575.75	1,922,224	2222481.684	218,748	9144.208489	172.1424791	178	
MV-078	18,848.98	16,671,781.22	1,875,341	2168274.813	213,413	8921.179014	167.943882	174	
MV-079	15,555.91	13,759,090.69	1,547,704	1789460.25	176,128	7362.579289	138.6027728	144	
MV-080	5,305.36	4,692,555.03	527,846	610297.6495	60,069	2511.016846	47.27064846	49	
MV-081	29,670.68	26,243,497.22	2,952,024	3413139.442	335,939	14043.06676	264.3649617	274	
MV-082	21,193.34	18,745,355.16	2,108,589	2437956.745	239,956	10030.76197	188.8321155	196	
MV-083	12,904.30	11,413,757.91	1,283,887	1484434.295	146,106	6107.576402	114.9769654	119	
MV-084	3,624.01	3,205,406.43	360,563	416884.1909	41,032	1715.233914	32.28979507	33	

World Logistic Center  
Cumulative Energy - Transportation Fuel

**On-Road Operational Transportation Fuel Calculations**

Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu
MV-085	16,766.39	14,829,745.03	1,668,138	1928705.89	189,833	7935.493419	149.3880538	155
MV-086	3,788.48	3,350,884.15	376,927	435804.5256	42,894	1793.079993	33.75527096	35
MV-087	2,482.55	2,195,793.03	246,996	285577.327	28,108	1174.98319	22.11941246	23
MV-088	496.51	439,158.61	49,399	57115.46539	5,622	234.9966379	4.423882491	5
MV-089	496.51	439,158.61	49,399	57115.46539	5,622	234.9966379	4.423882491	5
MV-090	875.44	774,324.54	87,101	100706.0004	9,912	414.3461207	7.800190525	8
MV-091	4,642.22	4,106,012.97	461,869	534013.9961	52,560	2197.154358	41.36209258	43
MV-093	4,634.08	4,098,813.65	461,059	533077.677	52,468	2193.301954	41.28956992	43
MV-094	11,005.95	9,734,682.42	1,095,015	1266059.483	124,612	5209.092141	98.06272856	102
MV-095	20,957.98	18,537,181.28	2,085,172	2410882.363	237,292	9919.366774	186.7350673	193
MV-096	4,161.99	3,681,253.01	414,089	478771.1689	47,123	1969.862528	37.08325542	38
MV-097	11,418.80	10,099,848.00	1,136,091	1313551.669	129,287	5404.494628	101.7412392	105
MV-098	853.74	755,128.82	84,941	98209.47055	9,666	404.0743647	7.606821624	8
MV-099	3,972.07	3,513,268.84	395,193	456923.7232	44,973	1879.973104	35.39105993	37
MV-100	8,026.90	7,099,730.79	798,620	923366.6905	90,883	3799.112313	71.51943361	74
MV-101	1,077.84	953,340.75	107,237	123988.2358	12,204	510.1388627	9.603517746	10
MV-102	4,362.43	3,858,533.28	434,031	501827.634	49,392	2064.726357	38.86909558	40
MV-103	6,669.64	5,899,245.66	663,582	767235.7032	75,515	3156.724882	59.42629672	62
MV-104	15,811.51	13,985,159.67	1,573,134	1818862.009	179,022	7483.550278	140.8800881	146
MV-105	496.51	439,158.61	49,399	57115.46539	5,622	234.9966379	4.423882491	5
MV-106	496.51	439,158.61	49,399	57115.46539	5,622	234.9966379	4.423882491	5
MV-107	480.23	424,759.96	47,780	55242.82718	5,437	227.2918301	4.278837164	4
MV-108	356.05	314,920.23	35,424	40957.44723	4,031	168.515871	3.172362029	3
MV-109	58,961.58	52,151,084.30	5,866,264	6782591.56	667,578	27906.38581	525.3461184	544
MV-110	2,482.55	2,195,793.03	246,996	285577.327	28,108	1174.98319	22.11941246	23
MV-111	662.01	585,544.81	65,866	76153.95386	7,495	313.3288506	5.898509988	6
MV-112	620.64	548,948.26	61,749	71394.33174	7,027	293.7457974	5.529853114	6
MV-113	7,683.68	6,796,159.40	764,472	883885.235	86,997	3636.669282	68.46139462	71
MV-114	682.63	603,782.48	67,917	78525.88267	7,729	323.0879464	6.082227906	6
MV-115	1.19	1,056.50	119	137.4051855	14	0.565341741	0.010642729	0
MV-116	1,333.97	1,179,888.78	132,721	153452.2977	15,104	631.3661948	11.88565879	12
MV-117	2,700.55	2,388,615.84	268,686	310655.202	30,576	1278.163936	24.06182108	25
MV-118	480.23	424,759.96	47,780	55242.82718	5,437	227.2918301	4.278837164	4
MV-119	1,867.56	1,651,844.30	185,809	214833.2168	21,145	883.9126728	16.6399223	17
MV-120	22,696.90	20,075,237.70	2,258,182	2610916.716	256,980	10742.39081	202.2287426	210
MV-121	521.08	460,887.29	51,843	59941.42377	5,900	246.623799	4.642767301	5
MV-123	1,676.64	1,482,974.50	166,814	192870.589	18,983	793.5493419	14.93880538	15
MV-124	16,766.39	14,829,745.03	1,668,138	1928705.89	189,833	7935.493419	149.3880538	155
MV-125	993.02	878,317.21	98,798	114230.9308	11,243	469.9932759	8.847764983	9
MV-126	12,539.34	11,090,954.58	1,247,576	1442451.599	141,974	5934.842231	111.7251926	116
MV-127	14,411.90	12,747,216.42	1,433,883	1657859.345	163,175	6821.118758	128.4096152	133
MV-129	57,271.89	50,656,566.00	5,698,151	6588219.625	648,447	27106.65931	510.2910262	529
MV-130	9,403.87	8,317,651.50	935,619	1081765.291	106,473	4450.829642	83.78820861	87

World Logistic Center  
Cumulative Energy - Transportation Fuel

On-Road Operational Transportation Fuel Calculations										
Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu		
MV-131	63,580.03	56,236,065.48	6,325,767	7313870.234	719,869	30092.28592	566.4963464	587		
MV-132	46,625.35	41,239,781.35	4,638,896	5363504.838	527,904	22067.67634	415.430654	430		
P-001	7,310.17	6,465,790.54	727,311	840918.5916	82,768	3459.886748	65.13341016	67		
P-002	25,432.01	22,494,426.19	2,530,307	2925548.093	287,948	12036.91437	226.5985386	235		
P-003	19,595.36	17,331,955.38	1,949,601	2254134.806	221,864	9274.442521	174.594174	181		
P-004	6,234.66	5,514,512.25	620,305	717198.5921	70,590	2950.85152	55.55066868	58		
P-005	19,497.88	17,245,726.75	1,939,902	2242920.205	220,760	9228.301016	173.7255462	180		
P-006	21,748.82	19,236,670.63	2,163,855	2501855.554	246,246	10293.66809	193.7814024	201		
P-007	43,130.08	38,148,241.53	4,291,141	4961429.749	488,330	20413.3732	384.287899	398		
P-008	8,735.78	7,726,729.37	869,148	1004911.981	98,909	4134.623351	77.83552995	81		
P-009	18,438.70	16,308,895.90	1,834,521	2121079.191	208,768	8726.996713	164.2883417	170		
P-010	72,057.37	63,734,207.54	7,169,202	8289052.931	815,852	34104.59071	642.0291926	665		
P-011	35,182.68	31,118,821.37	3,500,430	4047207.417	398,347	16651.88456	313.4767424	325		
P-012	16,459.80	14,558,568.82	1,637,634	1893437.641	186,362	7790.385262	146.6563491	152		
P-014	50,864.02	44,988,852.38	5,060,613	5851096.187	575,895	24073.82874	453.1970771	470		
P-015	33,096.16	29,273,308.98	3,292,836	3807186.391	374,723	15664.33882	294.8858965	306		
P-016	55,526.56	49,112,830.52	5,524,503	6387446.671	628,686	26280.59637	494.7401425	513		
P-017	24,584.28	21,744,611.99	2,445,963	2828029.824	278,349	11635.68389	219.045254	227		
P-018	65,572.20	57,998,128.86	6,523,974	7543038.168	742,425	31035.17755	584.2465653	605		
P-019	29,568.95	26,153,519.52	2,941,903	3401437.25	334,787	13994.91911	263.4585675	273		
P-020	36,940.00	32,673,154.04	3,675,270	4249358.606	418,244	17483.61812	329.1343773	341		
P-021	7,205.74	6,373,420.75	716,920	828905.2931	81,585	3410.459071	64.20291926	67		
P-022	16,106.94	14,246,469.92	1,602,528	1852847.126	182,367	7623.3791	143.5124078	149		
P-023	7,629.60	6,748,327.86	759,092	877664.428	86,384	3611.074311	67.97956157	70		
P-024	62,054.11	54,886,399.91	6,173,948	7138337.348	702,592	29370.07106	552.9004341	573		
P-025	43,997.38	38,915,357.31	4,377,431	5061198.202	498,149	20823.86186	392.0154717	406		
P-026	29,419.63	26,021,444.37	2,927,047	3384260.008	333,096	13924.24483	262.128103	272		
P-027	36,622.10	32,391,973.72	3,643,642	4212789.255	414,645	17333.15669	326.3018955	338		
P-028	24,286.18	21,480,948.87	2,416,305	2793738.702	274,974	11494.59604	216.3892326	224		
P-030	26,252.58	23,220,211.29	2,611,947	3019941.219	297,238	12425.28671	233.909765	242		
P-031	3,103.18	2,744,741.28	308,745	356971.6587	35,135	1468.728987	27.64926557	29		
P-032	77,005.62	68,110,900.38	7,661,519	8858270.624	871,877	36446.58763	686.1179901	711		
P-033	99,247.55	87,783,725.60	9,874,435	11416850.95	1,123,706	46973.6449	884.2930138	916		
P-034	134,232.57	118,727,718.41	13,355,199	15441320.76	1,519,815	63531.97755	1196.008613	1,239		
P-035	1,655.03	1,463,862.02	164,664	190384.8846	18,739	783.3221265	14.74627497	15		
P-036	152,168.40	134,591,824.87	15,139,688	1750452.16	1,722,889	72020.96452	1355.81635	1,405		
P-037	9,764.68	8,636,785.91	971,517	1123270.819	110,558	4621.600546	87.00302233	90		
P-038	11,899.03	10,524,607.96	1,183,870	1368794.496	134,724	5631.786458	106.0200764	110		
P-039	33,218.45	29,381,469.68	3,305,002	3821253.401	376,108	15722.21632	295.9754578	307		
P-040	6,509.79	5,757,857.27	647,678	748847.2129	73,705	3081.067031	58.00201489	60		
P-041	5,427.71	4,800,767.65	540,019	624371.4115	61,454	2568.922122	48.36073271	50		
P-042	3,254.89	2,878,928.64	323,839	374423.6065	36,853	1540.533515	29.00100744	30		
P-043	3,041.46	2,690,146.43	302,604	349871.2388	34,436	1439.514924	27.09930204	28		

World Logistic Center

Cumulative Energy - Transportation Fuel

**On-Road Operational Transportation Fuel Calculations**

Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu
P-044	3,889.32	3,440,075.74	386,960	447404.4789	44,036	1840.806997	34.65374618	36
P-045	3,103.18	2,744,741.28	308,745	356971.6587	35,135	1468.728987	27.64926557	29
P-046	8,972.10	7,935,751.98	892,661	1032096.747	101,584	4246.472716	79.94112794	83
P-047	27,799.99	24,588,882.28	2,765,904	3197945.885	314,758	13157.6715	247.6971291	257
P-048	4,001.92	3,539,666.35	398,163	460356.8932	45,311	1894.098584	35.65697636	37
P-049	6,082.91	5,380,292.86	605,207	699742.4777	68,872	2879.029848	54.19860407	56
P-050	9,580.79	8,474,140.02	953,222	1102117.652	108,476	4534.567668	85.36460219	88
P-051	1,867.56	1,651,844.30	185,809	214833.2168	21,145	883.9126728	16.6399223	17
P-052	4,375.43	3,870,035.21	435,325	503323.5366	49,540	2070.881119	38.98496083	40
P-053	8,590.78	7,598,483.78	854,723	988232.7974	97,267	4065.998295	76.5436426	79
P-054	12,699.42	11,232,541.23	1,263,503	1460865.874	143,786	6010.606175	113.1514717	117
P-055	53,891.96	47,667,037.59	5,361,871	6199411.79	610,178	25506.94313	480.1758873	497
P-056	357.19	315,930.25	35,538	41088.80771	4,044	169.0563423	3.182536565	3
P-057	1,765.41	1,561,488.08	175,645	203081.7968	19,988	835.5624724	15.72971522	16
P-058	10,856.43	9,602,434.04	1,080,139	1248859.711	122,919	5138.325168	96.73051897	100
P-059	12,966.21	11,468,518.99	1,290,047	1491556.334	146,807	6136.879414	115.5286034	120
P-060	538.92	476,670.38	53,619	61994.1179	6,102	255.0694313	4.801758873	5
P-061	14,835.34	13,121,748.61	1,476,012	1706569.721	167,969	7021.533382	132.1824808	137
R-001	95,618.14	84,573,540.75	9,513,334	10999345.3	1,082,613	45255.85401	851.9550831	883
R-002	24,701.77	21,848,536.23	2,457,653	2841545.856	279,680	11691.29443	220.0921392	228
R-003	23,634.37	20,904,425.86	2,351,454	2718758.091	267,594	11186.0948	210.581604	218
R-004	8,937.16	7,904,854.90	889,185	1028078.377	101,189	4229.939483	79.62988484	82
R-005	74,895.55	66,244,558.88	7,451,581	8615540.635	847,986	35447.89611	667.3173213	691
R-006	3,185.93	2,817,934.38	316,978	366490.9029	36,072	1507.895093	28.38657932	29
R-007	6,718.65	5,942,596.61	668,459	772873.7796	76,070	3179.922259	59.86299434	62
R-008	773.82	684,435.49	76,989	89015.33712	8,761	366.2458986	6.894689356	7
R-009	1,051,206.77	929,784,632.27	104,587,698	120924607.5	11,902,028	497533.8293	9366.224195	9,703
R-010	2,822.14	2,496,163.87	280,783	324642.5307	31,953	1335.713589	25.14521063	26
R-011	23,686.51	20,950,542.71	2,356,641	2724755.891	268,185	11210.177224	211.0461641	219
R-012	7,350.60	6,501,549.02	731,333	845569.2174	83,225	3479.021345	65.49362472	68
R-013	160.08	141,586.65	15,927	18414.27573	1,812	75.76394338	1.426279055	1
R-014	462.03	408,665.40	45,969	53149.62375	5,231	218.6795258	4.11670794	4
R-015	9,161.51	8,103,287.39	911,506	1053885.828	103,729	4336.122008	81.62880285	85
R-016	81.41	72,006.25	8,100	9364.886826	922	38.53101614	0.725357985	1
R-017	11,378.33	10,064,051.37	1,132,064	1308896.082	128,828	5385.339619	101.3806404	105
R-018	327,603.52	289,762,893.12	32,594,251	37685570.3	3,709,210	155054.0166	2918.938565	3,024
R-019	2,275.67	2,012,810.27	226,413	261779.2164	25,766	1077.067924	20.27612809	21
R-020	61,945.98	54,790,761.11	6,163,190	7125898.893	701,368	29318.89411	551.9370127	572
R-021	800.38	707,933.27	79,633	92071.37864	9,062	378.8197169	7.131395273	7
R-022	480.23	424,759.96	47,780	55242.82718	5,437	227.2918301	4.278837164	4
R-023	962.75	851,545.14	95,787	110749.0475	10,900	455.6673685	8.578075462	9
R-024	266,794.49	235,977,757.00	26,544,180	30690459.55	3,020,715	126273.239	2377.131758	2,463
R-025	8,606.16	7,612,082.49	856,252	990001.4002	97,441	4073.275058	76.68062985	79

World Logistic Center  
Cumulative Energy - Transportation Fuel

On-Road Operational Transportation Fuel Calculations										
Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu		
R-026	94,052.79	83,188,994.76	9,357,592	10819275.98	1,064,889	44514.97441	838.0078014	868		
R-027	433.29	383,242.98	43,109	49843.27079	4,906	205.0758228	3.860614134	4		
R-028	2,802.47	2,478,766.35	278,826	322379.8696	31,730	1326.404065	24.96995605	26		
R-029	454.49	401,992.02	45,218	52281.70609	5,146	215.1085538	4.049483316	4		
R-030	24,977.76	22,092,642.31	2,485,112	2873293.457	282,804	11821.91719	222.551152	231		
R-031	1,489.53	1,317,475.82	148,198	171346.3962	16,865	704.9899138	13.27164747	14		
R-032	2,667.29	2,359,200.58	265,377	306829.5542	30,200	1262.423639	23.76550525	25		
R-033	1,241.27	1,097,896.51	123,498	142788.6635	14,054	587.4915949	11.05970623	11		
R-034	631.82	558,844.24	62,862	72681.36899	7,154	299.0412008	5.629540677	6		
R-035	4,220.33	3,732,848.15	419,893	485481.4559	47,784	1997.471422	37.60300118	39		
R-036	2,565.30	2,268,986.13	255,229	295096.5712	29,045	1214.149296	22.85672621	24		
R-037	718.56	635,560.50	71,492	82658.82386	8,136	340.0925751	6.402345164	7		
R-038	419.16	370,743.63	41,703	48217.64725	4,746	198.3873355	3.734701346	4		
R-039	21,450.28	18,972,611.66	2,134,152	2467512.948	242,865	10152.36841	191.1213933	198		
R-040	287.42	254,224.20	28,597	33063.52955	3,254	136.03703	2.560938066	3		
R-041	1,200.91	1,062,199.09	119,482	138145.9787	13,597	568.3896701	10.70010674	11		
R-042	31,908.62	28,222,939.74	3,174,684	3670578.962	361,277	15102.27938	284.3049582	295		
R-043	2,667.94	2,359,777.57	265,442	306904.5955	30,207	1262.73239	23.77131758	25		
R-044	479.04	423,707.00	47,661	55105.88258	5,424	226.7283834	4.268230109	4		
R-045	1,970.31	1,742,724.93	196,032	226652.8406	22,308	932.5434914	17.55541211	18		
R-046	1,912.54	1,691,630.15	190,285	220007.6283	21,654	905.2023409	17.04070672	18		
R-047	4,566.40	4,038,949.20	454,325	525291.912	51,702	2161.268098	40.68652293	42		
R-048	9,017.92	7,976,284.29	897,220	1037368.24	102,103	4268.161818	80.34943181	83		
R-049	6,483.33	5,734,459.48	645,046	745804.1759	73,406	3068.546718	57.76631623	60		
R-050	204.50	180,876.95	20,346	2524.23724	2,315	96.78843767	1.822071492	2		
R-051	282.75	250,093.06	28,132	32526.24719	3,201	133.8264283	2.519322822	3		
R-052	1,707.48	1,510,257.64	169,883	196418.9411	19,333	808.1487294	15.21364325	16		
R-053	1,547.41	1,368,670.99	153,956	178004.6654	17,520	732.384786	13.78736419	14		
R-054	1,333.97	1,179,888.78	132,721	153452.2977	15,104	631.3661948	11.88565879	12		
R-055	1,067.18	943,911.03	106,177	122761.8382	12,083	505.0929559	9.508527031	10		
R-056	6,803.31	6,017,474.52	676,881	782612.1435	77,029	3219.989915	60.61728002	63		
R-057	6,220.74	5,502,200.78	618,920	715597.4045	70,433	2944.263572	55.42664858	57		
R-058	328.86	290,874.86	32,719	37830.18839	3,723	155.6490352	2.93013997	3		
R-059	485.03	429,003.34	48,257	55794.70611	5,492	229.5624882	4.321582986	4		
R-060	7,063.05	6,247,217.81	702,724	812491.7702	79,970	3342.927052	62.93160865	65		
R-061	50,951.49	45,066,218.09	5,069,316	5861158.106	576,886	24115.22763	453.9764238	470		
R-062	219.28	193,951.88	21,817	25224.71775	2,483	103.7849175	1.953782333	2		
R-063	868.89	768,527.56	86,449	99952.06444	9,838	411.2441164	7.74179436	8		
R-064	266.79	235,977.76	26,544	30690.45955	3,021	126.273239	2.377131758	2		
R-065	3,308.25	2,926,124.19	329,148	380561.6984	37,457	1565.788163	29.47643379	31		
R-066	736.52	651,449.51	73,279	84725.29446	8,339	348.5948895	6.562403793	7		
RC-001	66,751.98	59,041,634.80	6,641,354	7678752.979	755,783	31593.56439	594.7583658	616		
RC-002	106,717.80	94,391,102.80	10,617,672	12276183.82	1,208,286	50509.29559	950.8527031	985		

World Logistic Center

Cumulative Energy - Transportation Fuel

**On-Road Operational Transportation Fuel Calculations**

Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu
RC-003	182,060.56	161,031,221.37	18,113,748	20943169.59	2,061,336	86168.85827	1622.154711	1,681
RC-005	40,019.17	35,396,663.55	3,981,627	4603568.932	453,107	18940.98584	356.5697636	369
RC-006	41,719.15	36,900,282.40	4,150,763	4799124.455	472,355	19745.58211	371.7165307	385
RC-007	67,252.62	59,484,448.07	6,691,164	7736343.758	761,451	31830.51666	599.2190637	621
RC-009	35,446.82	31,352,449.76	3,526,710	4077592.327	401,338	16776.90064	315.8302077	327
RC-010	224,737.81	198,778,929.89	22,359,835	25852507.39	2,544,538	106367.9036	2002.407824	2,074
RC-011	34,502.76	30,517,438.20	3,432,783	3968993.58	390,649	16330.08049	307.418684	318
RC-012	15,357.02	13,583,173.44	1,527,916	1766581.055	173,876	7268.444821	136.830663	142
RC-013	26,519.37	23,456,189.05	2,638,491	3050631.679	300,259	12551.55995	236.2868967	245
RC-014	13,240.24	11,710,896.14	1,317,311	1523079.077	149,909	6266.577012	117.9701998	122
RC-015	7,576.96	6,701,768.30	753,855	871609.0511	85,788	3586.159987	67.51054192	70
RC-017	1,111.37	983,000.24	110,574	127845.6476	12,583	526.0098495	9.902293853	10
RC-018	800.38	707,933.27	79,633	92071.37864	9,062	378.8197169	7.131395273	7
RC-019	6,323.08	5,592,720.56	629,102	727370.0971	71,592	2992.701297	56.33850333	58
RC-020	335.33	296,594.90	33,363	38574.1178	3,797	158.7098684	2.987761076	3
RC-021	339.09	299,925.68	33,737	39007.30791	3,839	160.4921916	3.021313848	3
RC-022	6,990.02	6,182,617.23	695,458	804090.0401	79,143	3308.358861	62.28085205	65
RC-023	1,901.21	1,681,605.62	189,157	218703.873	21,526	899.8381525	16.93972426	18
RC-024	6,916.20	6,117,325.38	688,113	795598.4056	78,307	3273.420766	61.62313189	64
RC-025	3,081.08	2,725,195.01	306,546	354429.5368	34,885	1458.269647	27.45236533	28
RC-026	106.72	94,391.10	10,618	12276.18382	1,208	50.50929559	0.950852703	1
RC-027	6,840.07	6,049,994.47	680,539	786841.5776	77,445	3237.391555	60.94487114	63
RC-028	670.66	593,189.80	66,726	77148.23561	7,593	317.4197368	5.975522153	6
RC-029	975.09	862,455.60	97,014	112168.024	11,040	461.5056244	8.687982387	9
RC-030	53,366.96	47,202,678.83	5,309,638	6139018.878	604,234	25258.46173	475.49815	493
RC-031	6,546.39	5,790,237.86	651,321	753058.5217	74,120	3098.394096	58.32820211	60
RC-032	38,738.56	34,263,970.32	3,854,215	4456254.726	438,608	18334.8743	345.1595312	358
RC-033	20,489.82	18,123,091.74	2,038,593	2357027.293	231,991	9697.784753	182.563719	189
RC-034	23,051.04	20,388,478.20	2,293,417	2651655.705	260,990	10910.00785	205.3841839	213
RC-035	156,445.96	138,375,296.88	15,565,275	17996617.58	1,771,321	74045.5251	1393.929313	1,444
RC-036	24,971.96	22,087,518.05	2,484,535	2872627.014	282,739	11819.17517	222.4995325	231
RC-037	29,987.70	26,523,899.89	2,983,566	3449607.653	339,528	14193.11206	267.1896096	277
RC-038	77,303.14	68,374,057.85	7,691,120	8892495.985	875,246	36587.40492	688.7689178	714
RC-039	2,081.00	1,840,626.50	207,045	239385.5845	23,562	984.9312639	18.54162771	19
RD-001	4,375.43	3,870,035.21	435,325	503323.5366	49,540	2070.881119	38.98496083	40
RD-002	2,934.74	2,595,755.33	291,986	337595.055	33,228	1389.005629	26.14844933	27
RD-003	5,495.97	4,861,141.79	546,810	632223.4667	62,227	2601.228723	48.96891421	51
RD-004	3,575.05	3,162,101.94	355,692	41152.1579	40,478	1692.061402	31.85356555	33
RD-005	21,218.86	18,767,924.57	2,111,128	2440892.044	240,245	10042.83901	189.0594693	196
RD-006	5,775.30	5,108,211.60	574,602	664356.5203	65,389	2733.43739	51.4577822	53
RD-007	15,298.85	13,531,718.63	1,522,128	1759889.019	173,217	7240.911017	136.3123309	141
RD-008	3,310.06	2,927,724.04	329,328	380769.7693	37,477	1566.644253	29.49254994	31
RD-009	5,245.72	4,639,803.51	521,913	603436.9672	59,393	2482.789162	46.73925381	48

World Logistic Center

Cumulative Energy - Transportation Fuel

**On-Road Operational Transportation Fuel Calculations**

Project ID	CO2E (MT)	CO2e Gas (kg)	Gasoline (gal)	CO2e Dsl (kg)	Dsl (gal)	CO2e NG (kg)	MCF	MMBtu
RD-010	5,265.21	4,657,037.65	523,851	605678.3808	59,614	2492.011265	46.91286267	49
RD-011	6,642.48	5,875,227.20	660,880	764111.9443	75,208	3143.872446	59.18434575	61
RD-012	25,486.56	22,542,676.74	2,535,734	2931823.394	288,565	12062.73355	227.0845924	235
RD-013	42,937.71	37,978,089.55	4,272,001	4939300.364	486,152	20322.32376	382.573866	396
RD-014	32,722.52	28,942,828.37	3,255,661	3764205.214	370,493	15487.49649	291.5567863	302
RD-015	17,929.57	15,858,570.47	1,783,866	2062511.406	203,003	8486.02463	159.7519697	166
RD-016	30,295.16	26,795,847.86	3,014,156	3484976.276	343,009	14338.6332	269.9290888	280
SB-001	26,039.33	23,031,593.09	2,590,730	2995410.182	294,824	12324.35588	232.0097117	240
SB-002	13,286.95	11,752,212.96	1,321,959	1528452.601	150,438	6288.685912	118.3864065	123
SB-003	25,159.17	22,253,098.49	2,503,161	2894161.838	284,858	11907.77834	224.1675139	232
SB-004	32,960.73	29,153,526.16	3,279,362	3791607.847	373,190	15600.24225	293.6792593	304
SB-005	11,953.05	10,572,380.31	1,189,244	1375007.604	135,335	5657.349753	106.5013131	110
SB-006	23,015.00	20,356,593.42	2,289,831	2647508.879	260,582	10892.94609	205.0629911	212
SB-007	1,814.20	1,604,648.75	180,500	208695.1249	20,541	858.658025	16.16449595	17
SB-008	2,134.36	1,887,822.06	212,353	245523.6764	24,166	1010.185912	19.01705406	20
SJ-001	200,986.44	177,771,021.77	19,996,740	23120290.75	2,275,619	95126.43479	1790.783787	1,855
SJ-002	17,128.21	15,149,772.00	1,704,136	1970327.503	193,930	8106.741942	152.6118588	158
SJ-003	30,948.16	27,373,419.81	3,079,125	3560093.307	350,403	14647.69572	275.7472839	286
SJ-004	32,709.00	28,930,873.01	3,254,316	3762650.34	370,340	15481.0991	291.4363535	302
WLC-001	3,201.53	2,831,733.08	318,530	368285.5146	36,249	1515.278868	28.52558109	30



---

## **4 EMFAC2017 Output**

---

World Logistics Center  
Cumulative Energy - EMFAC2017

EMFAC2017 (v1.0.2) Emission Rates

Region Type: County

Region: RIVERSIDE

Calendar Year: 2035

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTWTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Y	Vehicle Cat	Model	Yea	Speed	Fuel	Population %	Fleet Mix	VMT	Trips	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	
HHDTGAS	RIVERSIDE	2035 HHDT	Aggregator	Aggregator	GAS	11.25743	0.0021%	1362.518	225.2387	1586.73452	13331.11395	0	37.26037428	0.065129128	0.312160187	0	0.128897699	0	0.00027986	
HHDTDSL	RIVERSIDE	2035 HHDT	Aggregator	Aggregator	DSL	32047.48	7.2135%	4793615	376234.1	987.0165677	0	0	0	0.000827977	0	0	0.155144945	2.095465466	0	
HHDTNG	RIVERSIDE	2035 HHDT	Aggregator	Aggregator	NG	771.7684	0.0473%	31452.33	3009.897	2714.207766	3174.530747	0	0	4.062575476	1.169985888	0	0.553309009	0.64714886	0	
LDAGAS	RIVERSIDE	2035 LDA	Aggregator	Aggregator	GAS	1026177	52.6985%	35020112	4821114	202.4034979	0	0	41.277083008	0.000801877	0	0.022777982	0.002693451	0.0188812593	0	
LDADSL	RIVERSIDE	2035 LDA	Aggregator	Aggregator	DSL	12272.66	0.6445%	428289.8	58176.99	154.6083939	0	0	0	0.000208084	0	0	0.024301571	0	0	
LDADSL	RIVERSIDE	2035 LDA	Aggregator	Aggregator	ELEC	57077.13	0	1978520	275511.7	0	0	0	0	0	0	0	0	0	0	
LDT1GAS	RIVERSIDE	2035 LDT1	Aggregator	Aggregator	GAS	113196	5.6691%	3767315	521643.5	238.9849513	0	0	48.88482736	0.001367474	0	0.0747431304	0.00354225	0	0.0204565959	
LDT1DSL	RIVERSIDE	2035 LDT1	Aggregator	Aggregator	DSL	14.31294	0.0007%	492.3036	6707345	295.4050304	0	0	0	0.000649011	0	0	0.046433557	0	0	
LDT1ELEC	RIVERSIDE	2035 LDT1	Aggregator	Aggregator	ELEC	3465.608	0	120930.7	16754.53	0	0	0	0	0	0	0	0	0	0	
LDT2GAS	RIVERSIDE	2035 LDT2	Aggregator	Aggregator	GAS	339088.6	17.3331%	11518451	1579591	237.2422535	0	0	49.66649578	0.00132571	0	0.031275129	0.003315134	0	0.020527303	
LDT2DSL	RIVERSIDE	2035 LDT2	Aggregator	Aggregator	DSL	3254.042	0.1719%	114262.6	15447.74	206.4704	0	0	0	0.000596777	0	0	0.03454272	0	0	
LDT2ELEC	RIVERSIDE	2035 LDT2	Aggregator	Aggregator	ELEC	12891.58	0	309954.7	62226.35	0	0	0	0	0	0	0	0	0	0	
LHD1GAS	RIVERSIDE	2035 LHDT1	Aggregator	Aggregator	GAS	20955.52	0.951%	661305.6	312206	661.4861766	104.9596334	0	16.4592231	0.001267662	0.095162438	0.01235915	0.004078523	0.030854246	0	
LHD1DSL	RIVERSIDE	2035 LHDT1	Aggregator	Aggregator	DSL	22345.02	1.0374%	689370.8	281072.3	398.9689362	115.5686394	0	0	0.001744319	0.005098128	0	0.062712361	0.018165781	0	
LHD1ELEC	RIVERSIDE	2035 LHDT1	Aggregator	Aggregator	ELEC	3380.417	0.1555%	103349.9	50363.18	762.3995063	121.6684155	0	18.82195286	0.001172969	0.096729654	0.012247464	0.004506229	0.002660779	0.031406874	
LHD2GAS	RIVERSIDE	2035 LHDT2	Aggregator	Aggregator	GAS	9178.708	0.4102%	272579.8	115456.6	437.009078	187.6016974	0	0	0.001785213	0.005098128	0	0.068691741	0.029488374	0	
LHD2DSL	RIVERSIDE	2035 LHDT2	Aggregator	Aggregator	DSL	43796.89	0	18780.6	87593.78	208.73252	0	0	57.41393517	0.313610059	0	0.230491662	0.062026248	0	0.01494368	
LHD2ELEC	RIVERSIDE	2035 LHDT2	Aggregator	Aggregator	ELEC	12891.58	0	309954.7	62226.35	0	0	0	0	0	0	0	0	0	0	
MDV1GAS	RIVERSIDE	2035 MDV	Aggregator	Aggregator	GAS	230649.6	11.3656%	7552836	1059811	291.7169927	61.81923646	0	61.81923646	0.001504112	0.005098128	0	0.035387376	0.003594324	0	0.021957275
MDV1DSL	RIVERSIDE	2035 MDV	Aggregator	Aggregator	DSL	7697.93	0.3955%	262831.4	36182.69	272.565321	0	0	0	0.000249843	0	0	0.042843473	0	0	
MDV1ELEC	RIVERSIDE	2035 MDV	Aggregator	Aggregator	ELEC	9378.102	0	226957.7	45374.87	0	0	0	0	0	0	0	0	0	0	
MHGAS	RIVERSIDE	2035 MH	Aggregator	Aggregator	GAS	4107.681	0	34638.88	410.9324	1385.171447	0	0	21.94738977	0.003438156	0	0.028884691	0.012915734	0	0.043411309	
MHDSL	RIVERSIDE	2035 MH	Aggregator	Aggregator	DSL	2387.596	0	16996.27	238.7596	823.1610404	0	0	0	0.002276371	0	0	0.129389452	0	0	
MHDTGAS	RIVERSIDE	2035 MHDT	Aggregator	Aggregator	GAS	3103.367	0.2302%	152965.2	62092.18	1359.260719	465.4649771	0	31.43081093	0.002658021	0.275613995	0.008544812	0.008768056	0.029778459	0	
MHDTDSL	RIVERSIDE	2035 MHDT	Aggregator	Aggregator	DSL	19033.83	1.6297%	1082985	189748	730.94652	640.2707739	0	0	0.000330644	0.002747403	0	0.114894614	0.100641651	0	
OBUSGAS	RIVERSIDE	2035 OBUS	Aggregator	Aggregator	GAS	630.9891	0	25215.57	12624.83	1353.01178	328.2707739	0	22.38481767	0.003355668	0.201094345	0.025595366	0.010142377	0.005828255	0.025334442	
OBUSDSL	RIVERSIDE	2035 OBUS	Aggregator	Aggregator	DSL	527.6401	0	34295.76	4947.738	881.9809888	1895.303384	0	0	0.000460792	0.0311173099	0	0.1386635129	0.297915298	0	
SBUSGAS	RIVERSIDE	2035 SBUS	Aggregator	Aggregator	GAS	651.9289	0	24179.42	2607.716	803.4340821	2430.954073	0	42.91993954	0.002965648	2.359602081	0.05328052	0.013113079	0.087151971	0.058376722	
SBUSDSL	RIVERSIDE	2035 SBUS	Aggregator	Aggregator	DSL	1384.753	0	44206.81	15979.86	1001.896198	3113.087544	0	43.09236624	0.002388178	0.012509341	0.051347057	0.015748413	0.489534001	0	
UBUSGAS	RIVERSIDE	2035 UBUS	Aggregator	Aggregator	GAS	177.0694	0	24930.46	708.2777	1104.471064	0	0	0	0.003498079	0.013301445	0	0	0.049770268	0	
UBUSDSL	RIVERSIDE	2035 UBUS	Aggregator	Aggregator	DSL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
UBUSELEC	RIVERSIDE	2035 UBUS	Aggregator	Aggregator	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
UBUSNG	RIVERSIDE	2035 UBUS	Aggregator	Aggregator	NG	338.7765	0	45825.53	1355.106	1740.489106	0	0	0	5.230572906	0	0	0.35481009	0	0	

\* Vehicle Types used = HHDT, LDA, LDT1, LDT2, LHDT1, LHDT2, MDV, MHDT

Vehicle Type	% Gasoline	% Diesel	% NG	% Electric
HHDT	88.4493%	0.0473%	100.0000%	100.0000%
LDA	11.5034%	0.0473%	100.0000%	100.0000%
LDT1	100.0000%	0.0000%	100.0000%	100.0000%
LDT2	100.0000%	0.0000%	100.0000%	100.0000%