Appendix B

Air Quality Impact Assessment

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Air Quality Impact Assessment

MoVal 2040

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Appendix A: Air Quality Modeling Data

Acronyms and Abbreviations

Term	Definition
AADT	Average annual daily traffic
AB	Assembly Bill
ACF	Advanced Clean Fleets Regulation
ACT	Advanced Clean Truck
ADT	Average daily traffic
AEP	Association of Environmental Professionals
ATCM	Airborne Toxic Control Measures
APCD	Air Pollution Control District
AQIA	Air Quality Impact Assessment
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
City	City of Moreno Valley
CO	Carbon monoxide
DAC	Disadvantaged Communities
DOORS	Diesel Off-Road Online Reporting System
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EJ	Environmental Justice
EMFAC	Emission Factors
FIND	Facility Information Detail

Term	Definition
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
GVWR	Gross Vehicle Weight Rating
GHG	Greenhouse Gas
GPU	General Plan Update
HAP	Hazardous Air Pollutant
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HEHRA	Health Effects and Health Risk Assessment
ISA	Integrated Science Assessment
I-215	Interstate 215
LOS	Level of service
LST	Local Significance Thresholds
MARB	March Air Reserve Base
MATES	Multiple Air Toxics Exposure Study
mi	Miles
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxide
NZE	Near Zero Emission
OEHHA	California Office of Environmental Health Hazard Assessment
O_3	Ozone
PA	Policy Assessment
PM10	Particulate matter less than 10 microns in diameter
PM2.5	Particulate matter less than 2.5 microns in diameter
ppm	Parts per million
REA	Risk and Exposure Assessment
REL	Reference Exposure Level
RIVCOM	Riverside County Travel Demand Model

Term	Definition
ROGs	Reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategies
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SR 60	State Route 60
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TCM	Transportation Control Measure
TDM	Transportation Demand Management
USEPA	United States Environmental Protection Agency
VMT	Vehicle miles traveled
VOCs	Volatile organic compounds
WAIRE	Warehouse Actions and Investments to Reduce Emissions
ZE	Zero Emission
ZEV	Zero Emission Vehicle

1.0 INTRODUCTION

This report documents the results of an Air Quality Impact Assessment (AQIA) completed for MoVal 2040: The Moreno Valley Comprehensive General Plan Update (GPU), Associated Zoning Text Amendments to Title 9 (Planning & Zoning) and Zoning Atlas Amendments, and Climate Action Plan ("Project" or "proposed Project"). The purpose of this AQIA is to evaluate the potential impacts to air quality in a local and regional context from implementation of the goals, policies, actions, and projected buildout of the Project on a programmatic level, in support of a Revised Draft Environmental Impact Report ("Revised Draft EIR").

1.1 Project Location

The City of Moreno Valley (City) is located within the northwestern portion of Riverside County in the southern Inland Empire portion of the state of California. Moreno Valley is located approximately 63 miles east of downtown Los Angeles, 49 miles east of the city of Irvine, and 43 miles west of the city of Palm Springs. State Route 60 (SR 60), which runs in an east and west direction through the northern portion of Moreno Valley (east and west direction), and Interstate 215 (I-215), which runs in proximity to the westerly City limits (north and south direction), serve to connect the City to other communities throughout the southern California region. The City is accessible via public transportation by rail, through Metrolink located approximately one-half mile west of the City limits, and the City is accessible via aircraft at the Inland Port Airport located at the March Air Reserve Base (MARB), which is situated south and west of the City limits.

1.2 Project Description

Consistent with Section 15168 of the California Environmental Quality Act (CEQA) Guidelines, this AQIA provides a programmatic analysis of the environmental impacts associated with implementation of the goals, policies, actions, and projected buildout of the following three planning documents, collectively referred to as MoVal 2040:

- 2024 General Plan Update (GPU),
- Associated Zoning Text Amendments to Title 9 (Planning & Zoning) and Zoning Atlas Amendments, and
- Climate Action Plan (CAP)

As described in CEQA Guidelines Section 15168, program-level environmental review documents are appropriate when a project consists of a series of actions related to the issuance of rules, regulations, and other planning criteria. The Project, which is the subject of this EIR, consists of long-term plans that will be implemented as policy documents guiding future development activities and City actions.

California Government Code Section 65300 et seq. mandates that all counties and incorporated cities prepare a general plan that establishes policies and standards for future development, housing affordability, and resource protection. State law encourages cities to keep general plans current through periodic updates. The Project includes an update to the 2006 General Plan that would guide future land use decisions in Moreno Valley, provide a long-term vision for the City, and provide policies and implementing actions that would allow the City to achieve this vision over the

life of the General Plan. The General Plan would be the primary policy document guiding growth and development within the City through the planning horizon year of 2040. Together with the Associated Zoning Text Amendments to Title 9 (Planning & Zoning) and related sections of the Zoning Atlas Amendments, the 2024 GPU would serve as the basis for planning-related decisions made by City staff, the Moreno Valley Planning Commission, and the Moreno Valley City Council.

The Project includes preparation of a CAP. The CAP is a community-wide strategy for reducing greenhouse gas (GHG) emissions for the purpose of adapting to the effects of climate change. Preparation of the CAP includes establishing the City's GHG reduction targets, as well as specific strategies and implementing actions to achieve these targets.

2.0 Existing Conditions

2.1 Climate and Meteorology

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features.[1] The Project is located within the South Coast Air Basin (Basin), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, as well as all of Orange County. The Basin is on a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean on the southwest and high mountains forming the remainder of the perimeter.[2] Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

The Basin is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. This usually mild weather pattern is occasionally interrupted by periods of extreme heat, winter storms, and Santa Ana winds. The annual average temperature throughout the 6,645-square-mile Basin ranges from low 60 to high 80 degrees Fahrenheit with little variance. With more oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas.

Contrasting the steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rainfall occurs between the months of November and April. Summer rainfall is reduced to widely scattered thundershowers near the coast, with slightly heavier activity in the east and over the mountains.

Although the Basin has a semiarid climate, the air closer to the Earth's surface is typically moist because of the presence of a shallow marine layer. Except for occasional periods when dry, continental air is brought into the Basin by offshore winds, the "ocean effect" is dominant. Periods of heavy fog are frequent and low clouds known as high fog are characteristic climatic features, especially along the coast. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the Basin.

Wind patterns across the Basin are characterized by westerly or southwesterly onshore winds during

[1] South Coast Air Quality Management District, 2022 Air Quality Management Plan, December 2022, https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16, accessed September 2024.

[2] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.

the day and easterly or northeasterly breezes at night. Wind speed is typically lower during the dry summer months than during the rainy winter.

Between periods of wind, air stagnation may occur in both the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During winter and fall, surface high-pressure systems over the Basin, combined with other meteorological conditions, result in very strong, downslope Santa Ana winds. These winds normally continue for a few days before predominant meteorological conditions are reestablished.[3]

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. Air quality in the Basin generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

In addition to the characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which air pollutants are mixed. These inversions are the marine inversion and the radiation inversion. The height of the base of the inversion at any given time is called the "mixing height."[4] The combination of winds and inversions is a critical determinant leading to highly degraded air quality for the Basin in the summer and generally good air quality in the winter.

2.2 Air Pollutants of Concern

Criteria Air Pollutants

Certain air pollutants emitted into the ambient air by stationary and mobile sources are regulated by State and federal laws. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants.

Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compound (VOC), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM10), fine particulate matter (PM2.5), and lead are primary air pollutants. Of these, CO, NO_X, SO_2, PM10, and PM2.5 are criteria pollutants.[5] VOC and NO_X are criteria pollutant precursors and form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere.[6] For example, the criteria pollutant ozone (O_3) is formed by a chemical reaction between VOC and NO_X in the presence of sunlight. O_3 and nitrogen dioxide (NO_2) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in **Table 1: Air Contaminants and Associated Public Health Concerns**.

[3] California Air Resources Board, Almanac Resources, 2024, https://ww2.arb.ca.gov/resources/documents/almanac-resources, accessed September 2024.

[4] South Coast Air Quality Management District, Final 2016 Air Quality Management Plan, March 2017.

[5] U.S. Environmental Protection Agency, Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed September 2024.

[6] U.S. Environmental Protection Agency, Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed September 2024.

Table 1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM10 and PM2.5)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between volatile organic compounds (VOC)[1] and nitrogen oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to O_3. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead (Pb)	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.

1. VOCs or Reactive Organic Gases (ROG) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and

Table 1: Air Contaminants and Associated Public Health Concerns		
Pollutant	**Major Man-Made Sources**	**Human Health Effects**
oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).		
Source: U.S. Environmental Protection Agency, *Criteria Air Pollutants*, https://www.epa.gov/criteria-air-pollutants, accessed September 2024.		

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (i.e., chronic, carcinogenic or cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects associated with TACs are quite diverse and are generally assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye-watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

The current California list of TACs includes more than 200 compounds that includes all federally defined hazardous air pollutants (HAPs).[7] Furthermore, CARB has implemented control measures for several compounds that pose high risks and show potential for effective control. Most of the estimated health risks from TACs can be attributed to a relatively few compounds, most importantly particulate matter from diesel fuel engines.

CARB has identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles (such as DPM) and gases produced when an engine burns diesel fuel. DPM includes the particle-phase constituents in diesel exhaust. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.[8]

2.3 Existing Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. These stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Existing levels of ambient air quality, historical trends, and projections near the Project are documented by measurements made

[7] California Air Resources Board, Common Air Pollutants, 2024, https://ww2.arb.ca.gov/resources/common-air-pollutants, accessed September 2024.

[8] California Air Resources Board, Overview: Diesel Exhaust & Health, https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health, accessed September 2024.

by the South Coast Air Quality Management District (SCAQMD), the air pollution regulatory agency in the Basin that maintains air quality monitoring stations which process ambient air quality measurements.

The closest air quality monitoring stations to Moreno Valley are the Perris and Rubidoux Monitoring Stations. Local air quality data from the Perris Monitoring Station are only available for 2019-2021. The Rubidoux Monitoring Station has air quality data for the years of 2019 to 2023 (the latest currently available). **Table 2: Ambient Air Quality Data** lists the monitored maximum concentrations and number of exceedances of State or federal air quality standards for each year.

Table 2: Ambient Air Quality Data

Criteria Pollutant	2019	2020	2021	2022	2023
Perris Monitoring Station[1]					
Ozone (O_3)					
Federal Max 8-hr (ppm)	0.095	0.106	0.094	-	-
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	64	74	55	-	-
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	38	48	38	-	-
State Max 8-hr (ppm)	0.096	0.106	0.094	-	-
Days State 8-hour Standard Exceeded (0.07 ppm)	66	77	60	-	-
Max. 1-hr (ppm)	0.118	0.125	0.117	-	-
Days State 1-hour Standard Exceeded (0.09 ppm)	28	34	25	-	-
Particulate Matter Less than 10 Microns (PM10)					
Federal Max. Daily (mg/m^3)	97.0	92.3	77.5	-	-
Measured Days Federal 24-hour Standard Exceeded (150 mg/m^3)	0	0	0	-	-
Calculated Days Federal 24-hour Standard Exceeded (150 mg/m^3)	0.0	-	-	-	-
Federal Annual Average (mg/m^3)	25.8	33.4	30.4	-	-
State Max. Daily (mg/m^3)	92.1	87.6	73.5	-	-
Measured Days State 24-hour Standard Exceeded (50 mg/m^3)	4	6	4	-	-
Calculated Days State 24-hour Standard Exceeded (50 mg/m^3)	24.5	-	-	-	-
State Annual Average (mg/m^3)	24.4	-	-	-	-
Riverside – Rubidoux Monitoring Station					
Ozone (O_3)					
Federal Max 8-hr (ppm)	0.096	0.115	0.097	0.095	0.106
Days 2015 Federal 8-hour Standard Exceeded (0.07 ppm)	59	82	55	70	69
Days 2008 Federal 8-hour Standard Exceeded (0.075 ppm)	37	60	32	43	56
State Max 8-hr (ppm)	0.096	0.115	0.098	0.095	0.107
Days State 8-hour Standard Exceeded (0.07 ppm)	63	86	57	72	70
Max. 1-hr (ppm)	0.123	0.143	0.117	0.122	0.139
Days State 1-hour Standard Exceeded	24	46	20	30	48

Table 2: Ambient Air Quality Data					
Criteria Pollutant	**2019**	**2020**	**2021**	**2022**	**2023**
(0.09 ppm)					
Nitrogen Dioxide (NO_2)					
Max 1-hr (ppm)	0.0560	0.0664	0.0520	0.0559	0.0547
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppm)	0	0	0	0	0
Annual Average (ppm)	0.014	0.015	0.014	0.013	0.012
Particulate Matter Less Than 10 Microns (PM10)					
Federal Max. Daily (mg/m^3)	132.5	142.1	76.5	153.6	166.5
Measured Days Federal 24-hour Standard Exceeded (150 mg/m^3)	0	0	0	0	1
Calculated Days Federal 24-hour Standard Exceeded (150 mg/m^3)	0.0	-	0.0	0.0	1.0
Federal Annual Average (mg/m^3)	35.4	49.2	33.4	37.5	33.7
State Max. Daily (mg/m^3)	182.4	137.7	114.3	61.9	95.1
Measured Days State 24-hour Standard Exceeded (50 mg/m^3)	110	115	75	5	3
Calculated Days State 24-hour Standard Exceeded (50 mg/m^3)	116.4	-	43.7	11.8	Na
State Annual Average (mg/m^3)	40.9	-	33.2	30.0	Na
Particulate Matter Less Than 2.5 Microns (PM2.5)					
Federal Max. Daily (mg/m^3)	55.7	59.9	82.1	38.5	74.3
Measured Days Federal 24-hour Standard Exceeded (35 mg/m^3)	5	12	11	1	2
Calculated Days Federal 24-hour Standard Exceeded (35 mg/m^3)	5.0	12.0	11.0	1.0	2.1
Federal Annual Average (mg/m^3)	11.3	13.3	12.7	10.8	10.6
State Max. Daily (mg/m^3)	57.6	61.9	82.1	38.5	744
State Annual Average (mg/m^3)	11.2	14.1	13.2	10.9	11.5

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter; – = not measured or insufficient data
Measurements for O_3, CO, NO_2, PM10, and PM2.5 taken at the Rubidoux Monitoring Station at 5888 Mission Bl, Riverside, CA 92509 (CARB #33144) and O_3 and PM10 taken at the Perris Monitoring Station at 237 1/2 N. D Street, Perris, CA 92570 (CARB #33149).
1. Perris Monitoring Station was required to be discontinued on March 31, 2022 due to compromised probe and monitoring path siting criteria. Therefore no data was collected for 2022 and 2023.

Source: All pollutant measurements are from the CARB Aerometric Data Analysis and Management system database (https://www.arb.ca.gov/adam) except for CO, which were retrieved from the CARB Air Quality and Meteorological Information System (https://www.arb.ca.gov/aqmis2/aqdselect.php). Accessed April 2025.

2.4 City of Moreno Valley Emissions Inventory

Table 3: Summary of Existing Emissions for the City of Moreno Valley, summarizes the emissions of criteria air pollutants within the City from area, energy, and mobile categories. Area sources include emissions from a group of small stationary sources that together contribute to a significant amount of pollutants. Examples of area source emissions would include household equipment, architectural coating, and landscaping. Energy sources are emissions generated by natural gas and mobile sources are emissions from motor vehicles. The construction emissions inventory is based on the City's proportion of Riverside County CARB OFFROAD2021 Emissions Inventory. The operational emissions inventory is based on existing land use information and traffic behavior. The

data used to calculate the operational emissions inventory for criteria pollutants is based on the City's land use data and Citywide vehicle miles traveled (VMT) data. According to the operational emissions inventory, mobile sources are the largest contributor to Citywide emissions for all criteria/precursor pollutants studied except VOCs for which area sources are the largest contributor.

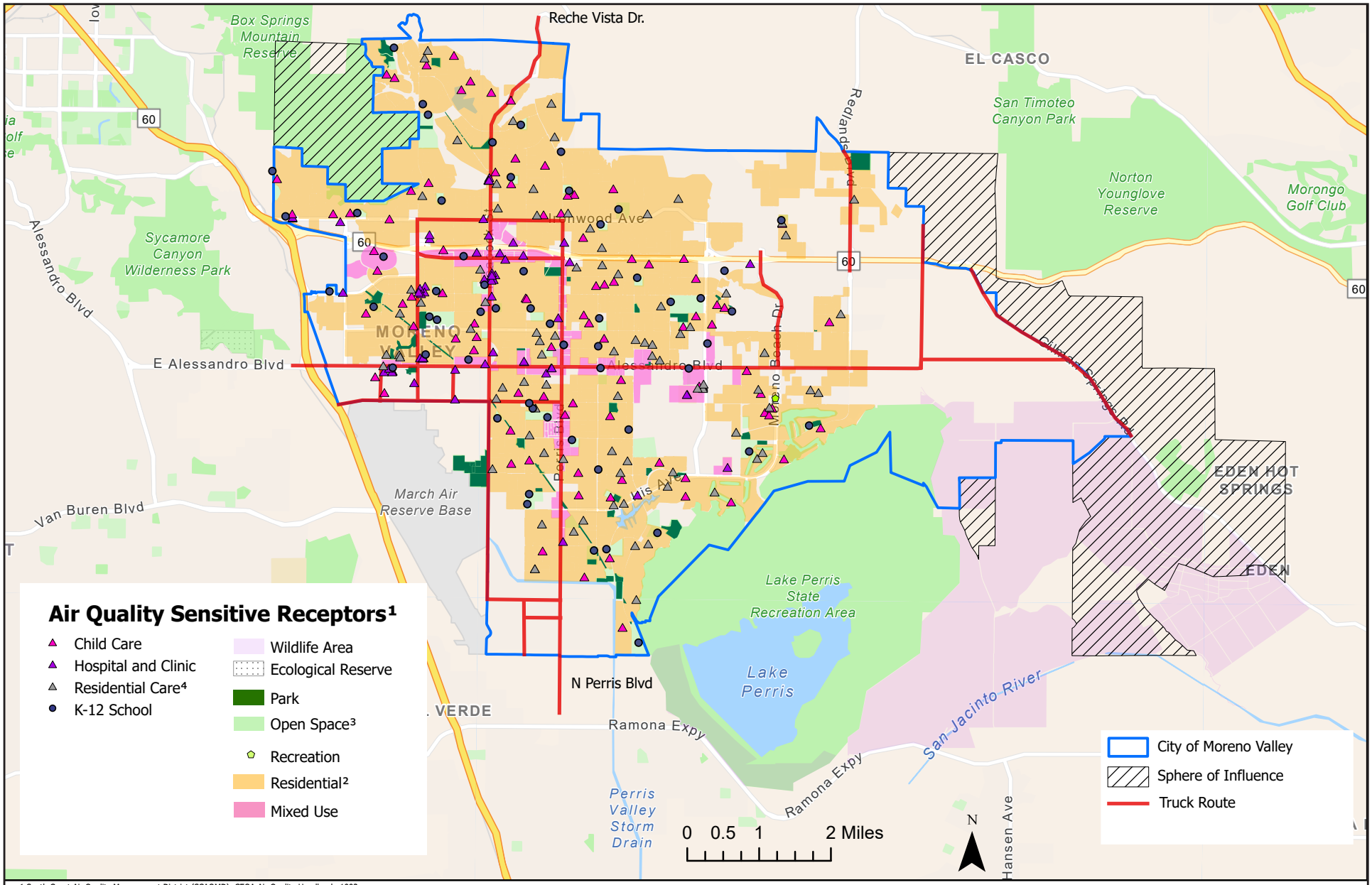
Table 3: Summary of Existing Emissions for the City of Moreno Valley

Source	Maximum Pounds Per Day					
	VOC	NO_x	CO	SO_x	PM10	PM2.5
Construction						
Construction Emissions	190	1,464	2,019	4	68	62
Operations						
Area	4,902	142	16,392	1	1	1
Energy	33	1,111	263	4	45	45
Mobile	3,298	3,890	31,941	73	4,240	1,102
Total Emissions	**8,233**	**5,142**	**48,596**	**78**	**4,286**	**1,148**

Refer to Appendix A for calculations.

2.5 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive receptors are shown in **Figure 1: Existing Air Quality Sensitive Populations Map** and **Figure 2: Future Air Quality Sensitive Populations Map with MoVal 2040.**



[1] South Coast Air Quality Management District (SCAQMD), CEQA Air Quality Handbook, 1993.
[2] Residential and Mixed Used zones per City of Moreno Valley General Plan 2006 Zoning Map.
[3] Inclusion of recreational areas and public access lands as an air quality sensitive receptor per Assembly Bill 98.
[4] Residential care includes elder care, adult care, and foster care/group homes.

FIGURE 1: EXISTING AIR QUALITY SENSITIVE POPULATIONS MAP

MoVal 2040 Revised Draft Program EIR

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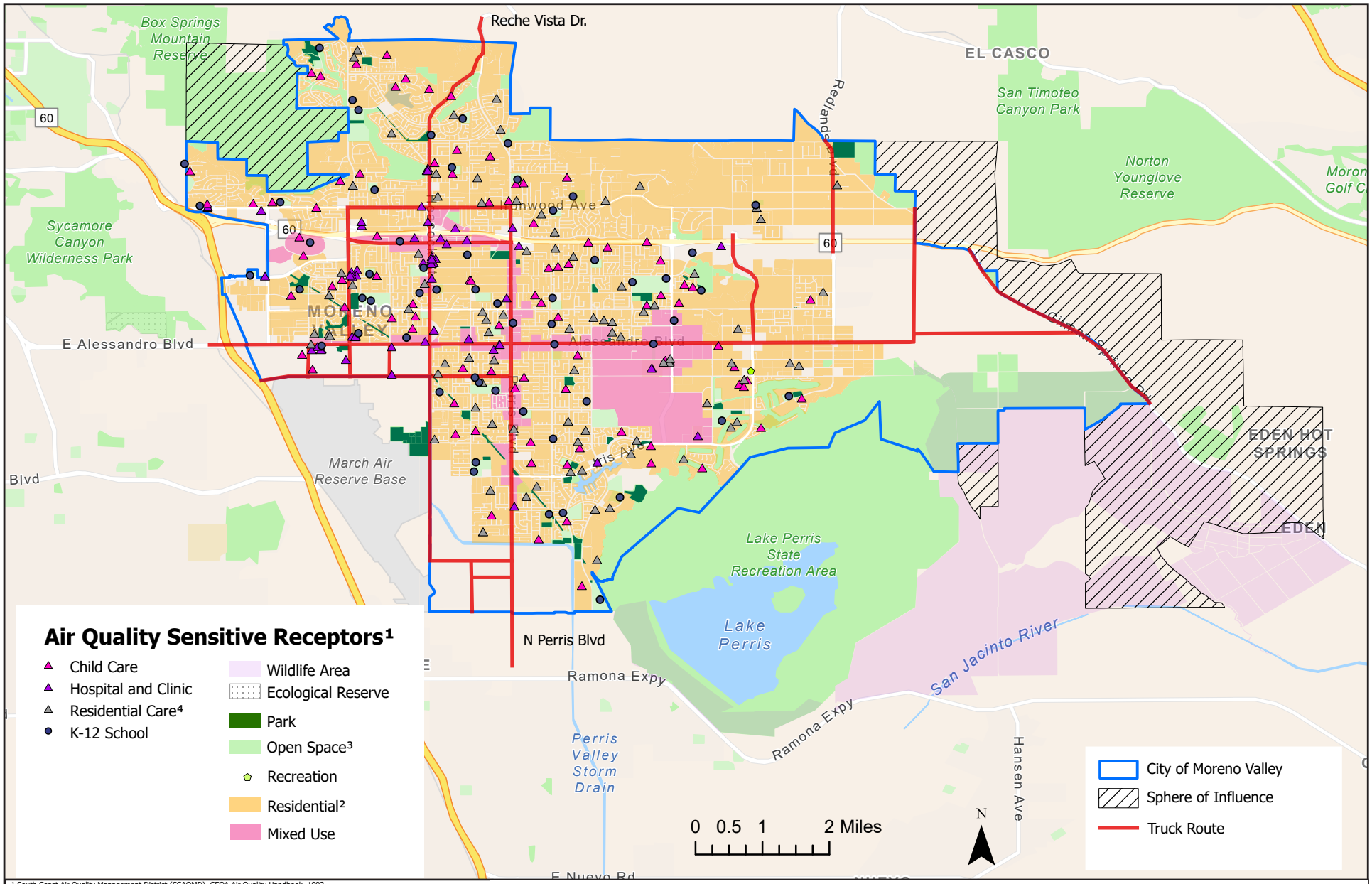

¹ South Coast Air Quality Management District (SCAQMD), CEQA Air Quality Handbook, 1993.
² Residential and Mixed Used zones per City of Moreno Valley General Plan 2040 Zoning Map, https://moval.gov/cdd/pdfs/2040GP-Update/Zoning.pdf. Accessed October 2024.
³ Inclusion of recreational areas and public access lands as an air quality sensitive receptor per Assembly Bill 98.
⁴ Residential care includes elder care, adult care, and foster care/group homes.

FIGURE 2: FUTURE AIR QUALITY SENSITIVE POPULATIONS MAP WITH MOVAL 2040

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3.0 APPLICABLE REGULATORY ENVIRONMENTS

3.1 Federal

Federal Clean Air Act

Air quality is federally protected by the federal Clean Air Act (FCAA; 42 U.S.C. §§ 7401 et seq.) and its amendments. Under the FCAA, the United States Environmental Protection Agency (USEPA) developed the primary and secondary National Ambient Air Quality Standards (NAAQSs) for criteria air pollutants including O_3, NO_2, CO, SO_2, PM10, PM2.5, and lead. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

NAAQSs are selected by the USEPA after a comprehensive review of the relevant scientific literature. The literature is summarized, and conclusions are presented in a document called the Integrated Science Assessment (ISA). Based on the ISA, USEPA staff perform a risk and exposure assessment, which is summarized in the Risk and Exposure Assessment (REA) document. The third document, the Policy Assessment (PA), integrates the findings and conclusions of the ISA and REA into a policy context, and provides lines of reasoning that could be used to support retention or revision of the existing NAAQSs, as well as several alternative standards that could be supported by the review findings. Applicable federal standards are summarized in Table 4: State and Federal Ambient Air Quality Standards.

Table 4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]	Federal Standards[2]
Ozone (O_3) [2, 5, 7]	8 Hour	0.070 ppm (137 μg/m^3)	0.070 ppm
	1 Hour	0.09 ppm (180 μg/m^3)	NA
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 μg/m^3)	0.10 ppm[11]
	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)
Sulfur Dioxide (SO_2) [8]	24 Hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)
	1 Hour	0.25 ppm (655 μg/m^3)	0.075 ppm (196 μg/m^3)
	Annual Arithmetic Mean	NA	0.03 ppm (80 μg/m^3)
Particulate Matter (PM10) [1, 3, 6]	24-Hour	50 μg/m^3	150 μg/m^3
	Annual Arithmetic Mean	20 μg/m^3	NA
Fine Particulate Matter (PM2.5) [3, 4, 6, 9]	24-Hour	NA	35 μg/m^3
	Annual Arithmetic Mean	12 μg/m^3	9 μg/m^3
Sulfates (SO_{4-2})	24 Hour	25 μg/m^3	NA
Lead (Pb) [10, 11]	30-Day Average	1.5 μg/m^3	NA
	Calendar Quarter	NA	1.5 μg/m^3
	Rolling 3-Month	NA	0.15 μg/m^3

Table 4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]	Federal Standards[2]
	Average		
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m^3)	NA
Vinyl Chloride (C_2H_3Cl) [10]	24 Hour	0.01 ppm (26 µg/m^3)	NA

ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; – = no information available.

1. California standards for O_3, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM10, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e. all standards except for lead and the PM10 annual standard), then some measurements may be excluded. Measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe carbon monoxide standard is 6.0 ppm, a level one-half the national standard and two-thirds the State standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for O_3, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour O_3 standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour O_3 standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m$_3$. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3.
3. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM10 is met if the 3-year average falls below the standard at every site. The annual PM2.5 standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.
   NAAQS are set by the USEPA at levels determined to be protective of public health with an adequate margin of safety.
4. On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour O_3 concentration per year, averaged over three years, is equal to or less than 0.070 ppm. USEPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the O_3 level in the area.
5. The national 1-hour O_3 standard was revoked by the USEPA on June 15, 2005.
6. In June 2002, CARB established new annual standards for PM2.5 and PM10.
7. The 8-hour California O_3 standard was approved by the CARB on April 28, 2005 and became effective on May 17, 2006.
8. On June 2, 2010, the USEPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following USEPA initial designations of the new 1-hour SO_2 NAAQS.
9. In February 2024, USEPA strengthened the annual PM2.5 NAAQS from 12.0 to 9.0 µg/m^3. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is 90 days following the publication of the notice of final rulemaking in the Federal Register (pending).
10. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
11. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2022; California Air Resources Board, *Ambient Air Quality Standards*, May 6, 2016 and U.S. Environmental Protection Agency, *NAAQS Tables*, 2024, available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table, accessed September 2024.

Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires each state to prepare a State Implementation Plan to demonstrate how it will attain the NAAQSs within the federally imposed deadlines.

The USEPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the FCAA. If a state fails to correct these planning deficiencies within two years of federal notification, the USEPA is required to develop a federal implementation plan for the identified nonattainment area or areas. The provisions of 40 Code of Federal Regulations Parts 51 and 93 apply in all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan. The USEPA has designated enforcement of air pollution control regulations to the individual states.

3.2 State

California Clean Air Act

The California Clean Air Act (CCAA) requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with the California Ambient Air Quality Standards (CAAQSs). These AQMPs also serve as the basis for the preparation of the State Implementation Plan for meeting the federal clean air standards for the State of California.[9] Like the USEPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQSs have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The applicable State standards are summarized in **Table 4**.

California Air Resources Board

- CARB administers the air quality policy in California. The CAAQSs were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in **Table 4**, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.[10]

CARB recently adopted various regulations to reduce criteria pollutants including:

- **Advanced Clean Cars Program.** This program aims to make all new passenger cars, trucks, and SUVs sold in California zero emissions by 2035.[11]
- **Advanced Clean Truck Regulation.** CARB adopted the Advanced Clean Truck (ACT) Regulation in June 2020 requiring truck manufacturers to transition from diesel trucks and vans to electric zero-emission (ZE) trucks beginning in 2024. By 2045, every new truck sold in California is required to be ZE.[12]
- **Low NO_X Heavy-Duty Omnibus Regulation.** Adopted in September 2021, the Heavy-Duty Engine and Vehicle Omnibus Regulation (Omnibus Regulation) will significantly increase the stringency of nitrogen oxides (NO_X) emissions standards for heavy-duty diesel engines for use in vehicles with a gross vehicle weight rating (GVWR) greater than 10,000 pounds. The more stringent NO_X emission standards begin with the 2024 model year engines and become more stringent with 2027 and subsequent model year engines.[13]

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[9] South Coast Air Quality Management District, 2022 Air Quality Management Plan, December 2022, https://www.aqmd.gov/docs/default-source/clean-air-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn, accessed September July 2024.

[10] California Air Resources Board, California Ambient Air Quality Standards, https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards, accessed September 2024.

[11] California Air Resources Board, Advanced Clean Cars Program, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about, accessed June 2025.

[12] California Air Resources Board, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks/about, accessed June 2025.

[13] California Air Resources Board, Heavy-Duty Low NOx, https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox/about, accessed June 2025.

- **Advanced Clean Fleets Regulation.** Adopted in April 2023, the Advanced Clean Fleets Regulation (ACF) requires fleet owners to begin transitioning toward zero emissions vehicles (ZEVs) starting in 2024. Drayage trucks will need to be ZE by 2035, and all other fleet owners have the option to transition a percentage of their vehicles to meet expected ZE milestones, which gives owners the flexibility to continue operating combustion-powered vehicles as needed during the move toward cleaner technology.[14]

On January 13, 2025, CARB withdrew its requests for CAA waivers from the USEPA needed to support four recently adopted vehicle emissions regulations: (1) the Advanced Clean Fleets Regulations; 2) the In-Use Locomotive Regulations; 3) part of the Commercial Harbor Craft and Ocean-Going Vessels At-Berth Regulations; and 4) part of the Transport Refrigeration Unit Engine Standards Regulations. Therefore, implementation of these regulations is currently unknown.

The ACT regulation was granted a separate waiver in 2023 by the Biden administration. On May 22, 2025, the U.S. Senate voted to revoke the waiver granted by the Biden administration for California's ACT rule (as well as the Advanced Clean Cars (ACC) II program and Heavy-Duty Omnibus regulation). On June 12, 2025, President Trump formally nullified California's ACT rule and ACC II program (Congressional Resolutions H.J. Res 87 and H.J. Res 88, respectively). Implementation is currently unknown. EMFAC2021 emissions projections assumed implementation of the Advanced Clean Trucks (ACT) Regulation and the Heavy-Duty Low NO_X Omnibus Regulation. These regulations were disapproved by Congressional Resolutions H.J. Res 87 and H.J. Res 89, respectively. The resolutions were signed by the President on June 12, 2025. These resolutions, along with H.J. Res. 88 (revoking federal light-duty vehicle GHG standards), nullify California regulations that had been authorized by U.S. EPA waivers under the Clean Air Act. CARB is currently evaluating the impact of the actions (H.J. Res 87, H.J. Res 88, and H.J. Res 89) under the Congressional Review Act, but has not yet provided emissions modeling guidance.

California Air Resources Board Air Quality and Land Use Handbook

CARB published the *Air Quality and Land Use Handbook* in April 2005 to serve as a general guide for considering impacts to sensitive receptors from facilities that produce TAC emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions. Some examples of CARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); and (3) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene and within 500 feet of operations with two or more machines.

[14] California Air Resources Board, Advanced Clean Fleets, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/about, accessed June 2025.

CalEnviroScreen

The California Office of Environmental Health Hazard Assessment (OEHHA) developed CalEnviroScreen 4.0, which is a mapping tool that helps identify California communities that are most affected by various pollution sources, and where people are especially vulnerable to pollution's effects. CalEnviroScreen uses environmental, health, and socioeconomic information to produce scores for every census tract in the State. The scores are mapped so that different communities can be compared. An area with a high score experiences a much higher pollution burden than areas with low scores.

According to CalEnviroScreen 4.0, the City includes census tracts that range between the 30th and 96th percentile of pollution burden (OEHHA 2023). A 96th percentile means 96 percent of census tracts have a lower pollution burden. The percentiles are relative scores that include a scoring system that averages four components (exposures, environmental effects, sensitive populations, and socioeconomic factors). As shown in **Figure 3: CalEnviroScreen Indicator – Pollution Burden,** Census Tract 6065042505 represents the low end of the percentiles (meaning better air quality) and 6065051100 and 6065048700 the higher end of the percentile range (meaning worse air quality). The Census Tracts closest to I-215 and SR 60 tend to have the highest pollution burden. It is noted that the CalEnviroScreen scores are relative to other census tracts and are not an expression of health risk, and do not provide quantitative information on increases in cumulative impacts for specific sites or projects. Further, as a comparative screening tool, the results do not provide a basis for determining when differences between scores are significant in relation to public health or the environment. See **Figure 4: CalEnviroScreen Indicator – Ozone**, **Figure 5: CalEnviroScreen Indicator – PM2.5**, and **Figure 6: CalEnviroScreen Indicator – Diesel PM**. These figures show the range of pollutants throughout the City. Ozone concentrations range between 0.03 and 0.07 ppm in California. **Figure 4** shows the City of Moreno Valley is in the 99th percentile, meaning the majority of the City census tracts have a summed concentration of 0.07 ppm. For PM2.5 the California range is between 1.9 and 16.4 µg/m^3. **Figure 5** shows the City ranges from 11.14 µg/m^3 56th percentile) to 11.70 µg/m^3 (66th percentile) of average PM2.5 concentrations. Diesel emissions in California range between 0-15 tons per year. **Figure 6** shows how much DPM is emitted into the air. Sources of DPM in the City range from 0.017 tons per year (6th percentile) to 0.548 tons per year (91st percentile).

Senate Bill 535

Senate Bill (SB) 535 (2012) directs 25 percent of the proceeds from the Greenhouse Gas Reduction Fund (i.e., funds from the Assembly Bill [AB] 32 (2006) cap-and-trade program) to go to projects that provide a benefit to disadvantaged communities (DACs) as identified by the OEHHA mapping. These funds must be used for programs that further reduce greenhouse gas emissions. Funding programs that reduce greenhouse gas emissions would also potentially reduce exposure to other emissions including TACs.

Based on OEHHA mapping, the City includes several census tracts that are designated as SB 535 DACs.[15] SB 535 does not include project-specific requirements or prohibit developments in proximity to the designated communities. See **Figure 7: SB535 – Disadvantaged Communities**.

[15] California Office of Environmental Health Hazard Assessment (OEHHA), 2024, SB 535 Disadvantaged Communities (2022 Update), https://oehha.ca.gov/calenviroscreen/sb535, accessed November 2024.

AB 98 (2024): Design and Build Standards for Logistics Uses

AB 98 is a planning and zoning law concerning logistics use developments that Governor Newson signed into law on September 28, 2024, and found in California Government Code Section 65302.02. AB 98 addresses where warehouses are sited and how they are built across the State. AB 98 imposes various warehouse design and build standards on new or expanded logistics use developments. "Logistics use" is defined as a building in which cargo, goods, or products are moved or stored for distribution, and heavy-duty trucks are primarily involved in the transport of these cargo, goods, or products. Logistic uses exclude facilities that serve retail customers for onsite purchases and where food or household goods are sold directly to consumers and are accessible to the public, and buildings primarily served by rail to move cargo, goods, or products. AB 98's design and build standards include but are not limited to:

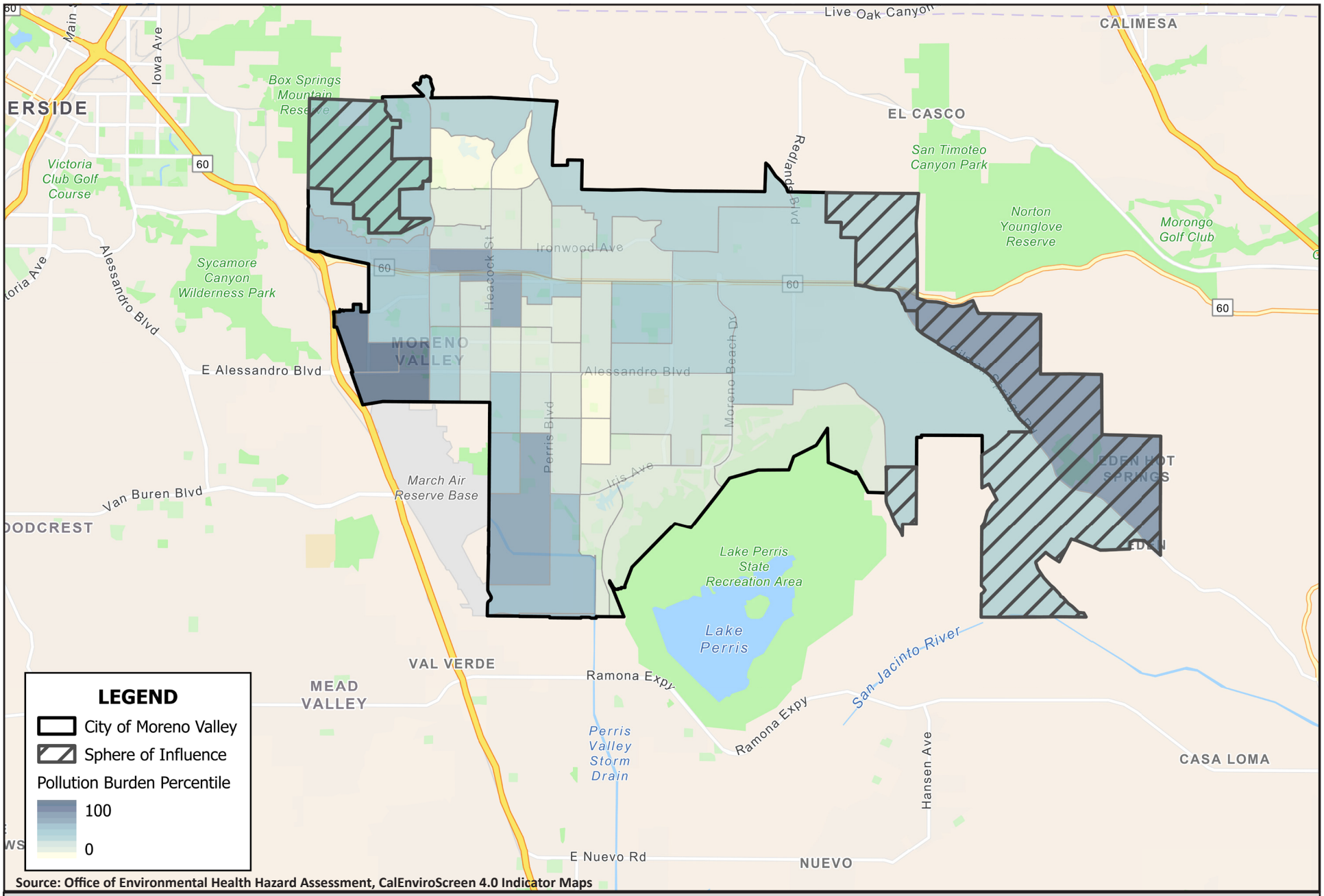
- Siting requirements depend on whether a new or expanded logistics use is: (1) within 900 feet of a sensitive receptor, (2) a zone change is required, and (3) whether the logistics use is within the "warehouse concentration region" (the Counties of Riverside and San Bernardino and the Cities of Chino, Colton, Fontana, Jurupa Valley, Moreno Valley, Ontario, Perris, Rancho Cucamonga, Redlands, Rialto, Riverside, and San Bernardino).

- Design as "21st Century Warehouse" base standards for projects less than 250,000 square-feet. Projects greater than 250,000 square-feet must be designed to "Tier One 21st Century Warehouse" standards.

- Compliance with California's Title 24 Green Building Standards (CALGreen), electric forklifts, photovoltaic energy generation, and battery storage.

- Buffering and screening and depending on the site's location and building location may also require additional medium- and heavy-duty truck charging

Other requirements in AB 98 include requiring local jurisdictions to designate truck routes that prioritize the use of major arterials and highways, avoid sensitive land uses such as homes, schools, and healthcare facilities, and include public signage and accessible mapping; requiring housing replacement and relocation assistance for housing units demolished; and additional air monitoring systems within Riverside and San Bernardino counties by SCAQMD.



Source: Office of Environmental Health Hazard Assessment, CalEnviroScreen 4.0 Indicator Maps

FIGURE 3: CALENVIROSCREEN INDICATOR - POLLUTION BURDEN

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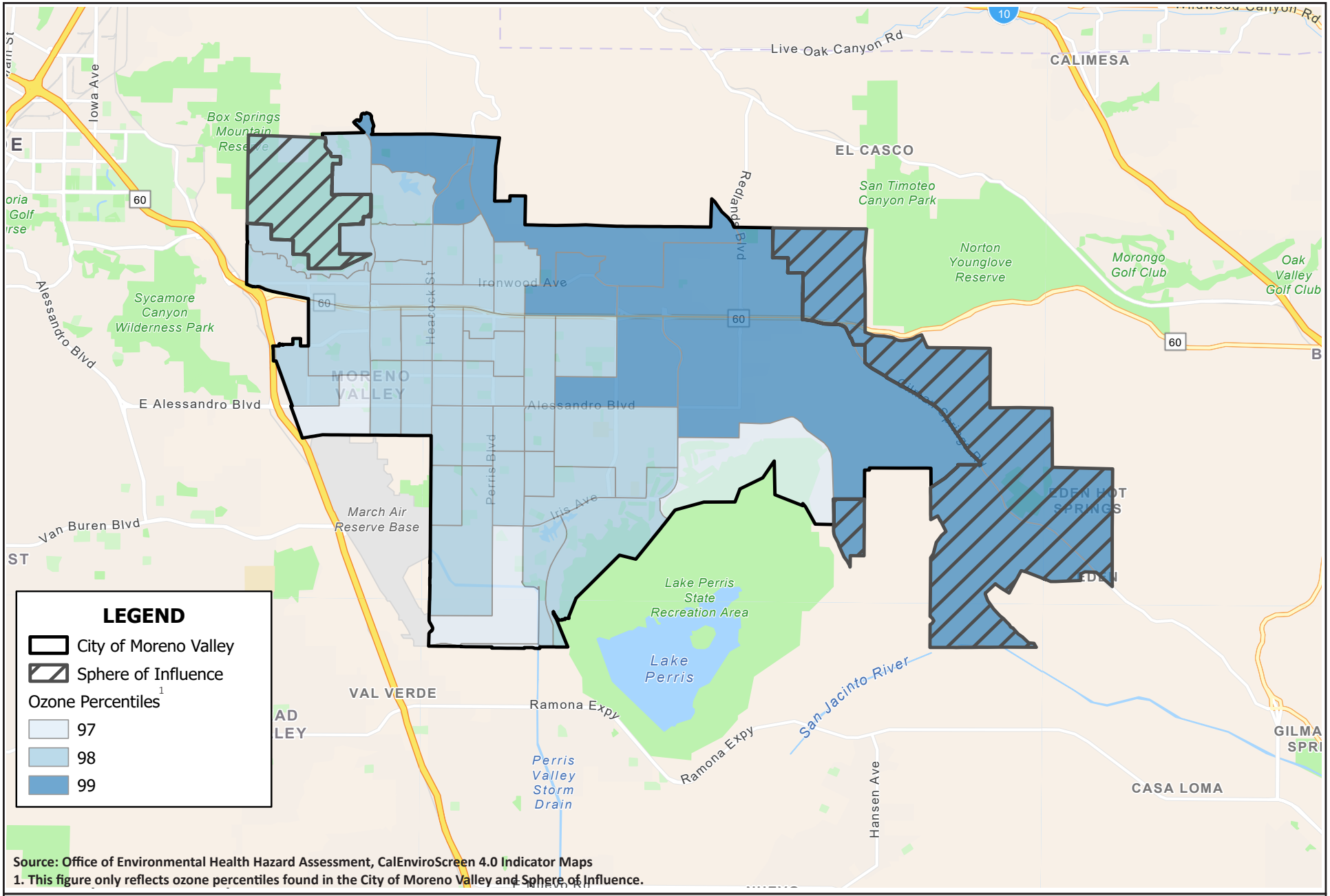

Source: Office of Environmental Health Hazard Assessment, CalEnviroScreen 4.0 Indicator Maps
1. This figure only reflects ozone percentiles found in the City of Moreno Valley and Sphere of Influence.

FIGURE 4: CALENVIROSCREEN INDICATOR - OZONE PERCENTILES

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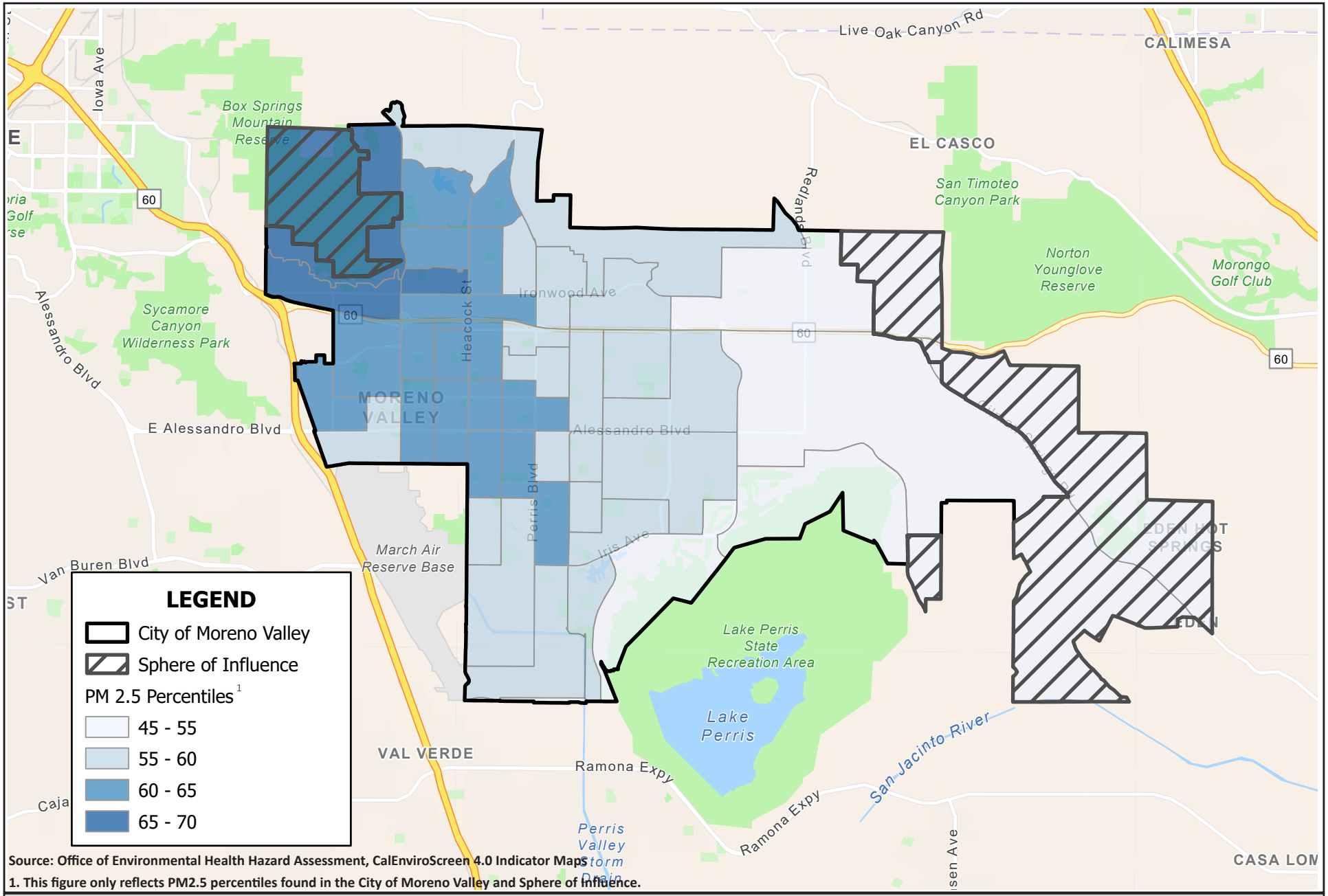

Source: Office of Environmental Health Hazard Assessment, CalEnviroScreen 4.0 Indicator Maps

1. This figure only reflects PM2.5 percentiles found in the City of Moreno Valley and Sphere of Influence.

FIGURE 5: CALENVIROSCREEN INDICATOR- PM2.5 PERCENTILES

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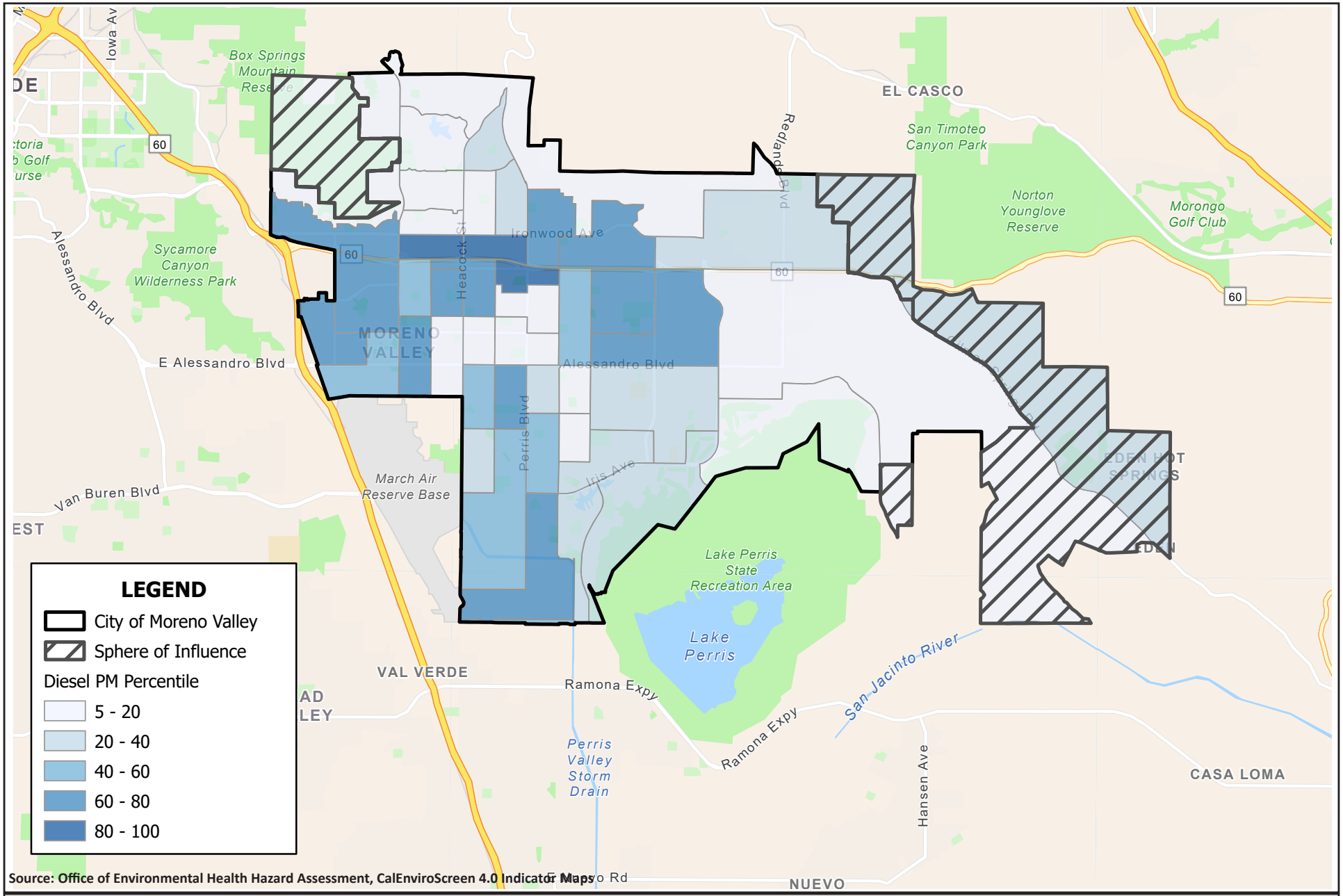

Source: Office of Environmental Health Hazard Assessment, CalEnviroScreen 4.0 Indicator Maps

FIGURE 6: CALENVIROSCREEN INDICATOR - DIESEL PM PERCENTILE

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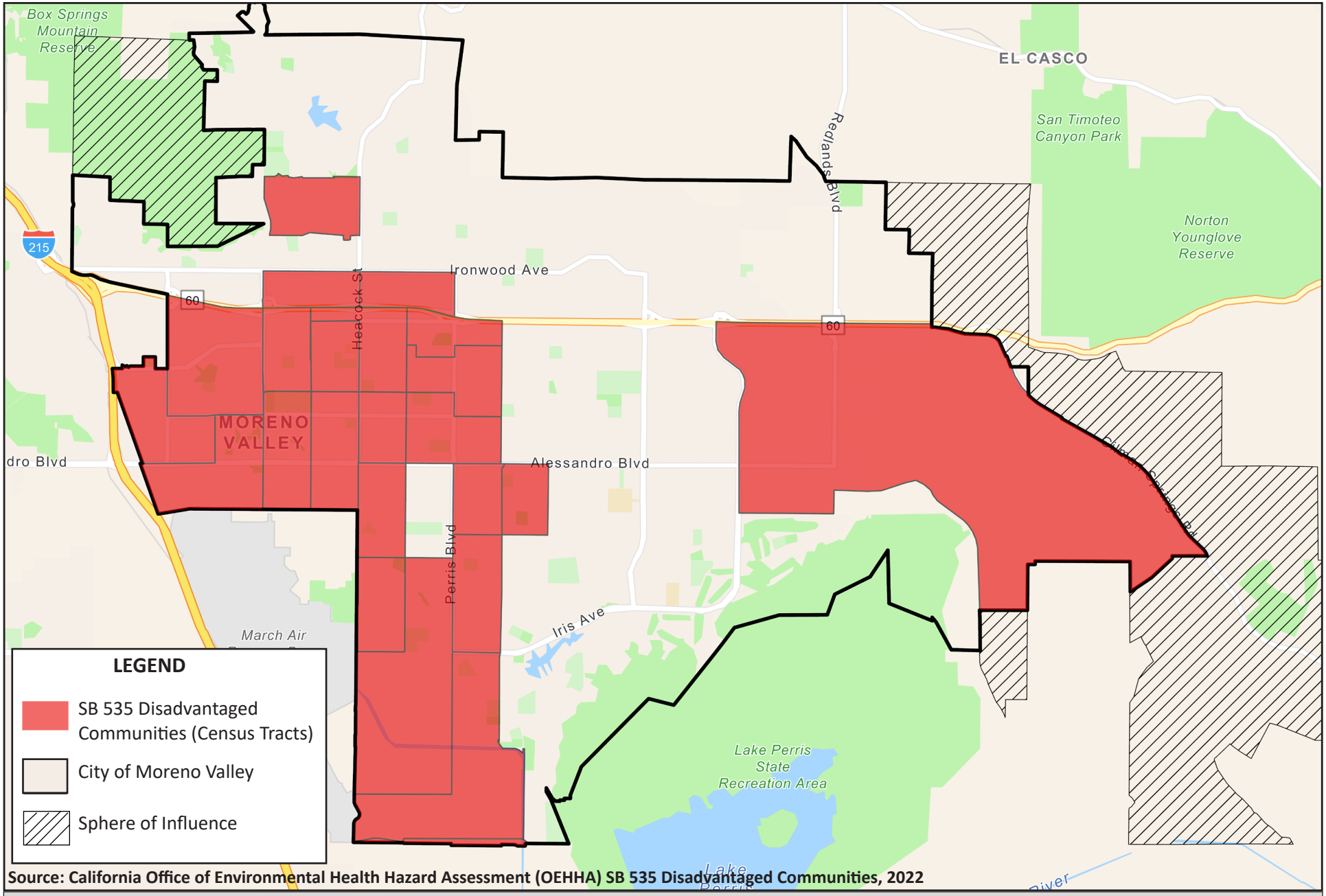

Source: California Office of Environmental Health Hazard Assessment (OEHHA) SB 535 Disadvantaged Communities, 2022

FIGURE 7: SB 535 DISADVANTAGED COMMUNITIES

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State Programs for Toxic Air Contaminants

The California Air Toxics Program is an established two-step process of risk identification and risk management to address potential health effects from exposure to toxic substances in the air. In the risk identification step, CARB and OEHHA determine if a substance should be formally identified, or "listed," as a TAC in California. In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce risk. Based on results of that review, CARB promulgated several Airborne Toxic Control Measures (ATCMs), both for stationary and mobile sources, including On-Road and Off-Road Vehicle Rules. These ATCMs include measures, such as limits on heavy-duty diesel motor vehicle idling and emission standards for off-road diesel construction equipment, to reduce public exposure to DPM and other TACs. These actions are also supplemented by the AB 2588 (1987) Air Toxics "Hot Spots" program and SB 1731 (1997), which require facilities to report their air toxics emissions, assess health risks, notify nearby residents and workers of significant risks if present, and reduce their risk through implementation of a risk management plan. SCAQMD further adopted two rules to limit cancer and non-cancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

3.3 Regional

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency with jurisdiction over Riverside and Orange Counties and the urban portions of Los Angeles and San Bernardino Counties. The agency's primary responsibility is ensuring that State and federal ambient air quality standards are attained and maintained in the Basin. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, and many other activities. All projects are subject to the SCAQMD rules and regulations in effect at the time of construction.

The SCAQMD is responsible for developing each AQMP, with input from the Southern California Association of Governments (SCAG) and CARB. The AQMP is a comprehensive plan that includes control strategies to reduce emissions from stationary and area sources, as well as for on-road and off-road mobile sources. The SCAG has the primary responsibility for providing future growth projections and the development and implementation of transportation control measures. CARB, in coordination with federal agencies, has jurisdiction over mobile sources.

On October 1, 2015, the USEPA strengthened the NAAQS for ground-level O_3. The 2022 AQMP, adopted by the SCAQMD Governing Board on December 2, 2022, was developed to address the

strengthened requirements for meeting the 2015 ground-level 8-hour O_3 standard.[16] The 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emissions technologies, when cost-effective and feasible, and low NO_X technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other FCAA measures to achieve the 2015 8-hour ozone standard. Like earlier AQMPs, the 2022 AQMP incorporates the latest scientific and technological information and planning assumptions, including SCAG's *2020-2045* Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS), or Connect SoCal, and updated emission inventory methodologies for various source categories.[17]

The SCAQMD has published the *CEQA Air Quality Handbook* (approved by the SCAQMD Governing Board in 1993 and augmented with guidance for Local Significance Thresholds [LST] in 2008).[18] The SCAQMD guidance helps local government agencies and consultants to develop environmental documents required by California Environmental Quality Act (CEQA) and suggests thresholds of significance for criteria pollutants for both construction and operation (see discussion of thresholds below). With the help of SCAQMD's CEQA Air Quality Handbook and associated guidance, local land use planners and consultants are able to analyze and document how proposed and existing projects affect air quality in order to meet the requirements of the CEQA review process. The SCAQMD periodically provides supplemental guidance and updates to the handbook on their website.

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. Under federal law, the SCAG is designated as a Metropolitan Planning Organization and under State law as a Regional Transportation Planning Agency and a Council of Governments.

The State and federal attainment status designations for the Basin are summarized in **Table 5: South Coast Air Basin Attainment Status**. The Basin is currently designated as a nonattainment area with respect to the State O_3, PM10, and PM2.5 standards, as well as the national 8-hour O_3 and PM2.5 standards. The Basin is designated as attainment or unclassified for the remaining State and federal standards.

Table 5: South Coast Air Basin Attainment Status

Pollutant	State	Federal
Ozone (O_3) (1 Hour Standard)	Non-Attainment	Non-Attainment (Extreme)
Ozone (O_3) (8 Hour Standard)	Non-Attainment	Non-Attainment (Extreme)

[16] South Coast Air Quality Management District, 2022 Air Quality Management Plan, December 2022, https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16, accessed September 2024.

[17] Southern California Association of Governments, Connect SoCal (2020–2045 RTP/SCS), Demographics and Growth Forecast adopted September 2020, https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_demographics-and-growth-forecast.pdf? 1606001579, accessed September 2024.

[18] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, July 2008, https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds, accessed September 2024.

Table 5: South Coast Air Basin Attainment Status

Pollutant	State	Federal
Particulate Matter (PM2.5) (24 Hour Standard)	–	Non-Attainment (Serious)
Particulate Matter (PM2.5) (Annual Standard)	Non-Attainment	Non-Attainment (Moderate)
Particulate Matter (PM10) (24 Hour Standard)	Non-Attainment	Attainment (Maintenance)
Particulate Matter (PM10) (Annual Standard)	Non-Attainment	–
Carbon Monoxide (CO) (1 Hour Standard)	Attainment	Attainment (Maintenance)
Carbon Monoxide (CO) (8 Hour Standard)	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2) (1 Hour Standard)	Attainment	Unclassifiable/Attainment
Nitrogen Dioxide (NO_2) (Annual Standard)	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2) (1 Hour Standard)	Attainment	Unclassifiable/Attainment
Sulfur Dioxide (SO_2) (24 Hour Standard)	Attainment	–
Lead (Pb) (30 Day Standard)	–	Unclassifiable/Attainment
Lead (Pb) (3 Month Standard)	Attainment	Nonattainment (Partial)[1]
Sulfates (SO_{4-2}) (24 Hour Standard)	Attainment	–
Hydrogen Sulfide (H_2S) (1 Hour Standard)	Unclassified	–

Source: South Coast Air Quality Management District, *Air Quality Management Plan*, 2022; U.S. Environmental Protection Agency, *Nonattainment Areas for Criteria Pollutants (Green Book)*, 2024.
1. Los Angeles County has a portion included as nonattainment; stated as a partial in the USEPA Green Book. However, Riverside County is in attainment for Lead both state and federal standards.

The following is a partial list of SCAQMD rules which apply to construction activities associated with implementation of the 2024 GPU.[19] These rules are listed as they would lower construction emissions; the SCAQMD, not, the City, is responsible for enforcement of these rules.

- **Rule 401 (Visible Emissions)** – A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- **Rule 402 (Nuisance)** – This rule prohibits the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not

[19] See the SCAQMD rule book for rules related to specific operational activities or sources.

apply to odors emanating from agricultural operations necessary for the growing or crops or the raising of fowl or animals.

- **Rule 403 (Fugitive Dust)** - This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. This rule is intended to reduce PM10 emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. PM10 suppression techniques are summarized below.

    a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.

    b) All on-site roads are paved as soon as feasible, watered regularly, or chemically stabilized.

    c) All material transported off-site will be either sufficiently watered or securely covered to prevent excessive amounts of dust.

    d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.

    e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down following the work day to remove soil from pavement.

- **Rule 431.2 (Sulfur Content of Liquid Fuels)** - This rule limits the sulfur content in diesel and other liquid fuels for the purpose of both reducing the formation of sulfur oxides and particulates during combustion and to enable the use of add-on control devices for diesel fueled internal combustion engines.
- **Rule 445 (Wood Burning)** – This rule prohibits permanently installed wood-burning devices into any new development. A wood-burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.
- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories**.**
- **Rule 1143 (Paint Thinners and Solvents) –** This rule governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.
- **Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities)** – This rule requires owners and operators or any demolition or renovation activity and the associated disturbance of asbestos-containing materials, any asbestos storage facility, or any active

waste disposal site to implement work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials.

- **Rule 2305 (Warehouse Indirect Source Rule)** - Rule 2305 was adopted by the SCAQMD Governing Board on May 7, 2021, to reduce NO_X and particulate matter emissions associated with warehouses and mobile sources attracted to warehouses. This rule applies to all existing and proposed warehouses over 100,000 square feet located in the SCAQMD. Rule 2305 requires warehouse operators to track annual vehicle miles traveled associated with truck trips to and from the warehouse. These trip miles are used to calculate the warehouses WAIRE (Warehouse Actions and Investments to Reduce Emissions) Points Compliance Obligation. WAIRE Points are earned based on emission reduction measures and warehouse operators are required to submit an annual WAIRE Report which includes truck trip data and emission reduction measures. Reduction strategies listed in the WAIRE menu include acquire ZE or near zero emission (NZE) trucks; require ZE/NZE truck visits; require ZE yard trucks; install on-site ZE charging/fueling infrastructure; install onsite energy systems; and install filtration systems in residences, schools, and other buildings in the adjacent community. Warehouse operators that do not earn a sufficient number of WAIRE points to satisfy the WAIRE Points Compliance Obligation would be required to pay a mitigation fee. Funds from the mitigation fee will be used to incentivize the purchase of cleaner trucks and charging/fueling infrastructure in communities nearby.

Permitted Sources of Emissions

The SCAQMD regulates stationary sources of emissions through source-specific rules that have been adopted to reduce criteria air pollutant emissions and TACs. The SCAQMD maintains the Facility Information Detail (FIND) database of regulated facilities that are required to have a permit to operate equipment that releases pollutants into the air in its region. Permitted sources include smaller sources such as gas stations and chrome-plating facilities as well as large sources such as refineries and power stations. See **Figure 8: SCAQMD Permitted Facilities** which identifies permitted sources of emissions in Moreno Valley that are regulated directly by the SCAQMD. The list of facilities is also included in Appendix A of this AQIA. The permitted facilities are depicted by circles throughout the City and are generally clustered in industrial areas of the City.

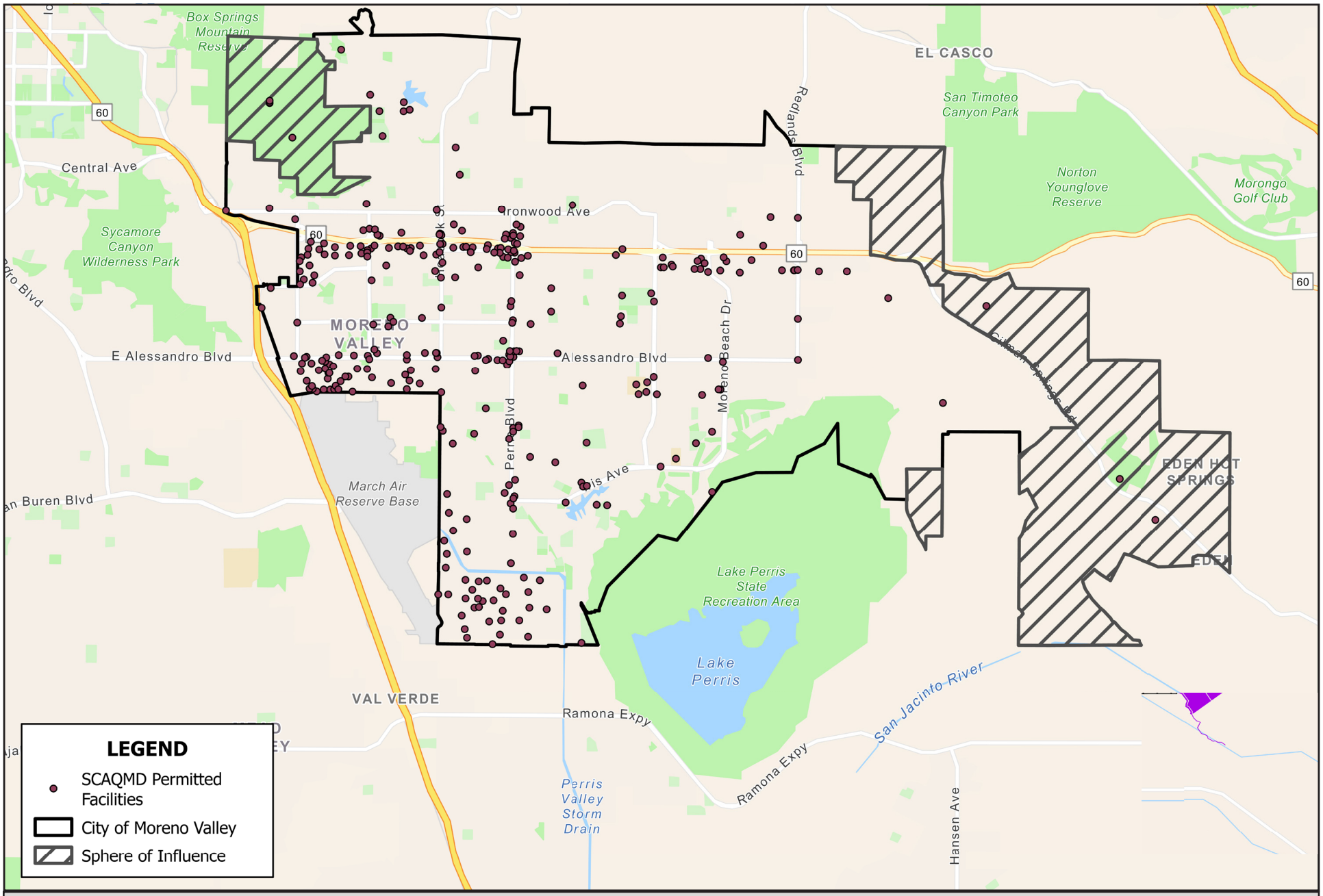

FIGURE 8: SCAQMD PERMITTED FACILITIES

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Multiple Air Toxics Exposure Study

The SCAQMD conducted an in-depth analysis of TACs and their resulting health risks for the Basin. The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted in the Basin. The MATES V (2021) study shows the carcinogenic risks from air toxics in the Basin, based on the average concentration at ten monitoring sites, is approximately 40 percent lower than the monitored average in MATES IV (2015) and 84 percent lower than the average in MATES II (2000) (SCAQMD 2021a). MATES V also evaluated the population-weighted cancer risk within Environmental Justice (EJ) communities using the SB 535 definition of DACs. [20] The MATES V study estimates that the average excess cancer risk level from exposure to TACs is 424 for each one million residents across the entire Basin. In comparison, the previous MATES IV study had an estimated average risk of 897 for each one million residents.

SCAQMD MATES V Cancer Risk for the City is shown in **Figure 9: SCAQMD MATES V Cancer Risk**. As shown, the air toxics cancer risk ranges from 332 to 352 for each one million residents, equating to a 17-22 percent lower risk compared to the rest of the SCAQMD population. The pollutant that contributes the most to cancer risk is DPM at roughly 71 percent. Benzene, formaldehyde, arsenic, and other pollutants combine to contribute the remaining percentage.

[20] SB 535 established initial requirements for minimum funding levels to "Disadvantaged Communities" (DACs). The legislation also gives California EPA the responsibility for identifying those communities, stating that the designation of disadvantaged communities must be based on "geographic, socioeconomic, public health, and environmental hazard criteria."

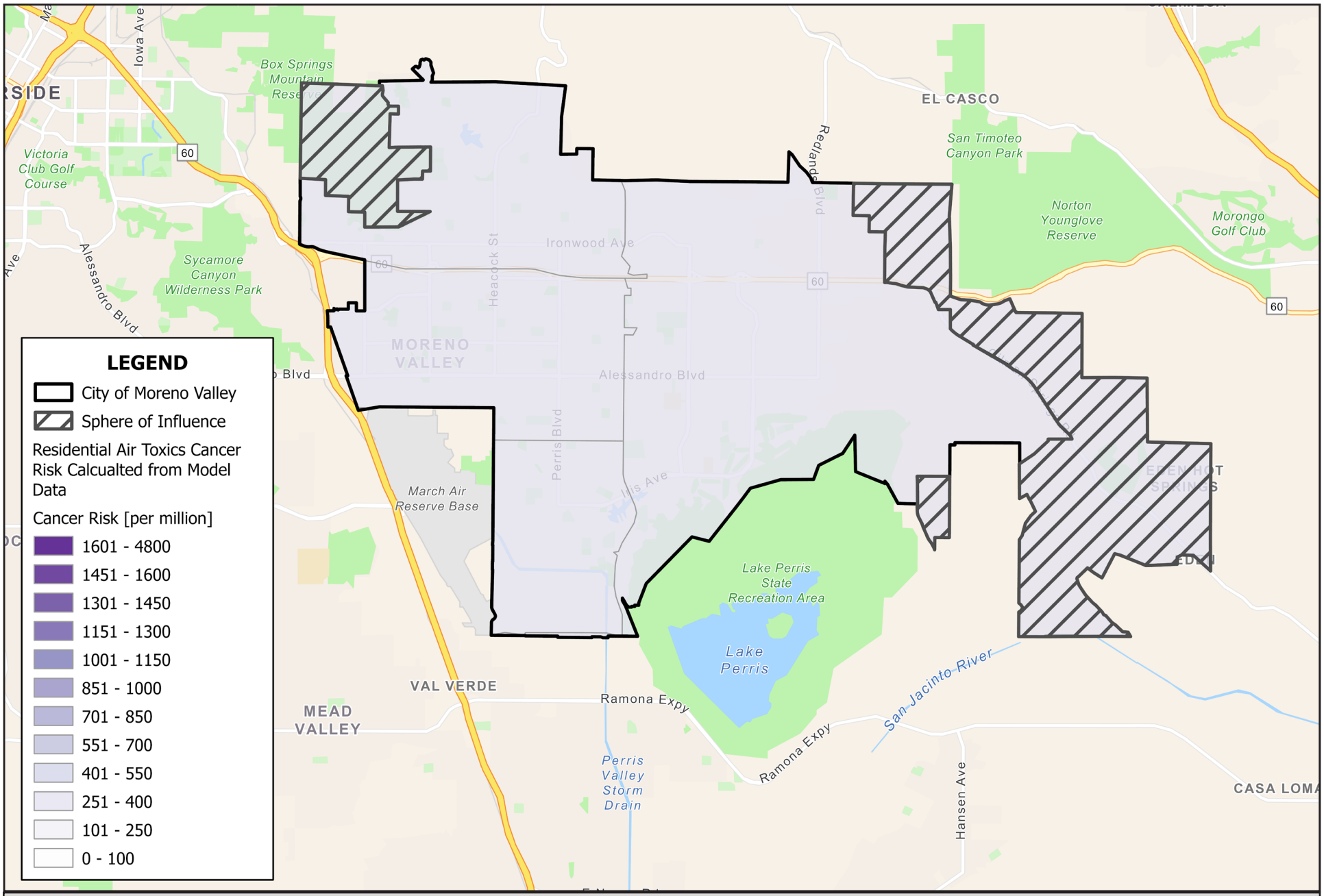

FIGURE 9: SCAQMD MATES V CANCER RISK

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3.4 City of Moreno Valley

City of Moreno Valley General Plan (2040)

The proposed 2040 Moreno Valley General Plan includes key goals to increase the use of public transit, improve traffic congestion, and enhance the range of transportation options in the City and reduce vehicle miles traveled, thereby reducing mobile emissions and improving air quality. Additionally, the CAP includes a number of GHG reduction goals that would also reduce emission of criteria pollutants. The below existing goals and policies are intended to control or reduce air pollution impacts.

Land Use and Community Character Element

Goal LCC-1: **Establish an identifiable city structure and flexible land use framework that accommodates growth and development over the planning horizon.**

Policies

LCC.1-4: Focus new development in center and corridors so as to support the vitality of existing businesses, optimize the use of utility infrastructure, and reduce vehicle trip frequency, length, and associated emissions.

LCC.1-8: Promote a land and resource efficient development pattern in order to support efficient delivery of public services and infrastructure, conserve open space lands surrounding the city, reduce vehicle trip lengths and improve air quality.

LCC.1-12: Balance levels of employment and housing within the community to provide more opportunities for Moreno Valley residents to work locally, cut commute times, and improve air quality.

Goal LCC-2: **Establish vibrant gathering places for Moreno Valley residents and visitors.**

Policies

LCC.2-10: Create an attractive, safe environment for bicycles and pedestrians that promotes “micro-mobility” and connectivity within the Downtown Center as well as encourage electric and autonomous vehicles.

LCC.2-16: Design residential buildings adjacent to the freeway with adequate ventilation and sound proofing to minimize air and noise impacts.

LCC.2-19: Provide a network of interconnected streets, paseos, pathways, and bicycle routes onsite that facilities travel through the site for pedestrians, cyclists and other non-motorized modes of transportation.

LCC.2-24: At intersections on the mixed use corridors, prioritize retail and other uses that promote pedestrian activity on the ground floor of buildings.

LCC.2-25: Encourage the development of bicycle, pedestrian, and transit access that reduces the need for on-site parking. Improve the pedestrian experience within these corridors through street trees and landscaping.

Goal LCC-3: **Build a distinctive sense of place and pride in Moreno Valley.**

Policies

LCC.3-18: Design internal roadways so that direct access is available to all structures visible from a particular parking area entrance in order to eliminate unnecessary vehicle travel, and to improve emergency response.

LCC.3-22: Preserve and encourage neighborhood stores that enable shoppers to walk or bike for everyday needs, provide access to healthy foods, and promote a sense of community.

Circulation Element

Goal C-2: **Plan, design, construct, and maintain a local transportation network that provides safe and efficient access throughout the city and optimizes travel by all modes.**

Policies

C.2-1: Design, plan, maintain, and operate streets using complete streets principles for all types of transportation projects, including design, planning, construction, maintenance, and operations of new and existing streets and facilities. Encourage street connectivity that aims to create a comprehensive, integrated, connected network for all modes.

Goal C-3: **Manage the City's transportation system to minimize congestion, improve flow and improve air quality.**

Policies

C.3-4: Require development projects to complete traffic impact studies that conduct vehicle miles traveled analysis and level of service assessment as appropriate per traffic impact study guidelines.

C.3-7: Support regional efforts for the development of a VMT mitigation impact fee program.

C.3-12: Evaluate opportunities to incorporate new materials, technologies or design features that improve performance of the circulation system.

Goal C-5: **Enhance the range of transportation operations in Moreno Valley and reduce vehicle miles traveled.**

Policies

C.5-1: Work to reduce VMT through land use planning, enhances transit access, localized attractions, and access to non-automotive modes.

C.5-3: Encourage bicycling as an alternative to single occupant vehicle travel for the purpose of reducing fuel consumption, traffic consumption, and air pollution.

C.5-5: Encourage local employers to implement Transportation Demand Management (TDM) strategies, including shared ride programs, parking cash out, transit benefits, allowing telecommuting and alternative work schedules.

Goal C-6: **Provide for safe, efficient goods movement by road, air and rail.**

Policies

C.6-2: Support implementation of new technologies and best practices that make logistics operations cleaner, greener, and more efficient, including electric truck charging stations, autonomous vehicle sensors and communications.

Environmental Justice Element

Goal EJ-1: Reduce pollution exposure and improve community health.

Policies

EJ.1-3: Require new development that would locate sensitive uses adjacent to sources of toxic air contaminants (TAC) to be designed to minimize any potential health risks, consistent with State law.

EJ.1-5: Continue purchase or lease of fuel-efficient and low emissions vehicles for City fleet vehicles.

EJ.1-6: Ensure that construction and grading activities minimize short-term impacts to air quality by employing appropriate mitigation measures and best practices.

EJ.1-7: Require new large commercial or light industrial projects to develop and implement a plan to minimize truck idling in order to reduce diesel particulate emissions.

EJ.1-8: Support the incorporation of new technologies and design and construction techniques in new development that minimize pollution and its impacts.

EJ.1-9: Designate truck routes that avoid sensitive land uses, where feasible.

Open Space and Resource Conservation Element

Goal OSRC-1: **Preserve, protect, and enhance natural resources, habitats, and watersheds in Moreno Valley and the surrounding area, promoting responsible management practices.**

Policies

OSRC.1-1: Retain the maximum feasible amount of open space and agricultural land in areas outside the city surrounding Moreno Valley, recognizing its habitat values as well as its contribution to the local economy, quality of life, healthy air quality, and community character.

OSRC.1-7: Require that grading plans include appropriate and feasible measures to minimize erosion, sedimentation, wind erosion and fugitive dust. Particularly in hillside areas, new roadways and trails should follow natural contours to minimize grading.

City of Moreno Valley Climate Action Plan

The 2040 Moreno Valley Climate Action Plan (CAP) is designed to support the City's commitment to reducing GHG emissions and demonstrate how the City will comply with the State's GHG emission reduction standards. The CAP includes an inventory of the City's GHG emissions, forecasts of future GHG emissions, measures to reduce GHG emissions consistent with the State and monitoring and reporting processes to ensure target goals are met. In addition to measures related to GHG emissions, the CAP has measures related to off-road equipment and transportation that also limit or reduce air quality impacts.

Strategy C: Cornerstone to Climate Action Planning

Measure C-1 Build off the California Transportation Commission's Clean Freight Corridor Efficiency Assessment to facilitate the development of medium- and heavy-duty zero-emission vehicle refueling depots along SR 60 to meet the growing demand of medium- and heavy-duty freight transport and help facilitate the decarbonization goals associated with California Air Resources Board's Advanced Clean Fleets regulation.

Strategy BE: Building Energy

Measure BE-1 Procure 70% of Moreno Valley Electric Utility electricity from renewable energy sources by 2030 and 100% of electricity from renewable energy sources by 2045.

Measure BE-2 Decarbonize new residential construction by at least 95% by 2026.

Measure BE-3 Decarbonize new nonresidential construction by at least 95% by 2026.

Measure BE-4 Decarbonize existing residential buildings to reduce existing residential natural gas consumption by 7% by 2030 and 31% by 2045.

Measure BE-5 Decarbonize existing nonresidential buildings to reduce existing nonresidential natural gas consumption by 3.8% by 2030 and 18% by 2045.

Measure BE-6 Increase generation and storage of local renewable energy to increase the availability and resilience of renewable power.

Strategy T: Transportation

Measure T-1 Implement programs to increase active transportation mode share from less than 1% to 3% by 2030 and to 6% by 2045.

Measure T-2 Work with the Riverside Transit Agency to increase public and multi-modal transportation mode share from about 1% to 2.7% by 2030 and to 10% by 2045.

Measure T-3 Implement programs to increase the work-from-home rate from 3% to 15% in 2030 and 25% in 2045 to reduce commuter vehicle miles traveled.

Measure T-4 Achieve zero-emission vehicle adoption rates of 35% for passenger vehicles and 20% for commercial vehicles by 2030 and 100% for both vehicle types by 2045.

Measure T-5 Implement programs to support California Air Resources Board and South Coast Air Quality Management District goals to decarbonize 30% of off-road equipment by 2030 and 100% by 2045.

Strategy SW: Solid Waste

Measure SW-1 Achieve, monitor, and maintain Senate Bill 1383 (2016) requirements to reduce waste sent to landfills by 75% below 2014 levels by 2030.

Strategy WW: Water and Wastewater

Measure WW-1 Work with the Eastern Municipal Water District and Box Springs Mutual Water Company to reduce per capita potable water consumption.

Strategy CS: Carbon Sequestration

Measure CS-1 Increase carbon sequestration in the community by procuring and distributing compost within the community to achieve Senate Bill 1383 (2016) procurement requirements (i.e., 0.08 tons recovered organic waste per person) by 2030 and maintain them through 2045.

Measure CS-2 Increase carbon sequestration by preserving existing mature trees and planting and maintaining 200 new trees per year, beginning in 2026.

City of Moreno Valley Municipal Code

The City of Moreno Valley Municipal Code Section 9.10.050 presents the City's policies regarding emissions or other sources of air pollution. Section 12.50 imposes regulations on idling of vehicles to limit exhaust, Section 2.40.020 designates air pollution as a potential condition for an emergency, Section 9.10.090 forbids any release or emission of any fissionable or radioactive materials in the atmosphere, and Section 9.17 requires landscaping design to reduce air pollutant emissions by reducing the demand for electricity to cool buildings and reducing the evaporation of gas from parked vehicles.

4.0 METHODOLOGIES FOR DETERMINING IMPACTS

4.1 Methodology

Air Quality Plan Consistency

The SCAQMD is required, pursuant to the FCAA and CCAA, to reduce emissions of those pollutants/precursors for which the Basin is classified as nonattainment of a NAAQS (i.e., O_3 and PM2.5). The SCAQMD's AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQSs. These strategies are developed, in part, based on regional growth projections prepared by the SCAG. The SCAG has the responsibility of preparing and approving portions of the AQMP relating to the regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. The SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and State air quality plans to attain the NAAQSs. The RTP/SCS includes transportation programs, measures, and strategies generally designed to reduce VMT, which are

contained in the AQMP. The SCAQMD combines its portion of the AQMP with those prepared by the SCAG.

As part of its air quality planning, the SCAG has prepared the Regional *Comprehensive Plan and Guide and Connect SoCal, the 2024-2050 RTP/SCS*. SCAG's Regional Council adopted the 2024-2050 RTP/SCS in April 2024. The 2024-2050 RTP/SCS was determined to conform to the federally mandated SIP (State Implementation Plan) for the attainment and maintenance of the NAAQSs. The 2024-2050 RTP/SCS will be incorporated into the SCAQMD's future AQMPs. Both the Regional Comprehensive Plan and the AQMP are based, in part, on projections originating with county and city general plans.

The SCAQMD prepares AQMPs to accommodate growth, reduce the high levels of pollutants within the areas under its jurisdiction, return clean air to the region, and minimize the impact on the economy. Projects that are consistent with the assumptions used in the AQMP do not interfere with attainment because the growth is included in the projections utilized in the formulation of the AQMP. Thus, projects, uses, and activities that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's numeric indicators.

The CCAA requires air pollutant control districts (APCDs) and AQMDs (air quality management districts) in the State to aim to achieve and maintain CAAQs by the earliest practical date and to develop AQMPs and regulations specifying how the districts will meet this goal. California law does not specify a date by which an air basin must meet the CAAQSs. Rather, according to CARB, California law requires incremental progress toward attainment.[21] California law continues to mandate compliance with the CAAQSs, although attainment of the NAAQSs has precedence over attainment of the CAAQSs due to federal penalties for failure to meet federal attainment deadlines.[22] The AQMPs also serve as the basis for preparation of the SIP for meeting NAAQSs.

Construction Emissions

Implementation of the 2024 GPU would lead to construction of various projects throughout the City at any given point. Additionally, quantifying individual future developments' air emissions from short-term, temporary construction-related activities is not possible due to project-level variability and uncertainties concerning detailed site plans, construction schedules or duration, equipment requirements, among other factors, which are presently unknown. Given these variabilities, precisely calculating construction emissions from all future development is not feasible and would not yield meaningful results. Where criteria air pollutant quantification was required, emissions were based on a programmatic understanding of the Project (i.e., using general assumptions publicly available through agencies such as CARB and the SCAQMD). The construction equipment fleet was assumed to operate continuously in the City. The inventory of construction equipment was based on the CARB model, EMFAC (Emission Factors) off-road inventory. The approach assumes the average of all construction equipment currently operating in the City would operate simultaneously on any given day for an entire year. This would result in a conservative scenario as construction phases would not necessarily overlap. The calculated air pollutant emissions during construction will be

[21] CARB, California Ambient Air Quality Standards, https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards, accessed November 2024.

[22] Ibid.

compared to the SCAQMD regional thresholds of significance.

Operational Emissions

Implementation of operations after the buildout of the 2024 GPU would result in emissions of area sources (consumer products), energy sources (natural gas usage), and mobile sources (motor vehicles from Project generated vehicle trips). Project-generated increases in operational emissions would be predominantly associated with motor vehicle use. Trip generation data was derived from the Riverside County Travel Demand Model (RIVCOM) for buildout of the Project and approved projects, provided by the City, between 2018 and 2024.

According to the SCAQMD guidance on General Plans, the SCAQMD and CARB have strong, comprehensive regulatory programs for new and existing sources of air pollution. However, local policies can enhance the effectiveness of these programs by addressing cumulative impacts in local areas. Note that the SCAQMD significance thresholds for criteria pollutants do not distinguish between project-level Environmental Impact Reports (EIRs) (e.g., for an individual development) and program-level EIRs (e.g., for a long-range plan). The 2024 GPU addresses the development of various land uses on a programmatic level. Therefore, the application of the SCAQMD thresholds for individual project-level impacts to a Citywide land use plan within a program-level EIR is highly conservative.

No specific development projects are currently proposed. Operations of future development projects under implementation of the 2024 GPU would result in emissions of area sources (i.e., consumer products, architectural coating, and landscape equipment), energy sources (i.e., natural gas usage for space and water heating and cooking), and mobile sources (i.e., motor vehicles from generated vehicle trips generated by implementation of the 2024 GPU). Each of these sources are described below.

- **Area Source Emissions.** Area source emissions would be generated due to household equipment, architectural coating, and landscaping that may be conducted on each future development site.

- **Energy Source Emissions.** Energy source emissions would be generated due to natural gas usage associated with the future development operations. Primary uses of natural gas resulting from the buildout of the 2024 GPU would be for heating and cooking.

- **Mobile Source.** Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, PM10, and PM2.5 are all pollutants of regional concern. NO_X and ROG/VOC react with sunlight to form O_3, known as photochemical smog. Additionally, wind currents readily transport PM10, and PM2.5. However, CO tends to be a localized pollutant, dispersing rapidly at the source. Operations-generated vehicle emissions are based on the trip generations and would be incorporated into future studies and CalEEMod (California Emissions Estimator Model) as recommended by the SCAQMD.

Cumulative Impacts

The SCAQMD *CEQA Air Quality Handbook* states that the "Handbook is intended to provide local governments, project proponents, and consultants who prepare environmental documents with guidance for analyzing and mitigating air quality impacts of projects."[23] The SCAQMD CEQA Air Quality Handbook also states that "[f]rom an air quality perspective, the impact of a project is determined by examining the types and levels of emissions generated by the project and its impact on factors that affect air quality. As such, projects should be evaluated in terms of air pollution thresholds established by the District." The SCAQMD has also provided guidance on an acceptable approach to addressing the cumulative impacts issue for air quality as discussed: "As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR... 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."[24]

Therefore, consistent with accepted and established SCAQMD cumulative impact evaluation methodologies, the potential for implementation of the 2024 GPU to result in cumulative impacts from regional emissions is assessed based on the SCAQMD project-level thresholds.

4.2 Basis for Determining Significance

CEQA Guidelines Appendix G

CEQA Guidelines Appendix G contains analysis guidelines related to air quality impacts. The City has determined to use these guidelines as thresholds of significance for this analysis. A project would create a significant environmental impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable state or federal ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

South Coast Air Quality Management District

Mass Emissions Thresholds

According to the CEQA Guidelines Appendix G, an air quality impact is considered significant if the Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

[23] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.
[24] South Coast Air Quality Management District, White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution, Appendix D, 2003.

The SCAQMD has established thresholds of significance for criteria pollutant and precursor emissions during construction and operational activities of land use development projects, as shown in **Table 6: South Coast Air Quality Management District Emissions Thresholds**. The analysis in this AQIA focuses on nonattainment pollutants as well as CO and SO_X. Certain pollutants have been analyzed qualitatively such as lead and vinyl chloride. Lead is in attainment in Riverside County and vinyl chloride is released during certain less common industrial processes.

Table 6: South Coast Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors	Daily Emissions (pounds/day)	
	Construction-Related	Operational-Related
Reactive Organic Gases (ROG)	75	55
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_X)	100	55
Sulfur Oxides (SO_X)	150	150
Coarse Particulates (PM10)	150	150
Fine Particulates (PM2.5)	55	55

Source: South Coast Air Quality Management District, *CEQA Air Quality Significance Thresholds,* March 2023.

Localized Carbon Monoxide

In addition to the daily thresholds listed above, development associated with the Project would also be subject to the ambient air quality standards. These are addressed though an analysis of localized CO impacts known as the CO "hot spots" analysis. An analysis of CO "hot spots" determines whether the change in the level of service (LOS) of an intersection as a result of Project activities would have the potential to result in exceedances of the CAAQS or NAAQS. It has long been recognized that one of the greatest contributors of CO to outdoor air is cars.[25] Vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent).[26] With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations have steadily declined.[27, 28]

Accordingly, with steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. An analysis prepared for CO attainment in the Basin by the SCAQMD is useful for current evaluations of the potential for CO exceedances. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 *Air Quality Management Plan*.[29] Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of air quality management plans. The Basin was re-

[25] U.S. Environmental Protection Agency, Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution, 2023, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#:~:text=The%20greatest%20sources%20of%20CO,can%20affect%20air%20quality%20indoors, accessed September 2024.

[26] California Code of Regulations Title 13 Section 1961, Exhaust Emission Standards and Test Procedures – 2004 through 2019 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, 2022, https://ww2.arb.ca.gov/sites/default/files/2023-02/cleancomplete_lev_ghg_regs_11_2022.pdf, accessed September 2024.

[27] South Coast Air Quality Management District, Carbon Monoxide Redesignation Request and Maintenance Plan, February 2005, https://ww2.arb.ca.gov/sites/default/files/classic/planning/sip/sccosip05/sccosip_redesig_mplan.pdf, accessed September 2024.

[28] U.S. Environmental Protection Agency, Carbon Monoxide Trends, 2023, https://www.epa.gov/air-trends/carbon-monoxide-trends, accessed September 2024.

[29] South Coast Air Quality Management District, Air Quality Management Plan, Appendix V, Modeling and Attainment Demonstrations, August 2003, https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan/2003-aqmp, accessed September 2024.

designated as attainment (as reported in **Table 6** above) in 2007 and CO is no longer addressed in the SCAQMD's Air Quality Management Plan (AQMP).

The 2003 *Air Quality Management Plan* is the most recent AQMP that addressed CO concentrations. As part of the 2003 AQMP CO Modeling Attainment Demonstration, an analysis was performed utilizing dispersion modeling.[30] As an initial screening step, if a project roadway segment does not exceed and ADT (average daily traffic) of 100,000 per day, then the project does not need to prepare a detailed CO hot spot analysis.

Localized Significance Thresholds

While localized emissions are speculative at the program level, future CEQA review would evaluate project-level impacts. The SCAQMD developed LSTs for emissions of NO_2, CO, PM10, and PM2.5 generated at new development sites (off-site mobile source emissions are not included in the LST analysis). LSTs represent the maximum emissions that can be generated at a Project site without expecting to cause or substantially contributing to an exceedance of the most stringent state or federal ambient air quality standards (CAAQS or NAAQS). Localized air quality impacts using LST are directly tied to public health protection because the LST consider proximity of construction or operational emissions to people. By ensuring the individual project emissions remain below the LST, the risk of localized air quality and health impacts are minimized particularly those sensitive receptors who are most vulnerable to air quality exceedances.

LSTs are based on the ambient concentrations of that pollutant within the Project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is required for all projects that disturb 5 acres or less on a single day. The City is located within SCAQMD SRA 24 (Perris Valley). **Table 7: Moreno Valley Localized Significance Thresholds Within 25 Meters of Sensitive Receptors** presents the SRA 24 LST values for construction and operations within 25 meters (82 feet) of sensitive receptors, which are the most conservative thresholds. While these supplemental analyses are not conducted for the 2024 GPU as it is a programmatic analysis and absence of proposed physical development, future development resulting from the implementation of the 2024 GPU would be required to comply with this regulation.

Table 7: Moreno Valley Localized Significance Thresholds Within 25 Meters of Sensitive Receptors

Project Size	Nitrogen Oxide (NO_x) lbs/day	Carbon Monoxide (CO) lbs/day	Coarse Particulates (PM10) [1] lbs/day	Fine Particulates (PM2.5) [1] lbs/day
1 Acre	118	602	4 (cons) 1 (ops)	3 (cons) 1 (ops)
2 Acres	170	883	7 (cons) 2 (ops)	4 (cons) 1 (ops)
5 Acres	270	1,577	13 (cons) 4 (ops)	8 (cons) 2 (ops)

Source: South Coast Air Quality Management District, *Localized Significance Threshold Methodology,* July 2008.
1 – LSTs for PM10 and PM2.5 are different values for construction (cons) and operations (ops).

LSTs associated with all acreage categories are provided in **Table 7** for informational purposes.

[30] South Coast Air Quality Management District, Air Quality Management Plan, Appendix V, Modeling and Attainment Demonstrations, August 2003, https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan/2003-aqmp, accessed September 2024.

Table 7 shows that the LSTs increase as acreages increase. It should be noted that LSTs are screening thresholds and are therefore conservative. The construction LST acreage is determined based on daily acreage disturbed. The operational LST acreage is based on the total area of the individual project site. Further detailed analysis is included in the Health Effects and Health Risk Analysis (HEHRA) prepared by Kimley-Horn.

Health Risk Thresholds

Project health risks are determined by examining the types and levels of air toxics generated and the associated impacts on factors that affect air quality. While the final determination of significance thresholds is within the lead agency's purview pursuant to the CEQA Guidelines, the SCAQMD recommends that lead agencies use the following air pollution thresholds in determining whether a project's impacts are significant. If the lead agency finds that a project has the potential to exceed the air pollution thresholds, the project's impacts should be considered significant. **Table 8: SCAQMD Incremental Risk Thresholds for TACs**, lists the TAC incremental risk thresholds for operation of a project.

Table 8: SCAQMD Incremental Risk Thresholds for TACs

Incremental Risk	Threshold
Maximum Incremental Cancer Risk	≥ 10 in 1 million
Cancer Burden	> 0.5 excess cancer cases (in areas ≥ 1 in 1 million)
Chronic & Acute Hazard Index (project increment)	≥ 1.0 (project increment)

Source: South Coast Air Quality Management District, CEQA Air Quality Significance Thresholds, March 2023.

Cancer risk is expressed in terms of expected incremental incidence per million population. The SCAQMD adopted a threshold of an incidence rate of 10 persons per million as the maximum acceptable incremental cancer risk due to TAC exposure. This threshold is an upper-bound incremental probability to determine whether a given project has a potentially significant development-specific and cumulative impact, and to ensure an individual new source does not contribute a cumulatively significant impact. The 10 in one million standard is a health-protective significance threshold. A risk level of 10 in one million implies a likelihood that up to 10 persons out of one million equally exposed persons would contract cancer if exposed continuously (24 hours per day) to the TAC levels over a 30-year timeframe. This risk would be an excess cancer that is in addition to any cancer risk borne by a person not exposed to these TACs.

The SCAQMD has also established non-carcinogenic risk parameters for use in Health Risk Assessments (HRAs). Noncarcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). A REL is a concentration at, or below which health effects are not likely to occur. A hazard index of less than 1.0 means that adverse health effects are not expected. Within this analysis, non-carcinogenic exposures of less than 1.0 are considered less than significant. Further detailed analysis is included in HEHRA prepared by Kimley-Horn.

5.0 IMPACT ANALYSIS

5.1 Threshold 1: Air Quality Plan

Would the Project conflict with or obstruct implementation of the applicable air quality plan?

As discussed previously, the SCAQMD Governing Board adopted the 2022 AQMP on December 2, 2022. However the USEPA's approval of the 2022 AQMP portion of the SIP is still pending. Therefore, this analysis evaluates consistency with the 2016 AQMP (adopted by the SCAQMD Governing Board on March 3, 2017) and the 2022 AQMP.

The AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving NAAQSs and CAAQSs. The AQMP is a regional and multi-agency effort involving the SCAQMD, the CARB, the SCAG, and the USEPA. The AQMP pollutant control strategies and measures are based on the latest scientific and technical information and planning assumptions, including SCAG's RTP/SCS, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. SCAG is SCAQMD's partner in the preparation of the AQMP, providing the latest economic and demographic forecasts and developing transportation measures. Regional population, housing, and employment projects developed by SCAG are based, in part, on general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP.

Criteria for determining consistency with the AQMP are defined in the SCAQMD CEQA Handbook, Chapter 12, Section 12.2, and Section 12.3. The two principal criteria for conformance with an AQMP are:

- **Consistency Criterion No. 1**: Whether a project would exceed the assumptions in the AQMP.
- **Consistency Criterion No. 2**: Whether a project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timeline attainment of air quality standards.

According to the SCAQMD's *CEQA Air Quality Handbook*, the purpose of the consistency finding is to determine if a project is inconsistent with the goals, objectives, and assumptions of the regional air quality plans, and thus if it would interfere with the region's ability to comply with CAAQS and NAAQS.[31] A project may be inconsistent with the AQMP if it would generate substantial population, housing, or employment growth that exceeds forecasts used in the development of the AQMP or if the project is inconsistent with applicable AQMP control measures.

Criterion 1

Table 9: Comparison of Population and Employment Forecast compares the population and employment growth forecast under implementation of the Project to the existing conditions. **Table 9**, shows the implementation of the 2024 GPU would result in an increase in VMT because of population growth; however, VMT per service population would decrease from the existing conditions. Implementation of the 2024 GPU would result in significant and unavoidable

[31] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.

transportation impacts related to VMT. As such, implementation of the Project would not be consistent with the AQMP under the first criterion.

Table 9: Comparison of Population and Employment Forecast

Scenario	Existing (2024)	2024 GPU (2040)	Change from Existing	
			Change	Percentage
Population[1]	205,620	298,440	92,820	45%
Employment[1]	65,378	104,371	38,993	60%
Total OD VMT[2]	8,846,399	12,669,735	3,823,336	43%
OD VMT/SP[3]	32.64	31.45	-1.19	-3.6%

Source: Kimley-Horn and Associates, 2025.
1. Population and employment values vary as the population value in the SB 743 (2013) modeling includes group quarters and households.
2. OD = Origin/Destination; sums all weekday VMT generated by trips with at least one trip end in the study area and tracks those trips to their estimated origins/destinations.
3. SP = Service Population; the sum of population, enrollment and employment.

Criterion 2

The Basin is designated nonattainment for O_3 and PM2.5 under the CAAQSs and NAAQSs, nonattainment for NO_2 along SR 60 under the CAAQSs, nonattainment for PM10 under the CAAQSs, and nonattainment for lead (Los Angeles County only) under the NAAQSs (CARB 2023). Because implementation of the 2024 GPU involves long-term growth associated with buildout of the City, cumulative emissions generated from operation of individual development projects would exceed the SCAQMD thresholds (see Threshold 5.2 and Threshold 5.3). Consequently, emissions generated by development projects in addition to existing sources in the City are considered to cumulatively contribute to the nonattainment designations of the Basin. Buildout of the proposed land use plan associated with implementation of the 2024 GPU could contribute to an increase in frequency or severity of air quality violations and delay attainment of the NAAQSs, CAAQs, or interim emission reductions in the AQMP, and emissions generated from buildout would result in a significant air quality impact. Therefore, implementation of the 2024 GPU would potentially be inconsistent with the AQMP.

A main objective of the 2024 GPU is to provide a flexible land use framework that can accommodate job growth in a variety of industries over time while enhancing quality of life in the community. Operation of development under the implementation of the 2024 GPU would generate criteria air pollutant emissions associated with area, energy, and mobile sources. Future development emissions, depending on project type and size, could exceed the SCAQMD project-specific thresholds shown in **Table 6.** These projects would be required to undergo independent, project-level CEQA review and include mitigation measures, if necessary, to address potentially significant impacts. This would generally reduce air pollutant emissions for most projects, although not all, to a less-than-significant level under project thresholds.

Consistency with the 2016 AQMP and 2022 AQMP is also a function of consistency with applicable AQMP control measures. The AQMPs include specific control measures to reduce air pollutant emissions to meet NAAQSs and CAAQSs. One of the most important methods the AQMP relies on to achieve its goals is the use of transportation control measures (TCMs). TCMs are defined in the 2016 AQMP and 2022 AQMP as projects that reduce vehicle use or change traffic flow or congestion conditions for the purposes of reducing transportation emissions sources and improving air

quality.[32] TCMs include the following three main categories of transportation improvement projects and programs: (1) transit, intermodal transfer, and active transportation measures; (2) high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, and their pricing alternatives; and (3) information-based transportation strategies.

Additionally, the various policies proposed by the 2024 GPU would help reduce air pollutant emissions through promoting transportation and land use design factors such as promoting public transit, alternative transportation, and carpooling that would result in VMT reductions. For example, 2024 GPU Circulation Element Policy C.5-1 works to reduce VMT through land use planning, enhanced transit access, localized attractions, and access to non-automotive modes; 2024 GPU Circulation Element Policy C.5-3 encourages bicycling as an alternative to single occupant vehicle travel for the purpose of reducing fuel consumption, traffic congestion, and air pollution; 2024 GPU Circulation Element Policy C.5-4 promotes pedestrian, bicycle, and transit usage through collaboration with service providers and the inclusion of amenities like bus shelters and benches; 2024 GPU Circulation Element Policy C.5-5 encourages local employers to implement Transportation Demand Management (TDM) strategies, such as shared ride programs and alternative work schedules; and 2024 GPU Circulation Element Policy C.4-2 collaborates with major employers and other stakeholders to improve access and connectivity to key destinations. Additionally, General Plan Environmental Justice Element Policy EJ.1-5 commits the City to continue purchasing or leasing fuel-efficient and low emissions vehicles for City fleet vehicles.

Implementation of the 2024 GPU would not conflict with implementation of TCMs from the AQMPs, or otherwise lessen emissions reductions associated with these measures. Compliance with the General Plan policies described above would help reduce reliance on automobiles and increase use of alternative transportation modes. However, as shown in **Table 9**, buildout of the existing land use designations would gradually increase population, employment, and VMT. Implementation of the 2024 GPU would result in a slight decrease in per capita VMT compared to the existing baseline due to the forecast population increase, which relies on SCAG's growth forecasts. Additionally, as discussed below, the 2024 GPU development potential would exceed SCAQMD thresholds and implementation of all SCAQMD rules, regulations, and control measures may not be feasible for future development projects. As such, impacts in this regard would be significant and unavoidable despite the fact that the 2024 GPU would be consistent with SCAG and AQMP growth forecasts. Although the 2024 GPU would include policies to reduce air pollutant emissions through the promotion of transportation and land use design factors, Project implementation would not be consistent with the AQMP. Impacts would be significant and unavoidable.

5.2 Threshold 2: Ambient Air Quality Standards

Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable state or federal ambient air quality standard?

The 2024 GPU does not directly propose the development of specific activities within the City. Instead, the 2024 GPU involves regulatory modifications which could facilitate land development in the future. Growth in the City would require construction emissions and result in operation from

[32] South Coast Air Quality Management District, Final 2016 Air Quality Management Plan, March 2017.
; South Coast Air Quality Management District, 2022 Air Quality Management Plan, December 2022.

sources that would generate air quality emissions. Citywide it is difficult to estimate these patterns of growth. However, the Citywide analysis is included below.

Construction Emissions

Future development implementing the 2024 GPU would result in air pollutant emissions generated during construction activities. Construction emissions would occur from the burning of fossil fuels and the generation of PM through fugitive dust and fuel combustion. Construction vehicles such as hauling trucks and ground-moving machinery would contribute to temporarily increased pollutant emissions. Construction activities during phases such as demolition, site grading, and road paving would also result in the generation of emissions.

Fugitive dust emissions may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the vicinity of the individual construction site(s). Uncontrolled dust from construction can become a nuisance and potential health hazard to those working and living nearby.

Construction activities associated with future development would occur in incremental phases over time based upon numerous factors, including market demand and economic and planning considerations. Construction activities could include grading, demolition, excavation, cut-and-fill, paving, building construction, and application of architectural coatings. In addition, construction worker vehicle trips, building material deliveries, soil hauling, etc. would occur during construction. Construction-related emissions are typically site-specific and depend upon multiple variables. Quantifying individual future developments' air emissions from short-term, temporary construction-related activities is not possible due to project-level variability and uncertainties concerning detailed site plans, construction schedules/duration, equipment requirements, etc., among other factors, which are presently unknown. Since these parameters can vary widely, and individual project-related construction activities would occur over time which is dependent upon numerous factors, quantifying precise construction-related emissions and impacts would be impractical and speculative. Citywide construction could overlap and occur simultaneously at variety of project sites. The emissions of criteria pollutants for Citywide construction in 2024 and 2040 are reported in **Table 10: Project Construction Criteria Pollutant Emissions**. This analysis would include equipment registered in Riverside County scaled down to the individual City land mass. Therefore, this is a conservative worst-case estimate.

Table 10: Project Construction Criteria Pollutant Emissions

Construction Year	Maximum Pounds Per Day					
	VOC[1]	NO_X	CO	SO_x	PM10	PM2.5
2024	190	1,464	2,019	4	68	62
2040	142	474	1,986	3	21	18
SCAQMD Thresholds	***75***	***100***	***550***	***150***	***150***	***55***
Exceed SCAQMD Threshold?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

VOC = Volatile Organic Compounds; NO_X = Nitrogen Oxides; CO = Carbon Monoxide; SO_x = Sulfur Dioxide; PM10 = Particulate Matter 10 microns in diameter or less; PM2.5 = Particulate Matter 2.5 microns in diameter or less
1. Note in CalEEMod shown as ROG. (Reactive Organic Gases).

Refer to Appendix A for calculations.

The results summarized in **Table 10** show that the Project's regional criteria pollutant emissions during construction would exceed applicable thresholds for VOC, NO_X, and CO. Pollutants such as SO_X, PM10, and PM2.5, would not exceed applicable thresholds. However, compared to baseline construction emissions (2024 construction year) criteria pollutants such as VOC, NO_X, PM10, and PM2.5 would decrease as construction equipment fleets became cleaner. CO and SO_X would remain relatively consistent due to lack of technology readily commercially available for those pollutants. Depending on how development proceeds, construction-related emissions associated with future individual development could exceed SCAQMD thresholds of significance.

Operational Emissions

According to the SCAQMD guidance on General Plans the AQMD and CARB have strong, comprehensive regulatory programs for new and existing sources of air pollution. However, local policies can enhance the effectiveness of these programs by addressing cumulative impacts in local areas. Note that SCAQMD significance thresholds for criteria pollutants do not distinguish between project-level Environmental Impact Reports (EIRs) (e.g., for an individual development) and program-level EIRs (e.g., for a long-range plan). The 2024 GPU addresses the development of various land uses on a programmatic level. Therefore, the application of the SCAQMD thresholds for individual project-level impacts to a Citywide land use plan within a program-level EIR is highly conservative.

As described above, operations of future development projects under implementation of the 2024 GPU would result in emissions of area sources (e.g., consumer products, architectural coating, and landscape equipment), energy sources (i.e., natural gas usage for space and water heating and cooking), and mobile sources (i.e., motor vehicles from vehicle trips generated by implementing the 2024 GPU). Although no specific development projects are proposed at this time, future development operational emissions would be associated with area sources, energy sources, and mobile sources.

In analyzing cumulative impacts an analysis must specifically evaluate a development's contribution to the cumulative increase in pollutants for which the CARB is designated as nonattainment for the CAAQSs and NAAQSs. The Basin is designated as a federal nonattainment area for O_3, and PM2.5. The Basin is designated as a state nonattainment area for O_3, PM2.5, and PM10. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the Basin. The nonattainment status of these and other criteria pollutants are presented in **Table 7**. Future development would be required to demonstrate that VOC, NO_x, CO, SO_2, PM10, and PM2.5 emissions would be below the significant thresholds for both construction and operational activities. Shown below, **Table 11: Operational Criteria Pollutant Emissions**, presents the criteria air pollutant emissions for Citywide operational in 2024 (existing) and 2040.

Table 11: Operational Criteria Pollutant Emissions

Source	Maximum Pounds Per Day[1]					
	VOC	NO_X	CO	SO_x	PM10	PM2.5
2024 Existing						
Area	4,902	142	16,392	1	1	1
Energy	33	1,111	263	4	45	45
Mobile [2]	3,298	3,890	31,941	73	4,240	1,102
Total Emissions	**8,233**	**5,142**	**48,596**	**78**	**4,286**	**1,148**
2040 Operations						
Area	5,956	200	23,223	1	1	1
Energy	59	1,573	457	7	82	82
Mobile[2]	2,721	2,509	27,936	78	6,024	1,536
Total Emissions	**8,736**	**4,283**	**51,617**	**86**	**6,107**	**1,620**
Net	+503	-859	+3,020	+8	+1,821	+472

VOC = Volatile Organic Compounds; NO_X = Nitrogen Oxides; CO = Carbon Monoxide; SO_x = Sulfur Dioxide; PM10 = Particulate Matter 10 microns in diameter or less; PM2.5 = Particulate Matter 2.5 microns in diameter or less.
1. Total emissions may be off due to rounding.
3. The mobile emissions include brake wear, tire wear, re-entrained road dust, and vehicle exhaust.

Refer to Appendix A for calculations.

5.3 Threshold 3: Sensitive Receptors

Would the Project expose sensitive receptors to substantial pollutant concentrations?

Localized Pollutant Concentrations Analysis

As the specific details (e.g., size, construction phasing, equipment, earthwork volumes, etc.) for individual future residential projects are unknown at this time, project-level analysis for localized pollutant concentrations impacts cannot be accurately determined using SCAQMD's LST analysis methodology. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the Final Localized Significance Threshold Methodology (dated June 2003 [revised July 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level projects and are not applicable to regional projects such as general plans or other long-term planning documents. The SCAQMD provides the LST lookup tables based on distance from the project (meters) for one-, two-, and five-acre projects emitting CO, NO_X, PM10, or PM2.5. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

As previously described, LSTs are applicable at the project-specific level and are not applicable to long-term planning documents such as a general plan. Depending on the size and location of each individual future development, construction and operational emissions could exceed LSTs. Future development projects' compliance with policies proposed in the 2024 GPU pertaining to air quality, SCAQMD rules and regulations, and supplemental mitigation measures (if required) would reduce air pollutant emissions. However, the potential emissions reductions from implementation of these measures cannot be quantified because specific details such as individual project size,

construction scheduling, and earthwork quantities that would occur within the City is not available. Therefore, it is not feasible to conclude that air pollutant emissions from future development projects would be reduced to levels below the SCAQMD LST thresholds. Therefore, localized air quality impacts would be significant and unavoidable.

Toxic Air Contaminants

One of the highest public health priorities is the reduction of DPM generated by vehicles on California's freeways and highways, as it is one of the primary TACs with the most direct and common implications for respiratory health problems. Per CARB criteria, heavily traveled roadways where ADT volumes exceed 100,000 vehicles can be sources of DPM from diesel-fueled engines (e.g., heavy-duty trucks). As discussed above, implementation of the 2024 GPU does not propose any development; however, it would facilitate future development. Future development under the implementation of the 2024 GPU is evaluated at a programmatic level, as discussed above. Future development projects will vary regarding construction intensity, duration, and location, and impacts of air quality will vary as well.

As described above, the MATES V study represents the baseline health risk for a cumulative analysis. MATES V estimates the average excess cancer risk level from exposure to TACs is 424 in one million Basin-wide. These model estimates were based on monitoring data collected at ten fixed sites within the Basin. None of the fixed monitoring sites are near the Project site.[33] However, MATES V has extrapolated the excess cancer risk levels throughout the Basin by modeling the specific grids. MATES V modeling predicted an excess cancer risk of 359 in one million in Moreno Valley. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for approximately 70.8 percent of the total risk.

Mobile Source Air Toxics (MSAT) include nine compounds with significant contributions from mobile sources that are among the highest cancer risk drivers. These priority MSAT include 1,3-butadiene, acetaldehyde, acrolein, benzene, DPM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter.[34] DPM is the dominant component making up 36 to 56 percent of all priority MSAT pollutants by mass, depending on year analyzed. The MSAT analysis is primarily intended for highway projects, however as traffic volumes on roadways within the City would increase a qualitative MSAT analysis is provided.

According to the FHWA (Federal Highway Administration) guidance (2023) projects with potential to have meaningful differences in MSAT between alternatives should

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or

[33] The Rubidoux MATES Monitoring Station is the closest to Moreno Valley (located approximately 10 miles to the northwest) and has a residential cancer risk of 769 per million (https://experience.arcgis.com/experience/79d3b6304912414bb21ebdde80100b23?views=view_38).

[34] Federal Highway Administration, Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, January 2023, https://www.fhwa.dot.gov/ENVIRonment/air_quality/air_toxics/policy_and_guidance/msat/fhwa_nepa_msat_memorandum_2023.pdf, accessed January 2025.

- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT (average annual daily traffic) is projected to be in the range of 140,000 to 150,000 or greater by the design year;

  And also

- Be proposed to be located in proximity to populated areas.

The proposed 2024 GPU would not fall into any of the three categories listed above. See the HEHRA prepared by Kimley_Horn for a more detailed explanation.

Construction Health Risk

Exhaust from diesel engines contains a mixture of gases and solid particles. These solid particles are known as DPM. DPM contains hundreds of different chemicals, many of which are harmful to human health. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur throughout the project sites of individual future development projects under implementation of the 2024 GPU.

The specific locations, amount of heavy equipment use, and duration of construction activity resulting from implementation of the 2024 GPU are not currently known. Future development projects would be subject to various regulations to minimize construction exhaust. For example, in accordance with California Off-Road Diesel-Fueled Fleet Regulations, equipment operators shall be registered using the Diesel Off-Road Online Reporting System (DOORS), and diesel-powered construction equipment with 25 horsepower or greater engines shall meet exhaust PM and NO_X emissions standards. Additionally, Section 2485 and Section 2449 of Title 13 of the CCR (California Code of Regulations) limits diesel-fueled motor vehicle idling to no more than five minutes. Section 2449 limits idling for off-road diesel-fueled fleets. Section 2485 limits idling for diesel-fueled commercial motor vehicles with GVWRs of greater than 10,000 pounds that are or must be licensed to operate on publicly maintained highways and streets within California. Construction implementing the 2024 GPU is subject to and would comply with California regulations limiting equipment exhaust and limiting heavy-duty construction equipment idling to no more than five minutes, which would further reduce potential diesel exhaust emissions from construction. Additionally, entitlements for large projects are typically subject to discretionary approvals, and subsequent air quality analysis is required pursuant to CEQA to demonstrate that projects would not result in air quality impacts at nearby receptors.

As noted above, construction activities would limit idling to no more than five minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense period of construction, emissions of DPM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time. However, construction heath risk would result in a

potentially significant impact.

Operational Health Risk

The Health Effects and Health Risk Assessment (HEHRA) includes background, methodology, and analysis for the dispersion modeling prepared for the proposed 2024 GPU. The reported annual pollutant concentrations in **Table 12: Carcinogenic Risk Assessment** are at the closest maximally exposed individual (MEI) to the sources of DPM for each industrial area.

Table 12: Carcinogenic Risk Assessment

Location/Receptor Type		Cancer Risk (Risk per Million)[1]		Significance Threshold (Risk per Million)	Exceeds Significance Threshold?
Area	**Description**	**2024**	**2040**		
Residential Receptors					
Area 1	Western Terminus of Carman Lane, northwest of the Iris Ave. and St. Croix St. intersection	2.94	3.38	10	No
Area 2	Northeast corner of the Cottonwood Ave. and Edgemont St. intersection	5.36	6.97	10	No
Area 3	North of Ironwood Ave., between Davis St. and Kevin St.	4.19	6.07	10	No
Area 4	Redlands Blvd., between Encelia Ave. and Eucalyptus Ave.	4.98	7.02	10	No
Area 5	Northwest corner of Lexington Way and Canterbury Downs Way	2.32	4.35	10	No
Student Receptors					
Area 1	Rainbow Ridge Elementary School, 15950 Indian St.	0.28	0.28	10	No
Area 2	Pacific View Charter School, 22695 Alessandro Blvd.	1.50	2.09	10	No
Area 3	Options for Youth, 23651 Sunnymead Blvd.	1.04	1.45	10	No
Area 4	Calvary Chapel Christian School, 28010 Ironwood Ave.	1.94	2.34	10	No
Area 5	Ridge Crest Elementary School, 28500 John F Kennedy Dr.	1.81	2.32	10	No
Worker Receptors					
Area 1	Eastern Municipal Water District, southwest corner of the Edwin Road and Kitching St. intersection	0.47	0.63	10	No
Area 2	Northwest corner of Cottonwood Ave. and Old 215 Frontage Rd. intersection	1.62	1.72	10	No
Area 3	Northwest corner of Hemlock Ave and Heacock St.	1.88	2.60	10	No
Area 4	Eucalyptus Ave. east of B St. (Riverside County Fire Station)	0.57	0.76	10	No
Area 5	Southwest of the SR 60 and Redlands Blvd. interchange	0.32	0.50	10	No

1. The reported annual pollutant concentration is at the closest maximally exposed individual (MEI) to the Project. The exposure duration for 2040 conditions were conservatively modeled to start in 2025 to use worst-case emissions rates.
Source: Refer to Health Effects and Health Risk Assessment (HEHRA).

As shown in **Table 12** the cancer risk for each area would not exceed SCAQMD's 10 in one million threshold, see the HEHRA for more details.

The significance thresholds for TAC exposure also require an evaluation of non-cancer risk stated in terms of a hazard index. Non-cancer chronic impacts are calculated by dividing the annual average concentration by the REL for that substance. The REL is defined as the concentration at which no adverse non-cancer health effects are anticipated. RELs are designed to protect sensitive individuals within the population. According to OEHHA, the REL for DPM is 5 and the target organ is the respiratory system.[35]

Chronic non-carcinogenic impacts are shown in **Table 13**. A chronic hazard index of 1.0 is considered significant. The hazard index is calculated by dividing the chronic exposure by the reference exposure level. The chronic hazard was calculated based on the highest annual average concentration at the MEIR (Maximum Exposed Individual Resident). It should be noted that there is no acute REL for DPM and acute health risk cannot be calculated.

Table 13: Chronic Hazard Assessment

Location/Receptor Type		Chronic Hazard		Hazard Index Threshold	Exceeded?
Area	**Description**	**2024**	**2040**		
Residential Receptors					
Area 1	Western Terminus of Carman Lane, northwest of the Iris Ave. and St. Croix St. intersection	0.0010	0.0008	1	No
Area 2	Northeast corner of the Cottonwood Ave. and Edgemont St. intersection	0.0018	0.0017	1	No
Area 3	North of Ironwood Ave., between Davis St. and Kevin St.	0.0014	0.0017	1	No
Area 4	Redlands Blvd., between Encelia Ave. and Eucalyptus Ave.	0.0017	0.0021	1	No
Area 5	Northwest corner of Lexington Way and Canterbury Downs Way	0.0008	0.0012	1	No
Student Receptors					
Area 1	Rainbow Ridge Elementary School, 15950 Indian St.	0.0009	0.0007	1	No
Area 2	Pacific View Charter School, 22695 Alessandro Blvd.	0.0048	0.0045	1	No
Area 3	Options for Youth, 23651 Sunnymead Blvd.	0.0034	0.0040	1	No
Area 4	Calvary Chapel Christian School, 28010 Ironwood Ave.	0.0063	0.0072	1	No
Area 5	Ridge Crest Elementary School, 28500	0.0058	0.0071	1	No

[35] California Office of Environmental Health Hazard Assessment, *OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary*, available at https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary.

	John F Kennedy Dr.				
Worker Receptors					
Area 1	Eastern Municipal Water District, southwest corner of the Edwin Road and Kitching St. intersection	0.0007	0.0007	1	No
Area 2	Northwest corner of Cottonwood Ave. and Old 215 Frontage Rd. intersection	0.0024	0.0019	1	No
Area 3	Northwest corner of Hemlock Ave and Heacock St.	0.0028	0.0034	1	No
Area 4	Eucalyptus Ave. east of B St. (Riverside County Fire Station)	0.0008	0.0010	1	No
Area 5	Southwest of the SR 60 and Redlands Blvd. interchange	0.0005	0.0006	1	No
1. The reported annual pollutant concentration is at the closest maximally exposed individual (MEI) to the Project					
Source: Refer to Health Effects and Health Risk Assessment (HEHRA).					

The highest maximum chronic hazard index associated with DPM emissions from industrial operations within the City would be 0.0021 at the residential receptor in Area 4, 0.0072 at the student receptors in Area 4, and 0.0034 at the worker receptor in Area 3. However, these levels are far below the hazard index threshold of 1. Therefore, chronic hazard impacts are less than significant, see HEHRA for more details.

Industrial Land Uses

Warehousing or industrial operations generate substantial DPM emissions from off-road equipment use, truck idling, and/or use of transport refrigeration units for cold storage. Implementation of the 2024 GPU would accommodate approximately 41.1 million square-feet of additional industrial or warehousing developments that could generate new sources of TACs.

However, due to the programmatic level of this analysis the specific location or types of projects and timing are unknown. Additionally, development of future sensitive receptors within 1,000 feet of industrial sources or the development of industrial sources within 1,000 feet of sensitive receptors would require a more detailed site-specific analysis of TAC impacts, as required by Mitigation Measure AQ-5. Implementation of 2024 GPU policies, AB 98, and Mitigation Measure AQ-5 would reduce localized impacts from existing and future development in the City. AB 98 requires new logistics development to adhere to standards related to setbacks, buffers, air quality mitigation, and the use of zero-emission equipment. The intent of AB 98 is to create a more equitable and sustainable approach to goods movement and reduce disproportionate burdens on vulnerable communities, promote cleaner industrial practices, and balance economic development with public health and environmental justice. In addition, per SCAQMD Rule 1401, applicable land uses would be required to obtain a permit and install best available control technology. Therefore, air toxic impacts could result in a less than significant impact.

Permitted Stationary Sources

Various industrial and commercial processes (e.g., manufacturing, dry cleaning) allowed under the proposed land use plan would be expected to release TACs. Industrial land uses, such as chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities have the potential to be substantial stationary sources that would require a permit from SCAQMD.

Emissions of TACs would be controlled by SCAQMD through permitting and would be subject to further study and HRAs prior to the issuance of any necessary air quality permits under SCAQMD Rule 1401, which would ensure less than significant impacts.

5.4 Threshold 4: Other Emissions

Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Construction

Future development implementing the 2024 GPU could result in odors from construction equipment, such as diesel exhaust, and VOCs from architectural coatings and paving activities. Odors that could be generated by construction activities are required to follow SCAQMD Rule 402 to prevent odor nuisances on sensitive land uses. SCAQMD Rule 402, Nuisance, states:

> *A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.*

Additionally, SCAQMD Rule 1113 limits the allowable amount of VOCs from architectural coatings and solvents. These odors are a temporary short-term impact that is typical of construction projects and would disperse rapidly. Since compliance with SCAQMD Rules governing these compounds is mandatory, no construction activities or materials are proposed that would create objectionable odors adversely affecting a substantial number of people. Therefore, no significant impact would occur, and no mitigation is required.

Operational

Although offensive odors rarely cause physical harm, they can be unpleasant and generate citizen complaints. SCAQMD Rule 402 (Nuisance) places general limitations on nuisances including odors. These limitations are based on complaints and enforced by the local air pollution control officer. The SCAQMD CEQA Air Quality Handbook identifies certain land uses as sources of odors. These land uses include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The 2024 GPU would not include any of the land uses that have been identified by the SCAQMD as odor sources. Therefore, implementation of the 2024 GPU would not create objectionable odors, and a less than significant impact would occur.

Therefore, approval of the 2024 GPU would not result in any significant effects relating to other odor emissions affecting substantial numbers of people.

6.0 CUMULATIVE ANALYSIS

The cumulative setting for air quality includes the City and the Basin. The Basin is designated as a nonattainment area for State standards of O_3, PM10, and PM2.5. For federal standards, the Basin is

designated as a partial nonattainment area for lead and nonattainment for ozone and PM2.5, attainment and serious maintenance for federal PM10 standards, and unclassified or attainment for all other pollutants. Cumulative growth in population and vehicle use could inhibit efforts to improve regional air quality and attain the ambient air quality standards. However, as a result of plans and regulations, air quality in the Basin has improved over time despite population growth and increased ~~in~~ vehicle usage.

6.1 Cumulative Impacts

Conflict with Applicable Air Quality Plan

Implementation of the 2024 GPU does not encourage or promote growth beyond the SCAG forecasts of regional growth. Additionally, implementation of the 2024 GPU would not conflict with the implementation of AQMP TCMs and would include policies to further reduce air pollutant emissions through the promotion of transportation and land use design factors. Therefore, implementation of the 2024 GPU would not conflict with the growth assumptions used in the development of the AQMP. Like direct air quality impacts, cumulative air quality impacts would be less than significant.

Increase of Criteria Pollutants

Cumulative development could violate an air quality standard or contribute to an existing or projected air quality violation because the Basin is currently in nonattainment for O_3, PM10, and PM2.5. Regarding daily emissions and the cumulative net increase of any criteria pollutant for which the region is in nonattainment, implementation of the 2024 GPU would result in a cumulatively considerable increase to nonattainment of O_3, PM10, and PM2.5 standards in the Basin. Regarding the contribution from implementation of the 2024 GPU, the SCAQMD has recommended methods to determine the cumulative significance of new land use projects. The SCAQMD methods are based on performance standards and emission reduction targets necessary to attain NAAQSs and CAAQSs as predicted in the AQMP. Because no information on individual projects is currently available, cumulative construction and operational emissions cannot be accurately quantified. Therefore, the contribution of daily construction and operational emissions from implementation of the 2024 GPU is considered cumulatively significant and unavoidable.

Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Cumulative development has the potential to expose sensitive receptors to substantial pollutant concentrations. However, future projects implementing the 2024 GPU would be subject to regulations regarding emissions in effect at the time of entitlement application for future development projects. Current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. Furthermore, SCAQMD's MATES V shows that carcinogenic risk from air toxics in the Basin, based on the average concentrations at the 10 monitoring sites, is approximately 40 percent lower than the monitored average in MATES IV and 84 percent lower than the average in MATES II.[36] The results of the SCAQMD's ongoing research in air toxics shows that risk levels are decreasing despite development

[36] South Coast Air Quality Management District, MATES V Final Report, page ES-16, 2021. http://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf?sfvrsn=6, accessed November 2024.

and vehicle traffic growth. This trend is expected to continue with the implementation of the various Code Statewide policies focused on reducing mobile source emissions.

Furthermore, for future development projects subject to discretionary review, compliance with Mitigation Measures AQ-1 through AQ-5 would be required. Therefore, implementation of the 2024 GPU would result in a less-than-significant cumulative impact associated with the exposure of sensitive receptors to substantial pollutant concentrations and operational health risk. However, as no information on individual projects is currently available, cumulative construction health risk cannot be accurately quantified. Therefore, the contribution of construction health risk from implementation of the 2024 GPU is considered cumulatively significant and unavoidable.

Objectionable Odors

Current projects anticipated for construction implementing the 2024 GPU involve residential, commercial, and industrial developments. Odors resulting from the construction of projects implementing 2024 GPU are not likely to affect a substantial number of people, given that construction activities are localized, and odors would cease upon completion of construction. Other odor impacts resulting from the operation of these projects are also not expected to affect a substantial amount of people, as solid waste from these projects would be stored in areas and in containers as required by the City. Therefore, construction and operation activities associated with implementation of the 2024 GPU would result in a less than significant cumulative impact related to objectionable odors affecting a substantial number of people.

7.0 SIGNIFICANCE OF IMPACTS BEFORE MITIGATION

7.1 Threshold 1: Air Quality Plan

As mentioned earlier, buildout of the 2024 GPU would not be consistent with the AQMP under the first criterion. **Table 9** shows that the implementation of the 2024 GPU would result in a decrease in VMT because of population growth; however, VMT per service population would increase from the existing conditions. Therefore, implementation of the 2024 GPU would result in significant and unavoidable transportation impacts related to VMT. As such, implementation of the 2024 GPU would not be consistent with the AQMP under the first criterion.

7.2 Threshold 2: Ambient Air Quality Standards

Without mitigation, the construction and operations associated with future development that would be accommodated under the 2024 GPU could generate short-term (construction) and long-term (operations) emissions in exceedance of the SCAQMD's threshold criteria. Therefore, impacts would be considered potentially significant.

7.3 Threshold 3: Sensitive Receptors

Localized construction and operational emissions associated with future development that would be accommodated under the 2024 GPU could exceed the SCAQMD's LST and health risk thresholds. Therefore, construction and operational impacts related to sensitive receptors would be considered potentially significant.

7.4 Threshold 4: Other Emissions

With compliance with 2024 GPU policies and SCAQMD Rules 402 and 1113, impacts related to construction and operational odor impacts would be less than significant.

8.0 MITIGATION

8.1 Threshold 1: Air Quality Plan

Refer to Mitigation Measure AQ-1 through Mitigation Measure AQ-5. At a programmatic level of analysis, there are no feasible mitigation measures that would reduce air quality impacts associated with development facilitated by the 2024 GPU. Future construction and operational emissions would conflict with implementation of the AQMP. Impacts remain significant and unavoidable.

8.2 Threshold 2: Ambient Air Quality Standards

Impacts related to construction and operational air quality emissions would be significant and the following mitigation shall be applied to future development:

AQ -1: Proposed development projects that are not exempt from CEQA shall have construction and operational air quality impacts analyzed using the latest available air emissions model, or other analytical method determined in conjunction with the SCAQMD. The results of the air quality impact analysis shall be included in the development project's CEQA documentation. To address potential localized impacts, the air quality analysis shall incorporate SCAQMD's Localized Significance Threshold (LST) analysis or other appropriate analyses as determined in conjunction with the SCAQMD. If such analyses identify potentially significant regional or local air quality impacts, the City shall require the incorporation of appropriate mitigation to reduce such impacts to the greatest extent feasible.

AQ-2: Applicants for future discretionary development projects which will generate construction-related fugitive dust emissions that exceed applicable thresholds shall include, but are not limited to, the mitigation measures recommended by SCAQMD's CEQA Air Quality Handbook, to the extent technically and logistically feasible and applicable. The measures shall be included as notes on the grading and/or demolition plans:

- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excess amounts of dust.
- Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of watering (preferably reclaimed water, if available) should penetrate sufficiently to minimize fugitive dust during grading activities. This measure can achieve PM10 reductions of 61 percent through application of water every three hours to disturbed areas.
- Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:

- All trucks shall be required to cover their loads as required by California Vehicle Section Code 23114. Covering loads and maintaining a freeboard height of 12 inches can reduce PM10 emissions by 91 percent.
- All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering at not less than three hour intervals, application of environmentally safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible. Application of water every three hours to disturbed areas can reduce PM10 emissions by 61 percent.

- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until grass growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust. Replacement of ground cover in disturbed areas can reduce PM10 emissions by 5 percent.
- Signs shall be posted on-site limiting traffic to 15 miles per hour or less. This measure can reduce associated PM10 emissions by 57 percent.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties; instantaneous wind speeds exceeding 25 miles per hour), all clearing, grading, earth-moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with SCAQMD when winds are excessive (above 25 miles per hour).
- Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
- Personnel involved in grading operations, including contractors and subcontractors, shall be required to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

AQ -3: Applicants for future discretionary development projects that would generate construction-related emissions that exceed applicable thresholds, shall include, but are not limited to, the mitigation measures recommended by the SCAQMD (in its CEQA Air Quality Handbook or otherwise), to the extent technically and logistically feasible and applicable to the project. The types of measures shall include but are not limited to:

- Construction haul truck operators for demolition debris and import/export of soil shall use trucks that meet CARB's 2020 engine emissions standards of 0.01 grams per brake horsepower-hour of particulate matter (PM) and 0.20 grams per brake horsepower-hour of NO_X emissions. Operators shall maintain records of all trucks associated with project construction to document that each truck used meets these emission standards and shall provide these records prior to grading permit issuance to the City.

- Vehicle idling shall be limited to five minutes as set forth in California Code of Regulations Title 13, Article 4.8, Section 2449. Signs shall be posted in areas where they will be seen by vehicle operators stating idling time limits. This requirement shall be included on the plans.

- Construction contractors shall utilize construction equipment that uses low polluting fuels (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) to the extent that they are available and feasible to use. This requirement shall be included on the plans.

- Heavy duty diesel-fueled equipment shall use low NO_X diesel fuel to the extent that it is available and feasible to use. This requirement shall be included on the plans.

- Construction contractors shall use electricity from power poles rather than temporary gasoline or diesel-powered generators, as technically and logistically feasible, or solar where available. This requirement shall be included on the plans.

- Construction contractors shall maintain construction equipment in good, properly tuned operating condition, as specified by the manufacturer, to minimize exhaust emissions. Documentation demonstrating that the equipment has been maintained in accordance with the manufacturer's specifications shall be shared with the City prior to permit issuance.

- Construction contractors shall reroute construction trucks away from congested streets or sensitive receptor areas, as technically and logistically feasible. This requirement shall be included on the plans.

8.3 Threshold 3: Sensitive Receptors

Impacts related to sensitive receptors would be significant and the following mitigation shall be applied to future development.

AQ – 4: Prior to issuance of a grading permit, if two or more dust-generating construction projects occur within 1,000 meters of each other, which collectively will disturb 15 acres or more and which have demolition, excavation, or grading activity scheduled to occur concurrently, a Localized Significance Threshold analysis shall be prepared. If the LST analysis determines that the established Localized Significance Thresholds for NOx, PM2.5, or PM10 would be exceeded, then modifications to construction equipment profiles, modifications to construction schedules, or additional pollution reduction measures shall be implemented.

AQ - 5 A project-specific Health Risk Assessment (HRA) shall be conducted for future industrial development proposed within 900 feet of sensitive receptors, pursuant to the recommendations set forth in the CARB Air Quality and Land Use Handbook and AB 98. The HRA shall evaluate a project per the following SCAQMD thresholds:

- Carcinogens: Maximally Exposed Individual risk equals or exceeds 10 in one million. For cumulative cancer risk, the maximum exposed individual risk equals or exceeds significance thresholds established by the SCAQMD. Cancer burden exceeds 0.5 excess cancer cases in areas greater than 1 in 1 million.
- Non-Carcinogens: Emit toxic contaminants that equal or exceed 1 for the Maximally Exposed Individual.

If projects are found to exceed the SCAQMD's thresholds, mitigation, including but not limited to requiring heavy-duty trucks, forklifts and/or yard trucks to be zero-emission, forbidding trucks from idling for more than three minutes, installing photo-voltaic systems, running conduit for future electric truck charging, requiring all stand-by generators to be non-diesel, designing to LEED green building certifications, and improving vegetation and tree canopy for shade, shall be incorporated to reduce impacts to below SCAQMD thresholds. The HRA shall be submitted to the City Planning Department prior to issuance of building permits for any future discretionary residential or residential mixed-use project.

8.4 Threshold 4: Other Emissions

Impacts would be less than significant. No mitigation is required.

9.0 SIGNIFICANCE OF IMPACTS AFTER MITIGATION

9.1 Threshold 1: Air Quality Plan

As described above, at a programmatic level of analysis, there are no feasible mitigation measures that would reduce air quality impacts associated with development facilitated by the General Plan Update. Future construction and operational emissions would conflict with the AQMP. Impacts remain significant and unavoidable.

9.2 Threshold 2: Ambient Air Quality Standards

Construction

Buildout of the 2024 GPU would generate short-term construction emissions that would exceed the SCAQMD's regional significance thresholds and cumulatively contribute to the nonattainment designations of the Basin. Implementation of Mitigation Measures AQ-1 through AQ-5 and compliance with the 2024 GPU goals and policies would reduce construction-related air pollutant emissions. However, individual projects implementing the 2024 GPU may exceed the SCAQMD's regional significance thresholds. Therefore, construction-related regional air quality impacts of developments that would be accommodated by implementation of the 2024 GPU under Impact 5.2 would remain significant and unavoidable.

Operational

Buildout of the 2024 GPU would generate operational emissions that would exceed SCAQMD's regional significance thresholds and cumulatively contribute to the nonattainment designations of the Basin. Mitigation Measure AQ-5, in addition to the 2024 GPU goals and policies, would reduce air pollutant emissions. The conditions and policies covering topics such as expansion of the pedestrian and bicycle networks, promotion of public and active transit, and support to increase building energy efficiency and energy conservation would also reduce criteria air pollutants within the City. However, Impact 5.2 would remain significant and unavoidable due to the magnitude of the overall land use development associated with the implementation of the 2024 GPU. Impact 5.2 would remain significant and unavoidable.

9.3 Threshold 3: Sensitive Receptors

Criteria Pollutant Health Effects

Contributing to the nonattainment status would also contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to O_3 include worsening of bronchitis, asthma, emphysema, and a decrease in lung function. Health effects associated with DPM include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

To determine cancer and noncancer health risk, the location, velocity of emissions, meteorology and topography of the area, and locations of receptors are equally important model parameters as the quantity of TAC emissions. The Association of Environmental Professionals (AEP) white paper titled "We Can Model Regional Emissions, But Are the Results Meaningful for CEQA?"[37] describe several of the challenges of quantifying local effects, particularly health risks, for large-scale, regional projects; these challenges are applicable to both criteria air pollutants and TACs.[38] The following summarizes major points about the infeasibility of assessing health risks of criteria air pollutant emissions and TACs associated with the implementation of a general plan.

To achieve and maintain NAAQSs and CAAQSs, the SCAQMD has established numerical emission indicators of significance for regional and localized air quality impacts for both construction and operational phases of a local plan or project. The SCAQMD has established the thresholds based on "scientific and factual data that is contained in the federal and state Clean Air Acts" and recommends "that these thresholds be used by lead agencies in making a determination of significance."[39] The numerical emission indicators are based on the recognition that the Basin is a distinct geographic area with a critical air pollution problem for which AAQSs have been promulgated to protect public health. The thresholds represent the maximum emissions from a plan or project that are expected not to cause or contribute to an exceedance of the most stringent applicable national or State AAQSs. By analyzing the plan's emissions against the thresholds, an EIR assesses whether these emissions directly contribute to any regional or local exceedances of the

[37] AEP, Carbon Neutrality, CEQA, and Climate Action Planning, 2025, https://www.califaep.org/climate_change.php, accessed April 2025.

[38] Ibid.

[39] SCAQMD, *CEQA Air Quality Handbook 1993*, Page 6-2.

applicable NAAQSs and CAAQSs.

The SCAQMD currently does not have methodologies that would provide the City with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from implementation of a proposed project's mass emissions.[40] For criteria air pollutants, exceedance of the regional significance thresholds cannot be used to correlate a project to quantifiable health impacts unless emissions are sufficiently high to use a regional model. The SCAQMD has not provided methodology to assess the specific correlation between mass emissions generated and their effect on health.

Ozone concentrations depend on a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Secondary formation of PM and O_3 can occur far from sources due to wind and topography (e.g., low-level jet stream). Photochemical modeling depends on all emission sources in the entire domain (i.e., modeling grid). Low resolution and spatial averaging produce "noise" and modeling errors that usually exceed individual source contributions. Because of the complexities of predicting ground-level O_3 concentrations in relation to the NAAQSs and CAAQSs, it is not possible to meaningfully link health risks to the magnitude of emissions exceeding the significance thresholds.

Current models used in CEQA air quality analyses are designed to estimate potential project construction and operation emissions for defined projects. The estimated emissions are compared to significance thresholds, which are keyed to reducing emissions to levels that will not interfere with the region's ability to attain the health-based NAAQSs and CAAQSs. This serves to protect public health in the overall region, but there is currently no CEQA methodology to determine the impact of emissions (e.g., pounds per day) on future concentration levels (e.g., parts per million or micrograms per cubic meter) in specific geographic areas. CEQA thresholds, therefore, are not specifically tied to potential health outcomes in the region.

The EIR prepared for a local general plan must provide an analysis that is understandable for decision making and public disclosure. Regional-scale modeling may provide a technical method for this type of analysis, but it does not necessarily provide a meaningful way to connect the magnitude of a project's criteria pollutant emissions to health effects without speculation. Additionally, this type of analysis is not feasible at a general plan level because the locations of emissions sources and quantities of emissions are not known. As a result, it would be speculative to provide numbers of the additional cases of the various health impacts that are likely to result from the implementation of the 2024 GPU. However, because cumulative development within the City would exceed the regional significance thresholds, implementation of the 2024 GPU could contribute to an increase in health effects in the Basin until the attainment standards are met in the

[40] In April 2019, the Sacramento Metropolitan Air Quality Management District (SMAQMD) published an Interim Recommendation on implementing *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 ("Friant Ranch") in the review and analysis of proposed projects under CEQA in Sacramento County. The SMAQMD guidance confirms the absence of an acceptable or reliable quantitative methodology that would correlate the expected criteria air pollutant emissions of projects to likely health consequences for people from project-generated criteria air pollutant emissions. The SMAQMD guidance explains that while it is in the process of developing a methodology to assess these impacts, lead agencies should follow the Friant Court's advice to explain in meaningful detail why this analysis is not yet feasible. Since this interim memorandum SMAQMD has provided methodology to address health impacts. However, a similar analysis is not available for projects within the SCAQMD region.

Basin.

Localized Pollutant Concentrations

Mitigation Measure AQ-5 would reduce the regional construction and operation emissions associated with buildout of the 2024 GPU and therefore would also result in a reduction of localized construction- and operation-related criteria air pollutant emissions to the extent feasible. However, because existing sensitive receptors may be near construction activities and large emitters of on-site operation-related criteria air pollutant emissions generated by individual development projects accommodated by the 2024 GPU, construction and operation emissions generated by such projects have the potential to exceed SCAQMD's LSTs Overall, Impact 5.3 would remain significant and unavoidable.

Health Risk

Mitigation Measure AQ-5 would also reduce the construction and operation health risk associated with buildout of the 2024 GPU and therefore would also result in a reduction of health risks to the extent technically and logistically feasible. However, because existing sensitive receptors may be near construction activities and large emitters of on-site operation-related health risk generated by individual development projects accommodated by the implementation of the 2024 GPU, construction and operation health risk generated by such projects have the potential to exceed SCAQMD's health risk thresholds. Overall, Impact 5.3 would remain significant and unavoidable for construction risk and less than significant with mitigation for operational health risk.

9.4 Threshold 4: Other Emissions

Impacts would be less than significant. No mitigation is required.

10.0 REFERENCES

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Appendix A

AIR QUALITY MODELING DATA

SCAQMD FIND Data

	A	B	D	E	F	G
1	Facility ID	Facility Name	Title V	Facility Address	Facility Sta	Use
2						
3	4242	SAN DIEGO GAS & ELECTRIC	TITLE V	14601 VIRGINIA ST, MORENO VALLEY, CA 92555	ACTIVE	
4	6979	RIV CO., WASTE MGMT, BADLANDS LANDFILL	TITLE V	31125 IRONWOOD AVE, MORENO VALLEY, CA 92555	ACTIVE	
5	13088	EASTERN MUNICIPAL WATER DISTRICT		17140 KITCHING ST, MORENO VALLEY, CA 92551	ACTIVE	
6	20586	ROBERTSON'S READY MIX INC		12890 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	cement storage facility
7	23967	ROHR IND INC		22135 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	oven
8	28949	CIRCLE K STORE 2700872		13261 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
9	30680	BASIC PROPERTIES		23991 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
10	32273	VALLEY EQUIPMENT RENTALS		24456 SUNNYMEAD BLVD, MORENO VALLEY, CA 92551	ACTIVE	equipment rental
11	32446	UNION DLR, E-Z SERVE OF CAL INC #89		12400 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
12	34033	MORENO VALLEY SCHOOL UNI SCH DIST		13911 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	school
13	34203	RIV.C0., ROAD DEPT		25241 COTTONWOOD AVE, MORENO VALLEY, CA 92551	ACTIVE	office
14	45022	CHEVRON USA INC #97568		12431 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	gas station
15	45651	NATL TRAVELERS WEST INC		23700 SUNNYMEAD BLVD, MORENO VALLEY, CA 92551	ACTIVE	transportation equipment
16	46149	SUBURBAN CLEANERS		22592 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
17	57549	RIVERSIDE CO FIRE DEPT STA #48		10511 VILLAGE RD, MORENO VALLEY, CA 92557	ACTIVE	fire dept
18	58795	CIRCLE K STORES, INC. #1775		24051 JOHN F. KENNEDY DR, MORENO VALLEY, CA 92553	ACTIVE	gas station
19	60153	1 HOUR CLEANERS		25155 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
20	64148	BURGER KING #3477		24966 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
21	64602	SIZZLER #671		25035 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
22	65152	RAMADA INN		24630 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	hotel
23	65569	FRANGIPANI'S RESTAURANT		23580 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
24	66183	GREEN ONION RESTAURANT		12125 DAY ST, MORENO VALLEY, CA 92557	ACTIVE	restaurant
25	66257	FARMERS BOY'S RESTAURANT		12240 PIGEON PASS RD, MORENO VALLEY, CA 92557	ACTIVE	restaurant
26	66263	ETHAN JOHNS, GOTTSCHALK ETAL		21942 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
27	66546	DON JOSE RESTAURANT		23100 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
28	66579	CHEERS		12220 PIGEON PASS RD, MORENO VALLEY, CA 92557	ACTIVE	restaurant
29	67359	C.L. PHARRIS READY MIX,PHARRIS & JIMENEZ		REDLANDS BLVD/215 FWY, MORENO VALLEY, CA 92551	ACTIVE	concrete
30	70041	BORNEO INTERNATIONAL FURNITURE CO, LTD		25100 BIF ST, MORENO VALLEY, CA 92551	ACTIVE	retail
31	70282	EASTERN MUNICIPAL WATER DISTRICT		24999 COTTONWOOD AVE, MORENO VALLEY, CA 92557	ACTIVE	water supply
32	70286	EASTERN MUNICIPAL WATER DISTRICT		16015 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	water supply
33	70298	EASTERN MUNICIPAL WATER DISTRICT		12005 REDLANDS BLVD, MORENO VALLEY, CA 92557	ACTIVE	water supply
34	70299	EASTERN MUNICIPAL WATER DISTRICT		13400 REDLANDS BLVD, MORENO VALLEY, CA 92555	ACTIVE	water supply
35	70300	EASTERN MUNICIPAL WATER DISTRICT		14510 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	water supply
36	70304	EASTERN MUNICIPAL WATER DISTRICT		17550 LASALLE, MORENO VALLEY, CA 92551	ACTIVE	water supply
37	70305	EASTERN MUNICIPAL WATER DISTRICT		27010 CACTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	water supply
38	70306	EASTERN MUNICIPAL WATER DISTRICT		11960 MORTON RD, MORENO VALLEY, CA 92557	ACTIVE	water supply
39	70307	EASTERN MUNICIPAL WATER DISTRICT		26790 ELDER AVE, MORENO VALLEY, CA 92555	ACTIVE	water supply
40	70317	EASTERN MUNICIPAL WATER DISTRICT		13249 NASON, MORENO VALLEY, CA 92555	ACTIVE	water supply
41	71132	STEER N' STEIN MORENO VALLEY		14950 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
42	71327	MORENO VALLEY USD FOOD SERVICES		24861 BAY AVE, MORENO VALLEY, CA 92553	ACTIVE	school
43	71328	MORENO VALLEY USD MAINTENANCE, ETAL		23300 COTTONWOOD AVE, MORENO VALLEY, CA 92553	ACTIVE	bus terminal
44	71329	MORENO VALLEY USD MAINTENANCE, ETAL		23100 COUGAR CANYON RD, MORENO VALLEY, CA 92553	ACTIVE	bus terminal
45	72923	CAL MAT		123 MORONGO RD, MORENO VALLEY, CA 92337	ACTIVE	construction
46	73906	INDUSTRIAL ASPHALT		16980 GILMAN SPRINGS RD, MORENO VALLEY, CA 92551	ACTIVE	industrial

	A	B	D	E	F	G
47	74451	SAM'S QUALITY CLEANERS,SURENDRA PATELDBA		12190 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
48	75466	DONNA'S CLEANERS		24318 HEMLOCK AVE, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
49	75927	CHEVRON USA APSI #1480 #200908		22520 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	gas station
50	76475	JETCO ENVIRONMENTAL & ASSOCIATES INC		13260 HWY 215, MORENO VALLEY, CA 92553	ACTIVE	construction
51	77814	QUAIL RANCH GOLF COURSE		15960 GILMAN SPRINGS RD, MORENO VALLEY, CA 92555	ACTIVE	golf course
52	77816	P & G BURGER		24992 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
53	78109	MORENO VALLEY, KENNEDY PARK FIRE STATION		15111 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	fire dept
54	78874	CHILI'S		12525 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
55	79669	HOME CLUB		23418 HELMLOCK AVE, MORENO VALLEY, CA 92587	ACTIVE	retail
56	80929	R & M FOOD SERVS, MILLIE'S CNTRY KITCHEN		24626 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
57	81613	MORENO VALLEY UNI SCH DIST, BADGER SPRNG		24750 DELPHINIUM AVE, MORENO VALLEY, CA 92553	ACTIVE	school
58	81614	BUTTERFIELD ELEMENTARY SCHOOL		13400 KITCHING ST, MORENO VALLEY, CA 92553	ACTIVE	school
59	81615	MORENO VALLEY UNI SCHOOL DIST,SUNNYMEAD		12875 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	school
60	82834	THE SALSA HOUSE		12190 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	restaurant
61	84820	MORENO VALLEY UNIFIED SCHOOL DISTRICT		13135 NASON ST, MORENO VALLEY, CA 92555	ACTIVE	school
62	85433	CARL KARCHER ENT INC,CARL'S JR #627		22580 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	restaurant
63	85561	HOME DEPOT, THE		12255 PIGEON PASS RD, MORENO VALLEY, CA 92557	ACTIVE	retail
64	85852	MORENO VALLEY UNIFIED SCHOOL DISTRICT		23300 COTTONWOOD, MORENO VALLEY, CA 92553	ACTIVE	school
65	85963	MORENO VALLEY UNIFIED SCHOOL DISTRICT		25634 ALESSANDRO, MORENO VALLEY, CA 92553	ACTIVE	school
66	86349	KMART CORPORATION		24899 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
67	86810	SMITH'S FOOD & DRUG CENTERS		24440 ALESSANDRO BLVD, MORENO VALLEY, CA 92337	ACTIVE	retail
68	87731	EASTERN MUNICIPAL WATER DISTRICT		22571 GREENRIDGE DR, MORENO VALLEY, CA 92557	ACTIVE	water supply
69	87902	MODULAR METAL FABRICATORS INC		24600 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	construction
70	89489	ACME TUNE & SMOG		23920 ALESSANDRO, MORENO VALLEY, CA 92553	ACTIVE	repair shop
71	89904	HALL'S ENGINE REBU.&RADIATOR		24747 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
72	90156	BRIDGESTONE/FIRESTONE INC,FIRESTONE TIRE		24673 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
73	90372	THE PEP BOYS, STORE #724		23470 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
74	90739	COUNTY OF RIVERSIDE FLEET SRVCS DEPT		25241 COTTONWOOD AVE, MORENO VALLEY, CA 92553	ACTIVE	fueling
75	91119	ZOHURA CORPORATION/VALERO		12400 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	gas station
76	91605	PURRFECT AUTO SERVICE #24		34320 SUNNYMEAD BLVD, MORENO VALLEY, CA 92551	ACTIVE	repair shop
77	91608	RAI INTERNATIONAL INC, PURRFECT AUTO SER		22425 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
78	91661	US GOVT MARCH AIR FORCE BASE		MARCH AIR FORCE BASE, MORENO VALLEY, CA 92518	ACTIVE	airport
79	91899	US GOV'T AIR FORCE DEPT, MARCH AFB		MAFB, MORENO VALLEY, CA 92518	ACTIVE	airport
80	92539	RED ROBIN INTERNATIONAL		12625 FREDRICK ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
81	92966	BANTA ELECTRICAL AND REFRIGERATION		12709 MEADBURY DR, MORENO VALLEY, CA 92553	ACTIVE	retail
82	93127	HARK BROTHERS BODY WORKS		24300 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
83	93482	CLEANERS CLEANERS		14940 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
84	93590	POLLO DIETA		12341 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	restaurant
85	93889	VISTA HEIGHTS MIDDLE SCHOOL		23049 OLD LAKE DR, MORENO VALLEY, CA 92553	ACTIVE	school
86	93890	MT VIEW MIDDLE SCHOOL		13130 MORRISON ST, MORENO VALLEY, CA 92553	ACTIVE	school
87	93891	MORENO VALLEY HIGH		23300 COTTONWOOD AVE, MORENO VALLEY, CA 92553	ACTIVE	school
88	94261	J.C. PENNEY		22450 TOWN CIRCLE DR, MORENO VALLEY, CA 92553	ACTIVE	retail
89	94262	SEARS ROEBUCK AND COMPANY		22550 TOWN CIR, MORENO VALLEY, CA 92553	ACTIVE	retail
90	94658	GOLDEN WEST CONCRETE PUMPING		13002 SWEETFERN, MORENO VALLEY, CA 92553	ACTIVE	concrete
91	94733	HARK BROS AUTO BODY, CHRISTOPHER HARKDBA		14300 ELSWORTH AVE, MORENO VALLEY, CA 92553	ACTIVE	repair shop
92	95047	SEARS AUTOMOTIVE		22560 TOWN RD, MORENO VALLEY, CA 92553	ACTIVE	repair shop

	A	B	D	E	F	G
93	96326	COUNTY OF RIVERSIDE REGIONAL MEDICAL CTR		26520 CACTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	hospital
94	96574	EASTERN MUNICIPAL WATER DISTRICT		DAY & COTTONWOOD AVE, MORENO VALLEY, CA 92553	ACTIVE	water supply
95	96890	RAMONA TIRE INC - MORENO VALLEY		12275 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	repair shop
96	98150	HARRIS COMPANY THE		22650 TOWNGATE CIR, MORENO VALLEY, CA 92553	ACTIVE	repair shop
97	105296	WASTE MGMT (MORENO VALLEY TRANS STATION)		17700 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	waste management
98	106869	AUTO SERVICE CLUB		23952 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
99	107537	WASTE MGMT OF INLAND VALLEY		17700 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	waste management
100	107700	R B TRUCK REPAIR		24560 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	repair shop
101	107946	BURGER KING #7533, SUMAL, INC.		22500 TOWN CIR, MORENO VALLEY, CA 92553	ACTIVE	restaurant
102	108309	MORENO VALLEY TOYOTA		27990 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	retail
103	108493	BURGER KING #9617		22380 CACTUS AVE, MORENO VALLEY, CA 92552	ACTIVE	restaurant
104	109640	VENUS BURGERS		24991-4 ALESSANDRO, MORENO VALLEY, CA 92553	ACTIVE	restaurant
105	109755	LODESTAR TOWERS CALIFORNIA INC		10535 BOX SPRINGS RD, MORENO VALLEY, CA 92553	ACTIVE	retail
106	110054	FIRESTONE TIRE & SERVICE CENTER # 2259		24673 ALLESANDRO, MORENO VALLEY, CA 92553	ACTIVE	repair shop
107	110100	N S ENTERPRISES		22114 ALESSANDRO, MORENO VALLEY, CA 92553	ACTIVE	gas station
108	110212	A PART-TIME TOURS INC, MARLENE CORTES,		25430 EDWIN RD, MORENO VALLEY, CA 92557	ACTIVE	retail
109	110347	KEN GARDNER, C/O MARVIN TRANSPORT INC		22144 ALLESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
110	110891	WABASH		22135 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	paint shop
111	113389	SMART TRUCK SYSTEMS		22101 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	paint shop
112	114406	CARDINAL CG		24100 CARDINAL AVE, MORENO VALLEY, CA 92551	ACTIVE	industrial
113	114572	THOR CALIFORNIA		14255 ELSWORTH ST, MORENO VALLEY, CA 92553	ACTIVE	industrial
114	114627	ALESSANDRO AUTO BODY, N. KURDOGHLIAN		22405 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	repair shop
115	117448	SIZZLER RESTAURANT		23750 ALESSANDRA BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
116	118061	COSTCO WHOLESALE CORPORATION NO 455		12700 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	retail
117	118902	MAX BURGER		23260 SUNNMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
118	119157	MORENO VALLEY CAMPUS		16130 LASSELLE ST, MORENO VALLEY, CA 92551	ACTIVE	school
119	119507	MORENO VLLY CITY-MORENO VLLY ANIMAL SHEL		14041 ELSWORTH ST, MORENO VALLEY, CA 92553	ACTIVE	animal shelter
120	119721	GODOT ENTERPRISES		31125 IRONWOOD AVE, MORENO VALLEY, CA 92555	ACTIVE	construction
121	120282	BURGER KING #7533, BED PARTNERS LLC		22500 TOWN CIR, MORENO VALLEY, CA 92553	ACTIVE	restaurant
122	120287	BURGER KING #10567		23125 HEMLOCK AVE, MORENO VALLEY, CA 92557	ACTIVE	restaurant
123	120942	WASTE MGMT OF THE INLAND VALLEY		17700 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	waste management
124	121301	MOUNTAIN UNION TELECOM OF CA., LLC		NW4 OF NW4 OF NE4 OF NE4, SEC, MORENO VALLEY, CA 92555	ACTIVE	retail
125	121485	CITY OF MORENO VALLEY		15670 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	office
126	121552	MORENO VALLEY CITY		14177 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	office
127	122067	PALM MIDDLE SCHOOL		11900 SLAWSON AVE, MORENO VALLEY, CA 92553	ACTIVE	school
128	122068	LANDMARK MIDDLE SCHOOL		15261 LEGENDARY, MORENO VALLEY, CA 92553	ACTIVE	school
129	122069	CANYON SPRINGS HIGH SCHOOL		23100 COUGAR CANYON DR, MORENO VALLEY, CA 92553	ACTIVE	school
130	122070	VALLEY VIEW HIGH SCHOOL		13135 NASON ST, MORENO VALLEY, CA 92553	ACTIVE	school
131	122071	MIDLAND ELEMENTARY SCHOOL		11440 DAVIS ST, MORENO VALLEY, CA 92553	ACTIVE	school
132	122146	SUBURBAN CLEANERS		22592 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
133	122671	VERIZON CALIFORNIA INC		12656 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
134	122926	RALPHS GROCERY NO 092		12625 FREDERICK ST, MORENO VALLEY, CA 92555	ACTIVE	retail
135	122954	RALPHS GROCERY NO 152		23575 SUNNYMEAD RANCH PKY, MORENO VALLEY, CA 92553	ACTIVE	retail
136	123436	FOOD 4 LESS NO 302		12200 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
137	123495	FOOD 4 LESS NO 398		24440 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
138	123532	RALPHS GROCERY NO 722		14930 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail

	A	B	D	E	F	G
139	123566	AMERICAN CLEANERS		12278 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
140	125418	ALBERTSON'S NO 6573		25050 ALLESANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
141	126067	KAISER PERMANENTE		12815 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	hospital
142	126148	SAVON DRUG STORE		12280 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	retail
143	126652	VISTA SPRINGS APTS		21550 BOX SPRINGS RD, MORENO VALLEY, CA 92557	ACTIVE	residential
144	127097	PALOS VERDES APARTMENTS		13280 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	residential
145	128501	CARL'S JR, MURPHY'S STAR INC		25055 ELDER AVE, MORENO VALLEY, CA 92553	ACTIVE	restaurant
146	128503	CARL'S JR, MURPHY'S STAR INC		22580 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	restaurant
147	128504	CARL'S JR, MURPHY'S STAR INC		22700 CENTERPOINT DR, MORENO VALLEY, CA 92553	ACTIVE	restaurant
148	130074	F B PANTON INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	spray equipment
149	130356	CHEVRON PRODUCTS CO SS# 20-8500		12515 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	gas station
150	131345	CHINA HUA MULAN BUFFET		24853 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
151	131629	COUNTY OF RIVERSIDE WASTE MANAGEMENT		14290 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	waste management
152	132223	CAFE RIO HONDO MEXICAN GRILL, BMW MGMT L		23750 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
153	133379	PORVENE DOORS INC		14241 GRANT ST, MORENO VALLEY, CA 92553	ACTIVE	spray equipment
154	133591	CITY OF MORENO VALLEY FIRE STATION #91		16110 LASSELLE ST, MORENO VALLEY, CA 92553	ACTIVE	fire dept
155	133948	LOWE'S HOME IMPROVEMENT WAREHOUSE		12400 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	retail
156	134839	WALGREEN CO.		17500 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	retail
157	135088	7-ELEVEN INC #23520/IJAZ&FAYYAZ KHAN		23021 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
158	135682	VASQUEZ MAINTENANCE ENG. INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	engineering
159	135841	LINE-X OF MORENO VALLEY		14300 ELSWORTH ST, MORENO VALLEY, CA 92553	ACTIVE	repair shop
160	136430	ALESSANDRO AM/PM (ARCO), TABASSI CO.		23501 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
161	137333	EL POLLO LOCO INC		24800 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
162	137358	RIVERSIDE COUNTY SHERIFF'S OFFICE		22850 CALLE SAN JUAN DE LOS LAGOS, MORENO VALLEY, CA 92553	ACTIVE	office
163	137427	INLAND EMPIRE BEDLINERS INC		22620 GOLDEN CREST DR, MORENO VALLEY, CA 92553	ACTIVE	office
164	137578	PAC CON GENERAL CONTRACTOR INC		23278 ZITEO CT, MORENO VALLEY, CA 92553	ACTIVE	office
165	138295	THE HOME DEPOT		15975 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	retail
166	138949	ALPER CLEANERS, HERMILA CHOMSINSUB DBA		14420 ELSWORTH ST, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
167	140575	GMRI, INC/THE OLIVE GARDEN REST # 1266		22880 CENTERPOINT DR, MORENO VALLEY, CA 92553	ACTIVE	restaurant
168	140669	LAS ISLAS MARIAS # 7		24489 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
169	140889	VISTA DEL LAGO HS		15150 LASSELLE ST, MORENO VALLEY, CA 92551	ACTIVE	school
170	141287	SCOTT BROS. DAIRY FARMS		18051 GILMAN SPRINGS RD, MORENO VALLEY, CA 92555	ACTIVE	dairy farm
171	141477	AGRICULTURAL WASTE SOLUTIONS (AWS)		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92557	ACTIVE	waste management
172	142133	NATIONAL BEDDING COMPANY LLC		23532 BRODIAEA AVE, MORENO VALLEY, CA 92553	ACTIVE	retail
173	142426	MZP FOOD AND GAS, SHIRSHAH BADERY DBA		12255 HEACOCK ST, MORENO VALLEY, CA 92557	ACTIVE	gas station
174	143444	BEN CLYMER'S "THE BODY SHOP"		22335 ALESSANDRO, MORENO VALLEY, CA 92553	ACTIVE	repair shop
175	143691	ARCO AM/PM MORENO VALLEY		SWC MORENO BEACH/EUCALYPTUS AV, MORENO VALLEY, CA 92555		gas station
176	144224	RICHIE'S FAMOUS BURGERS		22380 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	restaurant
177	144892	NEXTEL OF CALIFORNIA INC.		23302 OLIVEWOOD PLAZA DR, MORENO VALLEY, CA 92553	ACTIVE	retail
178	144940	EASTERN MUNICIPAL WATER DISTRICT		25866 OLEANDER AVE, MORENO VALLEY, CA 92551	ACTIVE	water supply
179	145380	TELACU HOUSING MORENO VALLEY INC		25105 FIR AVE, MORENO VALLEY, CA 92553	ACTIVE	construction
180	145416	ROSS DRESS FOR LESS INC.		17800 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	retail
181	146016	COFFMAN SPECIALTIES, INC.		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92551	ACTIVE	concrete
182	146599	AMERICAN TOWER CORP., BOX SPRINGS CA2		10535 BOX SPRINGS RD, MORENO VALLEY, CA 92557	ACTIVE	generator
183	148270	KING AUTO COLLISION		14340 ELSWORTH ST, MORENO VALLEY, CA 92553	ACTIVE	repair shop
184	148281	BUCKHEAD CACTUS COMMERCE, LLC		22150 GOLDENCREST DR, MORENO VALLEY, CA 92553	ACTIVE	industrial

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185	148454	SHELL OIL PRODUCTS US - HSE/S&E		12301 HEACOCK ST, MORENO VALLEY, CA 92557	ACTIVE	gas station
186	148719	TOWNGATE CLEANERS, BONG JOO SHIN DBA		12625 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
187	148734	SOUTH COAST FOAM SHAPES INC		14317 VETERANS WAY, MORENO VALLEY, CA 92553	ACTIVE	spray equipment
188	148882	CITY OF MORENO VALLEY FIRE STATION #2		24935 HEMLOCK AVE, MORENO VALLEY, CA 92557	ACTIVE	fire dept
189	148909	REILLY PLUMBING & FUEL SYSTEMS		23736 SUNCREST AVE, MORENO VALLEY, CA 92553	ACTIVE	gas station
190	149009	WINCO FOODS		12880 DAY ST, MORENO VALLEY, CA 92557	ACTIVE	retail
191	149050	PAINTED RHINO INC		14310 VETERANS WAY, MORENO VALLEY, CA 92554	ACTIVE	spray equipment
192	149259	WALMART NO 5193		12721 MORENO BEACH DM, MORENO VALLEY, CA 92555	ACTIVE	retail
193	149462	PACIFIC COATINGS,FRANCIS BART PANTON DBA		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92551	ACTIVE	spray equipment
194	149712	EL POLLO LOCO, INC #6023		12821 MORENO BEACH DR, MORENO VALLEY, CA 92555	ACTIVE	restaurant
195	149731	MK & DK INC. DBA STEVE'S BURGER (MIOK)		12640 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
196	150793	M & M CLEANERS, TAN TRAN DBA		23080 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
197	150958	CEMEX CONSTRUCTION MATERIALS, LP		24365 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	construction
198	151401	TARGET STORE NO. 2309		27100 EUCALYPTUS AVE, MORENO VALLEY, CA 92551	ACTIVE	retail
199	151491	FIX AUTO MORENO VALLEY		14441 COMMERCE CENTER DR, MORENO VALLEY, CA 92553	ACTIVE	repair shop
200	151622	MACY'S WEST - MORENO VALLEY		22400 TOWN GATE CIR, MORENO VALLEY, CA 92553	ACTIVE	retail
201	151673	BEST CLEANERS, MOHAMMAD ALI PATEL		11875 PIGEON PASS RD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
202	151988	SHELL OIL PRODUCTS US - HSE/S&E		23050 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
203	152167	VERIZON WIRELESS		12250 MCGEHEE DR, MORENO VALLEY, CA 92555	ACTIVE	retail
204	152622	THRIFTY OIL COMPANY #353		24991 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
205	152652	BRINKER REST CORP, CHILIS STONERIDGE		27050 FIR AVE, MORENO VALLEY, CA 92551	ACTIVE	restaurant
206	153069	GROVE VIEW BUSINESS PARK-IPF7		24950 GROVE VIEW RD, MORENO VALLEY, CA 92551	ACTIVE	office
207	153436	STONERIDGE FUELS CO LP		27040 FIR AVE, MORENO VALLEY, CA 92553	ACTIVE	gas station
208	153650	EQUILON ENT LLC, SHELL OIL PRODUCTS DBA		15980 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	gas station
209	153730	CITY OF MORENO VALLEY FIRE STN #58		28040 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	fire dept
210	153752	GOGO LLC		SEC 27 T2S, R4W,, MORENO VALLEY, CA 92557	ACTIVE	retail
211	153843	HOGGS GOURMET GRILL		12625 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
212	153880	TNPP RESTAURANTS INC.		21635 EUCALYPTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	restaurant
213	154869	APPLEBEE'S RESTAURANTS WEST LLC		12600 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
214	155792	UNITED NATURAL FOODS, INC		22150 GOLDEN CREST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
215	155950	CVS PHARMACY NO. 09610-01		12280 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	retail
216	156146	KAISER FOUNDATION HOSPITAL - MORENO VLY		27300 IRIS AVE, MORENO VALLEY, CA 92555	ACTIVE	hospital
217	156279	CARL'S JR RESTAURANT		16130 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	restaurant
218	156525	TRINITY CONSTRUCTION CO.		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92557	ACTIVE	construction
219	156650	CKE RESTAURANTS, INC		27670 EUCALYPTUS, MORENO VALLEY, CA 92551	ACTIVE	restaurant
220	156817	APPLE SOCAL, , LLC		12600 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
221	157301	FIBERCO		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	retail
222	157341	SUPERIOR GROCERS		23857 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
223	157510	LUCKY GREEK		23887 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
224	157858	CONOCOPHILLIPS CO, STE #872/RMR#2001		13261 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
225	158505	SUNSHINE CLEANERS, YONG CHUL CHUN		23779 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
226	158507	E & J MAQUEDA DAIRY		34005 GILMAN SPRINGS RD, MORENO VALLEY, CA 92555	ACTIVE	dairy farm
227	159994	UNITED STATES POSTAL SERVICE		23800 MARCH MEMORIAL DR, MORENO VALLEY, CA 92553	ACTIVE	retail
228	160338	SOPHIE'S DRY CLEANERS		23750 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
229	160390	BRUNDAGE-BONE CONCRETE PUMPING		VARIOUS LOCATIONS, MORENO VALLEY, CA 92557	ACTIVE	concrete
230	161543	INLAND PACIFIC ADVISORS		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	office

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231	161590	MORENO CLEANERS & LAUNDRY, PATINO ALFONS		23940 IRONWOOD AVE, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
232	161831	MORENO VALLEY ARCO		12428 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	gas station
233	161853	GHURTADO CONSTRUCTION, INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92555	ACTIVE	construction
234	161908	RIO RANCHO SUPER MALL , LLC		25211 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
235	162710	BOB'S BIG BOY RESTAURANT		27140 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	restaurant
236	162727	BURLINGTON COAT FACTORY		12625 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	retail
237	163047	STATER BROS MARKETS NO.82		24931 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
238	163067	SAN BERNARDINO COMMUNITY COLLEGE DISTRIC		10550 BOX SPRINGS MOUNTAIN RD, MORENO VALLEY, CA 92553	ACTIVE	school
239	163545	MASONITE CORPORATION, MORENO VALLEY		25100 GLOBE ST, MORENO VALLEY, CA 92551	ACTIVE	spray equipment
240	164241	DIFFENBAUGH		28900 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	construction
241	164272	OZARK AUTOMOTIVE DISTRIBUTORS #25		24525 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	industrial
242	164452	RIVERSIDE COUNTY WASTE MANAGEMENT DEPT		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92551	ACTIVE	waste management
243	165235	RAINFRESH CLEANERS		12220 PIGEON PASS RD, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
244	165605	PACIFIC VINTAGE CONSTRUCTION		24194 ROYALE ST, MORENO VALLEY, CA 92557	ACTIVE	construction
245	167046	THE NEW BURGER TOWN/MIGUEL A MEDINA		23260 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
246	167350	STATER BROTHERS MARKETS #172		25900 IRIS AVE, MORENO VALLEY, CA 92551	ACTIVE	retail
247	167360	STATER BROTHERS MARKETS NO. 185		14425 MORENO BEACH DR, MORENO VALLEY, CA 92555	ACTIVE	retail
248	167377	LOWE'S MORENO VALLEY COASTAL HOLDING #14		16850 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	retail
249	167422	SKECHERS DISTRIBUTION CENTER		29800 EUCALYPTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	retail
250	168397	RESMED		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	retail
251	168916	MORENO BEACH STATION L.L.C.		14025 MORENO BEACH DR, MORENO VALLEY, CA 92555	ACTIVE	gas station
252	169152	VERIZON WIRELESS - BOX SPRINGS		10535 BOX SPRINGS RD, MORENO VALLEY, CA 92557	ACTIVE	retail
253	169360	CIRCLE K STORES INC SITE #2211304		24440 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
254	169433	FIRST INDUSTRIAL REALTY TRUST		24870 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	industrial
255	169436	LOCO BURRITO, ORLANDO CHAVEZ		24170 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
256	169590	CIRCLE K #2709471, CIRCLE K STORES, INC.		12625 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	gas station
257	169648	ROBERTSON'S READY MIX		14250 OLD 215 FRONTAGE RD, MORENO VALLEY, CA 92553	ACTIVE	concrete
258	169685	LINE-X OF MORENO VALLEY		14170 BUSINESS CENTER DR, MORENO VALLEY, CA 92553	ACTIVE	repair shop
259	169712	CITY OF MORENO VALLEY FIRE STATION #6		22250 EUCALYPTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	fire dept
260	169920	HIGHLAND FAIRVIEW CONSTRUCTION INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	construction
261	169930	COUNTY OF RIVERSIDE (MV1206)		16958 BUNDY AVE, MORENO VALLEY, CA 92557	ACTIVE	boiler
262	169931	COUNTY OF RIVERSIDE (MV1209)		16902 BUNDY AVE, MORENO VALLEY, CA 92557	ACTIVE	boiler
263	170029	DANIEL ESTAY CONSTRUCTION		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	construction
264	170207	NEW CINGULAR WIRELESS PCS, AT&T MOBILITY		12890 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	retail
265	170598	DHRMA BHAKTI, INC. MORENO VALLEY 76		12611 MORENO BEACH DR, MORENO VALLEY, CA 92555	ACTIVE	gas station
266	170764	COUNTY OF RIVERSIDE (MV1201)		11030 BOX SPRINGS RD, MORENO VALLEY, CA 92557	ACTIVE	generator
267	170958	CVS PHARMACY NO. 09224-01		25070 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
268	171061	CITY OF MORENO VALLEY - MORRISON PARK FI		13400 MORRISON ST, MORENO VALLEY, CA 92555	ACTIVE	generator
269	171267	PALM CLEANERS		25910 IRIS AVE, MORENO VALLEY, CA 92551	ACTIVE	dry cleaners
270	171526	KAISER FOUNDATION HOSPITALS, INC.		27200 IRIS AVE, MORENO VALLEY, CA 92555	ACTIVE	hospital
271	171752	CITY OF MORENO VALLEY		14075 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	generator
272	172092	AMERICAN TOWER CORPORATION-BADLANDS CA 3		12380 QUINCY ST, MORENO VALLEY, CA 92555	ACTIVE	generator
273	172670	M & M CLEANERS III		24825 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
274	172958	AGRICULTURAL WASTE SOLUTIONS, INC		18051 GILMAN SPRINGS RD, MORENO VALLEY, CA 92555	ACTIVE	waste management
275	173042	DMSI		17800 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	industrial
276	173168	EASTERN MUNICIPAL WATER DISTRICT		26711 COTTONWOOD AVE, MORENO VALLEY, CA 92555	ACTIVE	water supply

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277	173202	TRISHA INVESTMENTS LLC		16466 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	gas station
278	173573	THE FLAMEBROILER		23550 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
279	173975	FOOD 4 LESS FUEL CENTER 398		24500 ALLESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
280	174304	SOUTHERN CALIFORNIA LANDSCAPE SUPPLY		17520 BRIDGE ST, MORENO VALLEY, CA 92555	ACTIVE	landscaping
281	175176	CITY OF MORENO VALLEY PUBLIC SAFETY BUIL		22850 CALLE SAN JUAN DE LOS LAGOS, MORENO VALLEY, CA 92553	ACTIVE	office
282	175473	FOOD 4 LESS FUEL CENTER 302		NEC PERRIS AND HEMLOCK, MORENO VALLEY, CA 92557	ACTIVE	gas station
283	176031	7-ELEVEN #33157/ AMIR BUTT		15020 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	gas station
284	176037	HIBACHI BUFFET		12125 DAY ST, MORENO VALLEY, CA 92557	ACTIVE	restaurant
285	176101	INLAND EMPIRE GLOBAL LOGISTICS CENTER		16110 COSMOS ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
286	176666	AMAZON.COM SERVICES, LLC - ONT6		24208 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	retail
287	176808	RANCHITO TACOS AL CARBON 2		25960 IRIS AVE, MORENO VALLEY, CA 92551	ACTIVE	restaurant
288	176836	2250 TOWN CIRCLE HOLDINGS, LLC		22500 TOWN CIR, MORENO VALLEY, CA 92553	ACTIVE	retail
289	177064	GRAYCOR CONSTRUCTION COMPANY		28600 EUCALYPTUS AVE, MORENO VALLEY, CA 92552	ACTIVE	construction
290	177302	INDIAN AVENUE II LLC		16901 SAN CELESTE ST, MORENO VALLEY, CA 92553	ACTIVE	generator
291	178434	A I CALIFORNIA LLC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92555	ACTIVE	generator
292	178597	INDEPENDENT CONSTRUCTION COMPANY		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92555	ACTIVE	construction
293	178972	AMAZON.COM SERVICES, LLC - ONT8		24300 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	retail
294	178991	AMAZON.COM SERVICES, LLC - ONT8		24300 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	retail
295	179087	PRAKASH KUMAR BHAVANI		12190 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
296	179168	THE SHERWIN-WILLIAMS COMPANY		14300 GRAHAM ST, MORENO VALLEY, CA 92553	ACTIVE	retail
297	179443	EASTERN MUNICIPAL WATER DISTRICT		28941 HEMLOCK AVE, MORENO VALLEY, CA 92555	ACTIVE	water supply
298	179668	AMAZON		24208 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	retail
299	179842	KARMA AUTOMOTIVE LLC		17100 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	repair shop
300	179856	THE PROCTOR & GAMBLE DISTRIB LLC (WCMC)		16110 COSMOS ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
301	180178	CALIBER COLLISION CENTER		12695 AUTO MALL DR, MORENO VALLEY, CA 92555	ACTIVE	paint shop
302	181497	AP-MORENO VALLEY LLC		23962 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	construction
303	181539	EL POLLO LOCO #6131		15135 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	restaurant
304	181634	EASTERN MUNICIPAL WATER DISTRICT		24926 ELDER AVE, MORENO VALLEY, CA 92557	ACTIVE	water supply
305	181827	FIRST SAN MICHELE LOGISTICS CENTER		24901 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	industrial
306	181915	RCRMC NURSING & ALLIED HEALTH ED BLDG		26516 CACTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	hospital
307	182228	FRONTIER CALIFORNIA INC EDGEMONT CO		22400 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	generator
308	182236	FRONTIER CALIFORNIA INC SUNNYMEAD RSU2		15795 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	generator
309	182238	FRONTIER CALIFORNIA INC SUNNYMEAD RSU1		27764 ALESSANDRO BLVD, MORENO VALLEY, CA 92551	ACTIVE	generator
310	182381	FRONTIER CALIFORNIA INC - SUNNYMEAD CO		12656 PERRIS BLVD, MORENO VALLEY, CA 92555	ACTIVE	generator
311	182626	TILTED KILT PUB & EATERY MORENO VALLEY		12580 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
312	182639	RANCHO DEL SOL GOLF CLUB		27905 JOHN F. KENNEDY DR, MORENO VALLEY, CA 92555	ACTIVE	gas station
313	182896	WESTERN A WEST CA, LLC		23400 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
314	182899	WESTERN A WEST CA, LLC		23700 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
315	182902	WESTERN A WEST CA, LLC		14300 GRAHM ST, MORENO VALLEY, CA 92553	ACTIVE	industrial
316	183073	COSTCO TUSTIN		22150 GOLDENCREST DR, MORENO VALLEY, CA 92553	ACTIVE	retail
317	183158	SCHOTRA BUSINESS LLC		12470 BACK WAY, MORENO VALLEY, CA 92553	ACTIVE	paint shop
318	183175	MARCH BUSINESS CENTER, A DELAWARE LLC		24101 IRIS AVE, MORENO VALLEY, CA 92551	ACTIVE	office
319	183182	SHAMAAH, INC.		23501 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
320	183241	DUKE HEACOCK PROJECT		15810 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
321	183710	INTERVAL EQUIPMENT SOLUTIONS INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	industrial
322	183983	ALTURA CREDIT UNION		23520 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	generator

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323	184162	EC CONSTRUCTION		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	construction
324	184862	STATER BROS MARKETS NO. 193		11875 PIGEON PASS RD, MORENO VALLEY, CA 92557	ACTIVE	retail
325	184905	CHANDLER AGGREGATES, INC.		36060 GILMAN SPRINGS RD, MORENO VALLEY, CA 92551	ACTIVE	construction
326	184913	CHANDLER AGGREGATES, INC.		36060 GILMAN SPRINGS RD, MORENO VALLEY, CA 92551	ACTIVE	construction
327	185177	KPRS CONSTRUCTION		HEACOCK/SAN MICHELE, MORENO VALLEY, CA 92551	ACTIVE	construction
328	185388	ONE HOUR CLEANERS, THUAN NGUYEN AND ANH		25155 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
329	185495	CARL'S JR 497		16130 PERRIS BLVD, MORENO VALLEY, CA 92552	ACTIVE	restaurant
330	185612	THE HABIT BURGER GRILL		12560 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
331	185698	CAFE RIO MEXICAN GRILL		12500 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
332	185771	ALESSANDRO AMPM		24994 ALESSANDRO BLVD, MORENO VALLEY, CA 92551	ACTIVE	gas station
333	185820	MILLION AIR RIVERSIDE		17405 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	aircraft
334	185885	SAHAARA OIL INC		23145 HEMLOCK AVE, MORENO VALLEY, CA 92557	ACTIVE	gas station
335	185916	ANGELO'S BURGERS		22380% CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	restaurant
336	186217	INLAND EMPIRE AUTOBODY & PAINT, INC-MORE		24801 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	paint shop
337	186492	WABA GRILL		14475 MORENO BEACH DR, MORENO VALLEY, CA 92555	ACTIVE	restaurant
338	186659	LAKESHORE VILLAGE CLEANERS		23579 SUNNYMEAD RANCH PKY, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
339	186780	PORTILLO'S HOT DOGS, LLC		12840 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
340	186852	NANDINA DISTRIBUTION CENTER A		24103 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	industrial
341	186907	MODULAR LOGISTIC CENTER		17350 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	industrial
342	186938	DUKE SAN MICHELE		24960 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	industrial
343	187403	PROLOGIS PARK MORENO VALLEY EUCALYPTUS		28025 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	industrial
344	187406	PROLOGIS PARK MORENO VALLEY EUCALYPTUS		28020 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	industrial
345	187429	DECKERS BRANDS		17791 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	industrial
346	187433	SOLARIS PAPER		28020 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	paper mill
347	187471	ALL MAGIC PAINT & BODY		14461 COMMERCE CENTER DR, MORENO VALLEY, CA 92553	ACTIVE	paint shop
348	187538	CACTUS SERVICE STATION, LP		22330 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	gas station
349	187557	FIRST NANDINA LOGISTICS CENTER		24385 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	industrial
350	187638	NAUTILUS POWDER COATING		14451 COMMERCE CENTER DR, MORENO VALLEY, CA 92553	ACTIVE	spray equipment
351	187821	BURGER OUT		23750 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
352	188088	FLAMEBROILER MORENO VALLEY		23550 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
353	188273	FULLMER CONSTRUCTION		MORENO BEACH/EUCALYPTUS, MORENO VALLEY, CA 92555	ACTIVE	construction
354	188324	AMAZON.COM SERVICES, LLC - KRIV		17101 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	retail
355	189182	MORENO VALLEY SNF, LLC		26940 E HOSPITAL RD, MORENO VALLEY, CA 92555	ACTIVE	generator
356	189256	MORENO VALLEY LOGISTICS CENTER #5		23450 BRODIAEA AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
357	189384	MORENO VALLEY LOGISTICS CENTER - BLDG#1		24405 KRAMERIA AVE, MORENO VALLEY, CA 92551	ACTIVE	industrial
358	189865	MEDLINE INDUSTRIES LP		16415 COSMOS ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
359	190139	NANDINA OWNER LLC		17783 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	generator
360	190216	J C CONSTRUCTION		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92555	ACTIVE	construction
361	190763	FREEDOM CONCRETE CUTTING INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92551	ACTIVE	concrete
362	190917	DMSI LOGISTICS		17350 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	industrial
363	191065	LOWE'S HOME IMPROVEMENT WAREHOUSE		24385 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	retail
364	191502	BURGER IM		27130 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	restaurant
365	191507	SIV NEWHOPE, LLC		22705 NEWHOPE ST, MORENO VALLEY, CA 92553	ACTIVE	retail
366	191637	GERBER COLLISION & GLASS		14156 BUSINESS CENTER DR, MORENO VALLEY, CA 92553	ACTIVE	repair shop
367	191733	VELOCITY POWDER COATING		14320 ELSWORTH ST, MORENO VALLEY, CA 92553	ACTIVE	spray equipment
368	191809	MORENO VALLEY FUEL GROUP, INC.		12970 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	gas station

	A	B	D	E	F	G
369	191859	NR GLOBE STREET INDUSTRIAL LLC		25100 GLOBE ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
370	191883	MORENO VALLEY COLLEGE		16130 LASSELLE ST, MORENO VALLEY, CA 92551	ACTIVE	school
371	192096	BRODIAEA APG LLC		23850 BRODIAEA AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
372	192418	UNITED PACIFIC #0672		22470 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	gas station
373	192617	RIVERMED PROPERTY, LLC		26600 CACTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	generator, boiler
374	192670	YUM YUM DONUT		13490 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
375	193278	LCG MVBP, LLC - GREENBALL		12197 DAVIS ST, MORENO VALLEY, CA 92557	ACTIVE	industrial
376	193883	FIRST NANDINA II		24665 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	generator
377	193901	EASTERN MUNICIPAL WATER DISTRICT		27521 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	water supply
378	193914	HARBOR FREIGHT - NANDINA		24734 NANDINA AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
379	193923	HARBOR FREIGHT - CACTUS		23400 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
380	193948	SUNNYMEAD CHEVRON		24840 SUNNYMEAD BLVD, MORENO VALLEY, CA 92555	ACTIVE	gas station
381	193981	ORLEANS & YORK DELI		12980 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
382	194098	CALIFORNIA TOWER, INC.		23300 COTTONWOOD AVE, MORENO VALLEY, CA 92553	ACTIVE	generator
383	194289	CRISTAL DIAZ		15974 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	dry cleaners
384	194405	GTP TOWERS V, LLC		24903 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	generator
385	194423	EL DFECTUOSO LLC		25155 SUNNYMEAD BLVD STE G5, MORENO VALLEY, CA 92553	ACTIVE	restaurant
386	194518	SHIVAH INC		25020 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
387	194545	COUNTY OF RIVERSIDE TIMOTEO		10568 REDLANDS BLVD, MORENO VALLEY, CA 92555	ACTIVE	generator
388	194588	PILOT TRAVEL CENTERS LLC		28912 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	gas station
389	194809	LAKIN TIRE WEST, LLC		14050 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	repair shop
390	194850	SPEEDWAY NO. 4679 (ARCO)		24991 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
391	194903	SPEEDWAY NO. 4529 (USA)		22990 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
392	195102	EASTER MARKET		29010 ALESSANDRO BLVD, MORENO VALLEY, CA 92555	ACTIVE	retail
393	195174	JUST FINISH CONSTRUCTION		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92557	ACTIVE	construction
394	195407	EFI GLOBAL		12220 PIGEON PASS RD, MORENO VALLEY, CA 92557	ACTIVE	industrial
395	195529	JACKSONS FOOD STORES #214		15980 PERRIS BLVD, MORENO VALLEY, CA 92553	ACTIVE	retail
396	195537	BROTHERS GAS CORP.		23050 SUNNYMEAD BLVD, MORENO VALLEY, CA 92553	ACTIVE	gas station
397	195631	SKECHERS USA, INC		29050 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	retail
398	196062	CLPF HEACOCK STREET GP LLC		16550 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
399	196400	T-MOBILE WEST LLC, IE696 PARK PL (RL)		12968 FREDERICK ST, MORENO VALLEY, CA 92553	ACTIVE	retail
400	196415	Warehouse #372		24385 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	industrial
401	196504	STEVE'S BURGERS		12640 HEACOCK ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
402	196512	ONT6		24208 SAN MICHELE ROAD, MORENO VALLEY, CA 92551	ACTIVE	industrial
403	196513	ONT8		24300 NANDINA AVENUE, MORENO VALLEY, CA 92551	ACTIVE	industrial
404	196661	KRIV		17101 HEACOCK STREET, MORENO VALLEY, CA 92551	ACTIVE	airport
405	196688	BLACK PEARL SEAFOOD AND GRILL		12848 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
406	196725	MVDC - Ross Dress For Less, Inc. (RDFL)		17800 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	retail
407	196764	Solaris Paper		28020 SE EUCALYPTUS AVE, MORENO VALLEY, CA 92504	ACTIVE	paper mill
408	196999	Moreno Valley DC		23400 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
409	197018	Brodiaea DC		23400 BRODIAEA AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
410	197019	Frederick DC		22750 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial
411	197273	West Coast Mixing Center		16110 COSMOS STREET, MORENO VALLEY, CA 92551	ACTIVE	concrete
412	197657	7-ELEVEN INC. #43148		12301 HEACOCK ST, MORENO VALLEY, CA 92557	ACTIVE	gas station
413	197664	7-ELEVEN INC. #43168		23573 E SUNNYMEAD RANCH PKY, MORENO VALLEY, CA 92557	ACTIVE	gas station
414	197725	USPP CACTUS, LLC		22765 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	industrial

	A	B	D	E	F	G
415	197832	Skechers Newhope DC		22705 NEWHOPE STREE, MORENO VALLEY, CA 92553	ACTIVE	retail
416	198123	EVOLUTION CLEANERS		14420 ELSWORTH ST STE 114, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
417	198186	TGA CENTERPOINTE LLC		14300 GRAHAM ST, MORENO VALLEY, CA 92553	ACTIVE	retail
418	198544	PROLOGIS LP		15810 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
419	198572	PROLOGIS LP		24960 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	industrial
420	198573	PROLOGIS LP		24921 NANDINA AVE, MORENO VALLEY, CA 92551	ACTIVE	industrial
421	198577	PROLOGIS LP		17791 PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	industrial
422	198830	CARTWRIGHT CONSTRUCTION		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92555	ACTIVE	construction
423	198896	iHerb- Moreno Valley hub		15810 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	retail
424	199043	THE HABIT BURGER GRILL		12560 DAY ST, MORENO VALLEY, CA 92553	ACTIVE	restaurant
425	199129	ALDI, Inc Warehouse		12661 ALDI PL, MORENO VALLEY, CA 92555	ACTIVE	industrial
426	199600	HI-SPEED LLC		12520 GRAHAM ST, MORENO VALLEY, CA 92553	ACTIVE	gas station
427	199747	MINKA LIGHTING LLC		16901 SAN CELESTE, MORENO VALLEY, CA 92551	ACTIVE	construction
428	199837	SAM'S WEST INC		17825 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
429	199879	DUARTE CONSTRUCTION INC		VARIOUS LOCATIONS IN SCAQMD, MORENO VALLEY, CA 92553	ACTIVE	construction
430	199922	Medline Moreno Valley		16415 COSMOS ST, MORENO VALLEY, CA	ACTIVE	industrial
431	199992	Prestige Moreno Valley		16550 HEACOCK ST, MORENO VALLEY, CA	ACTIVE	industrial
432	200096	Sherwin-Williams		14300 GRAHAM ST, MORENO VALLEY, CA	ACTIVE	paint shop
433	200109	BowFlex, Inc.		23850 BRODIAEA AVE, MORENO VALLEY, CA	ACTIVE	industrial
434	200202	Globe Street Industrial		25100 GLOBE ST, MORENO VALLEY, CA	ACTIVE	industrial
435	200277	DSJ CONCRETE PUMPING		13299 NINEBARK ST, MORENO VALLEY, CA 92553	ACTIVE	concrete
436	200485	BEAR VALLEY CLEANERS		25030 ALESSANDRO BLVD, MORENO VALLEY, CA 92553	ACTIVE	dry cleaners
437	200844	EASTERN MUNICIPAL WATER DISTRICT		11255 PERRIS BLVD, MORENO VALLEY, CA 92557	ACTIVE	water supply
438	200912	United Material Handling		24665 NANDINA AVE, MORENO VALLEY, CA	ACTIVE	industrial
439	201019	Walgreens Moreno Valley		17500 PERRIS BLVD, MORENO VALLEY, CA	ACTIVE	retail
440	201050	Wiseway Motor Freight		24901 SAN MICHELE RD, MORENO VALLEY, CA	ACTIVE	industrial
441	201216	GREEN ONION MEXICAN RESTAURANT		12125 DAY ST, MORENO VALLEY, CA 92557	ACTIVE	restaurant
442	201255	Modular Metal Fabricators, Inc.		24600 NANDINA AVE, MORENO VALLEY, CA	ACTIVE	construction
443	201304	EASTERN MUNICIPAL WATER DISTRICT		11275 REDLANDS BLVD, MORENO VALLEY, CA 92555	ACTIVE	water supply
444	201377	O Reilly DC# 25		24520 SAN MICHELE RD, MORENO VALLEY, CA	ACTIVE	repair shop
445	201477	THE HABIT BURGER GRILL #5134		24875 IRIS AVE, MORENO VALLEY, CA 92551	ACTIVE	restaurant
446	201711	LEGACY SUPPLY CHAIN		17825 INDIAN ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
447	201747	KEECO		24405 KRAMERIA AVE, MORENO VALLEY, CA 92551	ACTIVE	retail
448	201853	Serta Simmons Bedding		23700 CACTUS AVE, MORENO VALLEY, CA 92553	ACTIVE	retail
449	201888	KEECO LLC		24405 KRAMERIA ST, MORENO VALLEY, CA 92551	ACTIVE	retail
450	202073	Shipbob, Inc.		28010 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	industrial
451	202458	SPECTRUM PACIFIC WEST, LLC		24541 FIR AVE, MORENO VALLEY, CA 92553	ACTIVE	generator
452	202633	ARCO MORENO VALLEY		REDLANDS BLVD & HEMLOCK AVE, MORENO VALLEY, CA 92555	ACTIVE	gas station
453	202794	Karma Automotive LLC		17100 N PERRIS BLVD, MORENO VALLEY, CA 92551	ACTIVE	industrial
454	202823	SUN CLEANERS		12125 DAY ST, MORENO VALLEY, CA 92557	ACTIVE	dry cleaners
455	202915	SG CATERING LLC		7193 OLD FRONTAGE RD, MORENO VALLEY, CA 92553	ACTIVE	restaurant
456	203465	D F S ENGINEERING AND TESTING		14216 TRAVERS DR, MORENO VALLEY, CA 92553	ACTIVE	construction
457	203686	RedMed		24960 SAN MICHELE RD, MORENO VALLEY, CA 92551	ACTIVE	industrial
458	203847	PROLOGIS L.P.		15810 HEACOCK ST, MORENO VALLEY, CA 92551	ACTIVE	industrial
459	204395	Mainfreight		28015 EUCALYPTUS AVE, MORENO VALLEY, CA 92555	ACTIVE	industrial

Construction Emissions

2024	HC	ROG	TOG	CO	NOx	CO2	PM10	PM2.5	SOx
County Tons/day	0.30	0.35	0.42	3.75	2.72	702.92	0.13	0.11	0.01
MoVal Tons/day	0.08	0.10	0.11	1.01	0.73	189.47	0.03	0.03	0.00
MoVal Pounds/day	159.86	190.10	224.67	2018.94	1464.41	378942.46	68.20	61.69	3.60

2040	HC	ROG	TOG	CO	NOx	CO2	PM10	PM2.5	SOx
County Tons/day	0.22	0.26	0.31	3.68	0.88	666.54	0.04	0.03	0.01
MoVal Tons/day	0.06	0.07	0.08	0.99	0.24	179.66	0.01	0.01	0.00
MoVal Pounds/day	120.25	141.61	166.66	1986.18	473.77	359329.47	21.28	18.32	3.41

MoVal Construction Equipment Emissions Calcs (2024)

1. Estimating equipment required for construction in Moreno Valley using EMFAC Construction Equipment Populations in SCAQMD for 2024

Equation: (Land Mass of Moreno Valley/Land Mass of Riverside County) * # of each equipment from Riverside 2024 EMFAC

Land Mass Moreno Valley (sf) =	1430998272
Land Mass Riverside County SC (sf) =	5308843737

Equipment	Riverside County Equipment	MoVal Equipment
Agricultural - Construction Equipment	20	5
Construction and Mining - Bore/Drill Rigs	147	40
Construction and Mining - Cranes	6	2
Construction and Mining - Crawler Tractors	10	3
Construction and Mining - Excavators	2	0
Construction and Mining - Graders	8	2
Construction and Mining - Misc - Asphalt Pave	18	5
Construction and Mining - Misc - Bore/Drill Rig	393	106
Construction and Mining - Misc - Bore/Drill Rig	615	166
Construction and Mining - Misc - Cement And	25	7
Construction and Mining - Misc - Cement And	2321	626
Construction and Mining - Misc - Concrete/Ind	360	97
Construction and Mining - Misc - Concrete/Ind	0	0
Construction and Mining - Misc - Cranes	4	1
Construction and Mining - Misc - Crushing/Pro	4	1
Construction and Mining - Misc - Dumpers/Ter	5	1
Construction and Mining - Misc - Dumpers/Ter	451	122
Construction and Mining - Misc - Excavators	35	9
Construction and Mining - Misc - Other	64	17
Construction and Mining - Misc - Other	3	1
Construction and Mining - Misc - Pavers	1	0
Construction and Mining - Misc - Paving Equipr	0	0
Construction and Mining - Misc - Paving Equipr	30	8
Construction and Mining - Misc - Plate Compa	1	0
Construction and Mining - Misc - Plate Compa	2	1
Construction and Mining - Misc - Rollers	1	0
Construction and Mining - Misc - Rollers	22	6
Construction and Mining - Misc - Rough Terrair	1	0
Construction and Mining - Misc - Rubber Tired	323	87
Construction and Mining - Misc - Rubber Tired	2	1
Construction and Mining - Misc - Signal Boards	177	48
Construction and Mining - Misc - Signal Boards	20	5
Construction and Mining - Misc - Skid Steer Lo	34	9
Construction and Mining - Misc - Skid Steer Lo	61	16
Construction and Mining - Misc - Surfacing Equ	3	1
Construction and Mining - Misc - Tampers/Ran	2	1
Construction and Mining - Misc - Tractors/Load	1	0
Construction and Mining - Misc - Tractors/Load	2	1
Construction and Mining - Misc - Trenchers	177	48
Construction and Mining - Misc - Trenchers	35	9
Construction and Mining - Off-Highway Tractor	238	64
Construction and Mining - Off-Highway Trucks	86	23
Construction and Mining - Pavers	45	12
Construction and Mining - Paving Equipment	1	0
Construction and Mining - Rollers	17	5
Construction and Mining - Rough Terrain Forkli	31	8
Construction and Mining - Rubber Tired Dozers	26	7
Construction and Mining - Rubber Tired Loade	0	0
Construction and Mining - Scrapers	281	76
Construction and Mining - Skid Steer Loaders	250	67
Construction and Mining - Surfacing Equipmer	506	136
Construction and Mining - Tractors/Loaders/B	132	36
Construction and Mining - Trenchers	163	44

MoVal Construction Equipment Emissions Calcs (2040)

Note: equipement population in Riverside is estimated to decrease in the future per EMFAC

Equation: % of Building Space SCAQMD * Land Mass of Riverside County
Equation: # of each Equipment in 2040 / Building Space Riverside County

% Building Space in SCAQMD area = 49%
Land Mass Riverside County SC (sf) = 5308843737
(see 2024 Scenario for calculation)

Building Space Riverside County (sf) = 2599209894

2040 Building Space in MoVal (sf) = 50362604

Buildout Acres: 1156.1663
Buildout Sq ft: 50362604
From Table 3-4 in the Project Description

Equipment	Riverside County Equipment	Rate for County	Construction Equipment Needed from Existing Conditions	2040 Construction Equipment
Agricultural - Construction Equipment	16	6.14489E-09	0	6
Construction and Mining - Bore/Drill Rigs	144	5.54547E-08	3	42
Construction and Mining - Cranes	380	1.46169E-07	7	9
Construction and Mining - Crawler Tractors	589	2.26774E-07	11	14
Construction and Mining - Excavators	2303	8.8595E-07	45	45
Construction and Mining - Graders	345	1.32701E-07	7	9
Construction and Mining - Misc - Asphalt Pavers	4	1.68611E-09	0	5
Construction and Mining - Misc - Bore/Drill Rigs	4	1.44882E-09	0	106
Construction and Mining - Misc - Bore/Drill Rigs	6	2.33682E-09	0	166
Construction and Mining - Misc - Cement And Mortar Mixers	543	2.09064E-07	11	17
Construction and Mining - Misc - Cement And Mortar Mixers	42	1.62282E-08	1	626
Construction and Mining - Misc - Concrete/Industrial Saws	77	2.96324E-08	1	99
Construction and Mining - Misc - Concrete/Industrial Saws	4	1.50684E-09	0	0
Construction and Mining - Misc - Cranes	1	2.96244E-10	0	1
Construction and Mining - Misc - Crushing/Proc. Equipment	0	1.53497E-10	0	1
Construction and Mining - Misc - Dumpers/Tenders	36	1.39666E-08	1	2
Construction and Mining - Misc - Dumpers/Tenders	2	6.85581E-10	0	122
Construction and Mining - Misc - Excavators	3	1.07579E-09	0	9
Construction and Mining - Misc - Other	1	4.82583E-10	0	17
Construction and Mining - Misc - Other	27	1.04829E-08	1	1
Construction and Mining - Misc - Pavers	1	4.27242E-10	0	0
Construction and Mining - Misc - Paving Equipment	388	1.49148E-07	8	8
Construction and Mining - Misc - Paving Equipment	3	1.05005E-09	0	8
Construction and Mining - Misc - Plate Compactors	213	8.18872E-08	4	5
Construction and Mining - Misc - Plate Compactors	24	9.39016E-09	0	1
Construction and Mining - Misc - Rollers	40	1.53558E-08	1	1
Construction and Mining - Misc - Rollers	73	2.82667E-08	1	7
Construction and Mining - Misc - Rough Terrain Forklifts	3	1.21575E-09	0	0
Construction and Mining - Misc - Rubber Tired Loaders	2	8.02078E-10	0	87
Construction and Mining - Misc - Rubber Tired Loaders	1	2.8662E-10	0	1
Construction and Mining - Misc - Signal Boards	3	9.88557E-10	0	48
Construction and Mining - Misc - Signal Boards	214	8.25126E-08	4	10
Construction and Mining - Misc - Skid Steer Loaders	38	1.45396E-08	1	10
Construction and Mining - Misc - Skid Steer Loaders	279	1.07215E-07	5	22
Construction and Mining - Misc - Surfacing Equipment	104	4.00582E-08	2	3
Construction and Mining - Misc - Tampers/Rammers	54	2.08053E-08	1	2
Construction and Mining - Misc - Tractors/Loaders/Backhoes	1	4.17071E-10	0	0
Construction and Mining - Misc - Tractors/Loaders/Backhoes	21	7.95286E-09	0	1
Construction and Mining - Misc - Trenchers	36	1.37069E-08	1	48
Construction and Mining - Misc - Trenchers	31	1.19376E-08	1	10
Construction and Mining - Off-Highway Tractors	274	1.05556E-07	5	69
Construction and Mining - Off-Highway Trucks	245	9.41836E-08	5	28
Construction and Mining - Pavers	159	6.11515E-08	3	15
Construction and Mining - Paving Equipment	168	6.47619E-08	3	4
Construction and Mining - Rollers	801	3.08119E-07	16	20
Construction and Mining - Rough Terrain Forklifts	931	3.58337E-07	18	26
Construction and Mining - Rubber Tired Dozers	49	1.89403E-08	1	8
Construction and Mining - Rubber Tired Loaders	1054	4.05575E-07	20	20
Construction and Mining - Scrapers	524	2.01505E-07	10	86
Construction and Mining - Skid Steer Loaders	1997	7.68168E-07	39	106
Construction and Mining - Surfacing Equipment	47	1.80726E-08	1	137
Construction and Mining - Tractors/Loaders/Backhoes	3387	1.30308E-06	66	101
Construction and Mining - Trenchers	149	5.71452E-08	3	47

2024 Riverside Emissions
Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2024
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

	HC	ROG	TOG	CO	NOx	CO2	PM10	PM2.5	SOx
Total Construction Emissions (TPD):	0.30	0.35	0.42	3.75	2.72	702.92	0.13	0.11	0.01
Total Construction Emissions (lbs/day):	593.07	705.26	833.50	7,490.03	5,432.80	1,405,834.21	253.02	228.87	13.35

Region	Calendar Year	Vehicle Category	Model Year	Horsepow	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumpt	Total_Activity_I	Total_Popu	Horsepower_Hours_hhpy
Riverside	2024	Agricultural - Construction Equipment	Aggregate	Aggregate	Diesel	0.000628583	0.000760585	0.000905159	0.005701934	0.006733392	1.033510228	0.000318493	0.000293013	9.43457E-06	8.45692E-06	33616.75012	10694.87509	19.9475	1577897.112
Riverside	2024	Construction and Mining - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	0.006003241	0.007263922	0.008644667	0.051289258	0.065184312	14.91900141	0.002787011	0.00256405	0.000141325	0	484795.5537	85411.42271	146.92	9600558.173
Riverside	2024	Construction and Mining - Bucket	Aggregate	Aggregate	Diesel	0.000119498	0.000144592	0.000172077	0.001235253	0.001004987	0.357288884	4.76122E-05	4.38032E-05	3.38453E-06	0	11610.16463	3462.191917	6.20885	225494.302
Riverside	2024	Construction and Mining - Compactor	Aggregate	Aggregate	Diesel	0.000156177	0.000188975	0.000224895	0.002313995	0.001456363	0.580367817	5.12044E-05	4.7108E-05	5.49771E-06	0	18859.15348	5975.398657	10.1784	370796.7379
Riverside	2024	Construction and Mining - Concrete Mixer	Aggregate	Aggregate	Diesel	1.52504E-05	1.84529E-05	2.19605E-05	0.000202941	0.000153207	0.053623991	4.47386E-06	4.11595E-06	5.0797E-07	0	1742.520958	877.4776964	1.73033	33945.62902
Riverside	2024	Construction and Mining - Concrete Pump	Aggregate	Aggregate	Diesel	0.000173308	0.000209703	0.000249564	0.002061506	0.001827754	0.538854206	6.1714E-05	5.67769E-05	5.10446E-06	0	17510.16145	4942.692793	7.53204	345283.9033
Riverside	2024	Construction and Mining - Crane less than 35ton	Aggregate	Aggregate	Diesel	9.80916E-05	0.000118691	0.000141252	0.001409327	0.00129243	0.277897067	5.62517E-05	5.17515E-05	2.63247E-06	0	9030.313685	4289.771293	17.9196	165589.9467
Riverside	2024	Construction and Mining - Cranes	Aggregate	Aggregate	Diesel	0.004208851	0.00509271	0.006060746	0.04088706	0.051617536	13.69864313	0.002282529	0.002099927	0.000129765	0	445139.7984	98912.06164	392.992	8352634.601
Riverside	2024	Construction and Mining - Crawler Tractors	Aggregate	Aggregate	Diesel	0.014235328	0.017224747	0.020498872	0.135332196	0.15651609	38.44113934	0.007231459	0.006652942	0.000364145	0	1249151.53	257719.9888	615.198	24749784.48
Riverside	2024	Construction and Mining - Crushing/Processing Equipment	Aggregate	Aggregate	Diesel	0.000462348	0.000559441	0.000665781	0.005970827	0.003321756	2.101847717	0.000128921	0.000118608	1.99104E-05	0	68299.90826	14874.92857	25.039	1348689.868
Riverside	2024	Construction and Mining - Excavators	Aggregate	Aggregate	Diesel	0.042012633	0.050835287	0.060498192	0.461066717	0.401348008	123.0116741	0.015709643	0.014452871	0.001165266	0	3997285.811	1349031.291	2321.13	78061190.37
Riverside	2024	Construction and Mining - Graders	Aggregate	Aggregate	Diesel	0.006395246	0.007738248	0.009209155	0.051666098	0.07132018	17.9363931	0.003274283	0.003012341	0.000169908	0	582846.2232	130825.5469	360.368	11300641.11
Riverside	2024	Construction and Mining - Hopper Tractor Trailer	Aggregate	Aggregate	Diesel	7.6148E-06	9.21391E-06	1.09653E-05	6.97777E-05	3.15487E-05	0.035531439	1.65682E-06	1.52428E-06	3.36582E-07	0	1154.600304	235.5970704	0.40714	22888.33269
Riverside	2024	Construction and Mining - Misc - Asphalt Pavers	Aggregate	Aggregate	Gasoline	0.000321414	0.000321196	0.000353695	0.011909476	0.00026286	0.029487992	0.000122245	9.23627E-05	4.68974E-07	6.55544E-07	1869.648914	463.55	3.83388	19491
Riverside	2024	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Gasoline	8.66376E-05	8.60141E-05	9.53394E-05	0.003232654	0.000104333	0.02608725	3.40808E-05	2.575E-05	2.9715E-07	4.1543E-07	1185.266409	127.75	3.53022	11935.5
Riverside	2024	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	8.22934E-05	9.89809E-05	0.000118298	0.000363425	0.000624688	0.000944302	2.11421E-05	1.59741E-05	8.96207E-09	7.72001E-09	30.71509139	0	5.02023	0
Riverside	2024	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Gasoline	0.004234961	0.004277309	0.004660316	0.12472737	0.002720664	5.12584E-06	0.001234704	0.000932888	2.04469E-06	2.82242E-06	7861.685682	0	451.36	0
Riverside	2024	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Diesel	0.000101029	0.000121515	0.000145231	0.000591329	0.000762236	0.001386639	2.67606E-05	2.02191E-05	1.31602E-08	1.13363E-08	45.1028774	0	34.8558	0
Riverside	2024	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Gasoline	0.003407014	0.003436471	0.003749211	0.110657992	0.002491029	0.069629953	0.00139365	0.00105298	2.4702E-06	3.36262E-06	9570.28742	821.25	64.2951	38022.05
Riverside	2024	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Diesel	5.05353E-05	6.03205E-05	7.27357E-05	0.000459407	0.000449995	0.054242966	1.43838E-05	1.26394E-05	6.81814E-07	4.43854E-07	1764.348506	1266.55	3.24584	41796.15
Riverside	2024	Construction and Mining - Misc - Cranes	Aggregate	Aggregate	Gasoline	2.81541E-05	2.58961E-05	3.09819E-05	0.001471507	6.47696E-05	0.023190238	1.61567E-06	1.22073E-06	2.35468E-07	3.41408E-07	974.55	324.85	0.76	20122.45
Riverside	2024	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	Aggregate	Gasoline	2.22345E-05	2.24569E-05	2.44677E-05	0.00076424	1.56955E-05	3.10198E-08	1.00504E-05	7.59364E-06	1.21422E-08	1.67607E-08	47.68739298	0	0.3557	0
Riverside	2024	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Gasoline	0.000445834	0.000450201	0.000490614	0.011789261	0.00030622	0.001508003	0.000136608	0.000103215	2.07838E-07	2.83412E-07	794.2156119	0	30.179	0
Riverside	2024	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Diesel	0.000010165	1.22262E-05	1.46123E-05	4.17299E-05	7.72602E-05	0.000111691	2.59701E-06	1.96218E-06	1.06002E-09	9.13114E-10	3.6329422	0	1.46841	0
Riverside	2024	Construction and Mining - Misc - Excavators	Aggregate	Aggregate	Diesel	7.26468E-05	8.73781E-05	0.000104431	0.000298234	0.000552161	0.000798229	1.85685E-05	1.40295E-05	7.57575E-09	6.52582E-09	25.96382334	0	2.30798	0
Riverside	2024	Construction and Mining - Misc - Other	Aggregate	Aggregate	Gasoline	1.38845E-05	1.2771E-05	1.52791E-05	0.00117385	4.66939E-05	0.037227251	2.6688E-06	2.01642E-06	3.69814E-07	5.20423E-07	1485.55	270.1	1.23214	34032.6
Riverside	2024	Construction and Mining - Misc - Other	Aggregate	Aggregate	Diesel	0.000214718	0.000258258	0.00030866	0.001271088	0.001619906	0.002969487	5.6525E-05	4.27077E-05	2.81825E-08	2.42767E-08	96.58783846	0	22.1876	0
Riverside	2024	Construction and Mining - Misc - Pavers	Aggregate	Aggregate	Diesel	1.91462E-05	2.30287E-05	0.000027523	7.86003E-05	0.000145524	0.000210375	4.89913E-06	3.70157E-06	1.99661E-09	1.7199E-09	6.842831783	0	0.91126	0
Riverside	2024	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Gasoline	0.007325221	0.007396324	0.00806096	0.214409139	0.0051015	0.026579056	0.002419571	0.00182812	3.74814E-06	5.14139E-06	14516.07406	445.3	322.602	19122.35
Riverside	2024	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Diesel	3.25105E-05	3.91029E-05	4.67343E-05	0.000133464	0.0002471	0.000357219	8.30967E-06	6.27842E-06	3.39025E-09	2.9204E-09	11.61918125	0	2.26435	0
Riverside	2024	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Gasoline	0.003040106	0.003070507	0.003345453	0.084376822	0.001981007	3.49106E-06	0.00081849	0.000618414	1.37966E-06	1.90445E-06	5341.152923	0	176.789	0
Riverside	2024	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Diesel	0.000069089	8.30988E-05	9.93165E-05	0.000435889	0.000520398	0.000997604	1.83013E-05	1.38276E-05	9.46795E-09	8.15578E-09	32.44884997	0	20.1704	0
Riverside	2024	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Gasoline	0.001543701	0.001547425	0.001698748	0.052754274	0.001243573	0.083707984	0.000581132	0.000439077	1.58002E-06	2.27134E-06	6467.802781	938.05	33.6403	57870.75
Riverside	2024	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Diesel	0.00047822	0.000575193	0.000687448	0.002515404	0.003617644	0.006119413	0.000124562	9.41132E-05	5.80775E-08	5.00284E-08	199.0447391	0	61.0037	0
Riverside	2024	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	Aggregate	Gasoline	0.000175838	0.000161736	0.000193499	0.007887156	0.000461838	0.167854241	1.17157E-05	8.85186E-06	1.63914E-06	2.40136E-06	6854.7	1306.7	3.18	108018.1
Riverside	2024	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Gasoline	0.000100016	9.19944E-05	0.000110061	0.00513963	0.000237868	0.087345578	6.08461E-06	4.59726E-06	8.60894E-07	1.26845E-06	3620.8	1003.75	2.05846	68532.4
Riverside	2024	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	1.30238E-05	1.56648E-05	1.87219E-05	5.34662E-05	9.89892E-05	0.000143103	3.32889E-06	2.51516E-06	1.35815E-09	1.16992E-09	4.654686589	0	0.58613	0
Riverside	2024	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Gasoline	7.30675E-05	7.37981E-05	8.04062E-05	0.002420266	5.42517E-05	1.01283E-07	3.15856E-05	2.38646E-05	3.86994E-08	5.34195E-08	151.3661764	0	2.13319	0
Riverside	2024	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Diesel	0.001096066	0.001318122	0.001575651	0.006988045	0.008285009	0.039721352	0.000290796	0.000220486	4.48734E-07	3.24913E-07	1292.00731	463.55	177.251	17151.35
Riverside	2024	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Gasoline	0.002295822	0.002303019	0.002526412	0.074369261	0.001749742	0.239737533	0.00081599	0.000616526	3.55892E-06	4.81666E-06	13738.11065	3536.85	34.7331	176952
Riverside	2024	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Diesel	0.003756831	0.004518641	0.005400504	0.015403849	0.028579812	0.041249637	0.00097623	0.000737596	3.91487E-07	3.37231E-07	1341.717474	0	237.762	0
Riverside	2024	Construction and Mining - Misc - Surfacing Equipment	Aggregate	Aggregate	Gasoline	0.003952639	0.003992165	0.004349638	0.101993146	0.002875346	4.25307E-06	0.001278693	0.000966124	1.66436E-06	2.29744E-06	6492.442516	0	86.4929	0
Riverside	2024	Construction and Mining - Misc - Tampers/Rammers	Aggregate	Aggregate	Gasoline	0.000338242	0.000341624	0.000372215	0.01305244	0.000261352	5.77162E-07	0.000187	0.000141289	2.11153E-07	2.9147E-07	809.0528881	0	44.9175	0
Riverside	2024	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Gasoline	4.49932E-05	4.13847E-05	4.95122E-05	0.003134328	0.000117489	0.056421319	3.93383E-06	2.97223E-06	5.45109E-07	8.17077E-07	2332.35	795.7	1.10176	50129.1
Riverside	2024	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	0.00034746	0.000417918	0.00049948	0.001426416	0.002640917	0.003817829	8.87856E-05	6.70825E-05	3.62338E-08	3.12122E-08	124.1816602	0	16.9538	0
Riverside	2024	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Gasoline	0.00270762	0.002712354	0.00297957	0.094447815	0.002154974	0.153704897	0.001040393	0.000786076	2.96355E-06	4.11041E-06	11717.39569	2533.1	31.1959	98725.2
Riverside	2024	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Diesel	0.000437105	0.000525741	0.000628345	0.002012931	0.003315494	0.00514504	0.000112645	8.51099E-05	4.883E-08	4.20626E-08	167.3515283	0	26.4349	0
Riverside	2024	Construction and Mining - Nurse Rig Other	Aggregate	Aggregate	Diesel	1.40265E-06	1.69721E-06	2.01982E-06	1.87127E-05	1.50197E-05	0.003178901	1.1353E-06	1.04448E-06	3.01131E-08	0	103.298935	56.88212772	0.10178	2047.756598
Riverside	2024	Construction and Mining - Off-Highway Tractors	Aggregate	Aggregate	Diesel	0.009608165	0.01162588	0.013835758	0.093513809	0.075836738	21.8663245	0.003703459	0.003407182	0.000207135	0	710550.0297	212992.4704	280.794	13960119.46
Riverside	2024	Construction and Mining - Off-Highway Trucks	Aggregate	Aggregate	Diesel	0.016378038	0.019817426	0.023584375	0.117727053	0.170344332	50.92217596	0.006164463	0.005671306	0.000482376	0	1654724.992	193432.4669	250.247	33903028.05
Riverside	2024	Construction and Mining - Other Construction Equipment	Aggregate	Aggregate	Diesel	0.008447196	0.010221107	0.012163962	0.083484194	0.095064065	25.1855578	0.003956641	0.00364011	0.000238578	0	818409.0949	187387.8784	505.508	15966541.43
Riverside	2024	Construction and Mining - Other Material Handling Equipment	Aggregate	Aggregate	Diesel	0.002594178	0.003138955	0.003735616	0.02545262	0.02817793	7.805776424	0.00119299	0.001097551	7.39426E-05	0	253650.0667	59515.42316	131.729	4970628.978
Riverside	2024	Construction and Mining - Pavers	Aggregate	Aggregate	Diesel	0.003032096	0.003668836	0.004366218	0.031525899	0.030202767	7.910307565	0.001318305	0.001212841	7.49328E-05	0	257046.8244	79077.04774	163.173	4989206.73
Riverside	2024	Construction and Mining - Paving Equipment	Aggregate	Aggregate	Diesel	0.00273524	0.003309641	0.003938746	0.032131708	0.024441516	8.785795809	0.00107282	0.000986995	8.32261E-05	0	285495.9676	89478.30018	170.012	5579894.752
Riverside	2024	Construction and Mining - Rollers	Aggregate	Aggregate	Diesel	0.009805946	0.011865194	0.014120562	0.118449301	0.090387421	20.8996578	0.004187782	0.003852759	0.000197978	0	679138.0266	361048.7239	823.763	12904999.7
Riverside	2024	Construction and Mining - Rough Terrain Forklifts	Aggregate	Aggregate	Diesel	0.007834846	0.009480164	0.011282178	0.146419271	0.089130667	25.96805991	0.00328827	0.003025208	0.00024599	0	843836.6374	384288.789	939.724	16185939.35
Riverside	2024	Construction and Mining - Rubber Tired Dozers	Aggregate	Aggregate	Diesel	0.001871423	0.002264422	0.002694849	0.017955201	0.020217084	4.418248315	0.00098148	0.000902961	4.18532E-05	0	143571.7498	26883.47708	51.2205	3047810.005
Riverside	2024	Construction and Mining - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	0.031422678	0.03802144	0.045248656	0.289208393	0.290107434	89.5241394	0.012752931	0.011732696	0.000848045	0	2909102.529	739413.6542	1079.76	57647775.48
Riverside	2024	Construction and Mining - Scrapers	Aggregate	Aggregate	Diesel	0.015474621	0.018724291	0.022283454	0.157552243	0.18568003	45.30178426	0.008214023	0.007556901	0.000429135	0	1472089.383	168461.1963	541.513	30799030.22
Riverside	2024	Construction and Mining - Skid Steer Loaders	Aggregate	Aggregate	Diesel	0.01794554	0.021714103	0.025841577	0.249129609	0.21094328	42.65046697	0.007512476	0.006911478	0.00040402	0	1385934.365	915798.4037	2008.16	24967219.87
Riverside	2024	Construction and Mining - Spray Truck	Aggregate	Aggregate	Diesel	0.000214056	0.000259008	0.000308241	0.002223265	0.001966297	0.51608021	9.71114E-05	8.93425E-05	4.88873E-06	0	16770.11647	5846.243832	10.5867	324927.392
Riverside	2024	Construction and Mining - Spreader Tractor Trailer	Aggregate	Aggregate	Diesel	2.19204E-05	2.65237E-05	3.15654E-05	0.000140306	0.000243338	0.064598573	7.83422E-06	7.20748E-06	6.1193E-07	0	2099.141885	500.0433832	1.01784	41421.22428
Riverside	2024	Construction and Mining - Spreader Truck	Aggregate	Aggregate	Diesel	0.000126861	0.000153501	0.000182679	0.001320585	0.001029882	0.405626294	5.38569E-05	4.95484E-05	3.84242E-06	0	13180.89718	2705.240115	4.5803	258568.4666
Riverside	2024	Construction and Mining - Surfacing Equipment	Aggregate	Aggregate	Diesel	0.001294457	0.001566293	0.001864018	0.010780314	0.012459211	4.151329858	0.000529248	0.000486908	3.93247E-05	0	134898.188	28186.74293	48.0754	2679805.139
Riverside	2024	Construction and Mining - Tank Truck	Aggregate	Aggregate	Diesel	0.000285541	0.000345504	0.000411179	0.001921729	0.002213656	0.890410367	9.30781E-05	8.56318E-05	8.43468E-06	0	28934.04024	6085.072393	8.85524	572986.7546
Riverside	2024	Construction and Mining - Tanker Truck Trailer	Aggregate	Aggregate	Diesel	2.19326E-05	2.65385E-05	3.1583E-05	0.000306015	0.000157942	0.068395547	7.30352E-06	6.71923E-06	6.47898E-07	0	2222.525239	878.430327	1.3232	42648.66593
Riverside	2024	Construction and Mining - Telescopic Handler	Aggregate	Aggregate	Diesel	0.000409068	0.000494972	0.000589057	0.009420008	0.005422441	1.786238525	0.000144897	0.000133305	1.69207E-05	0	58044.1325	29527.49594	72.674	1113093.833
Riverside	2024	Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	0.051234288	0.061993488	0.073777374	0.611378804	0.503478233	120.1719027	0.025419395	0.023385843	0.001138365	0	3905006.946	1780211.052	3466.33	73505477.09
Riverside	2024	Construction and Mining - Trenchers	Aggregate	Aggregate	Diesel	0.002340149	0.00283158	0.003369815	0.019579981	0.023064537	4.165891488	0.00108721	0.001000233	3.94627E-05	0	135371.3707	49872.20391	154.029	2556457.675
Riverside	2024	Construction and Mining - Vacuum Truck	Aggregate	Aggregate	Diesel	0.000494248	0.00059804	0.000711717	0.004329556	0.005068833	1.336896447	0.00020921	0.000192474	1.26642E-05	0	43442.6833	11481.9436	20.3569	855925.5496
Riverside	2024	Construction and Mining - Water Truck	Aggregate	Aggregate	Diesel	0.001484312	0.001796017	0.002137409	0.010057304	0.015151308	3.97178086	0.000660894	0.000608022	3.76239E-05	0	129063.712	19793.22145	34.5193	2559642.667

2040 Riverside Emissions
Model Output: OFFROAD2021 (v1.0.7) Emissions Inventory
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2040
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

	HC	ROG	TOG	CO	NOx	CO2	PM10	PM2.5	SOx
Total Construction Emissions (TPD):	0.22	0.26	0.31	3.68	0.88	666.54	0.04	0.03	0.01
Total Construction Emissions (lbs/day):	446.12	525.35	618.29	7,368.50	1,757.65	1,333,072.21	78.93	67.97	12.66

Region	Calend	Vehicle Category	Model Yea	Horsepow	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2.5_tpd	SOx_tpd	NH3_tpd	Fuel Consumpl	Total_Activity_hp	Total_Popu	Horsepower_Hours_hhpy
Riverside (	2040	Agricultural - Construction Equipment	Aggregate	Aggregate	Diesel	0.0002219	0.0002685	0.0003195	0.0042829	0.0013757	0.835454745	7.31E-05	6.72E-05	7.64E-06	6.84E-06	27174.64486	11022.33189	15.97186	1275126.255
Riverside (	2040	Construction and Mining - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	0.004102143	0.0049636	0.0059071	0.0473509	0.0133218	15.0129717	0.0005458	0.00050218	0.0001422	0	487849.1347	85201.15194	144.1385	9633700.973
Riverside (	2040	Construction and Mining - Cranes	Aggregate	Aggregate	Diesel	0.002394867	0.0028978	0.0034486	0.0315622	0.0086666	13.40535334	0.0004086	0.000375931	0.000127	0	435609.2954	98993.58837	379.9238	8368065.769
Riverside (	2040	Construction and Mining - Crawler Tractors	Aggregate	Aggregate	Diesel	0.008949163	0.0108285	0.0128868	0.1189414	0.0286573	39.11095545	0.0013059	0.001201473	0.0003705	0	1270917.321	256540.1837	589.4323	24839094.34
Riverside (	2040	Construction and Mining - Excavators	Aggregate	Aggregate	Diesel	0.035031541	0.0423882	0.0504454	0.4614796	0.1460432	120.8192957	0.0043896	0.00403843	0.0011445	0	3926044.093	1309493.995	2302.77	75998367.27
Riverside (	2040	Construction and Mining - Graders	Aggregate	Aggregate	Diesel	0.00382201	0.0046246	0.0055037	0.0504186	0.0099303	17.91435795	0.0005405	0.00049725	0.0001697	0	582130.187	131503.0188	344.9187	11299162.88
Riverside (	2040	Construction and Mining - Misc - Asphalt Pavers	Aggregate	Aggregate	Gasoline	0.000366067	0.0003669	0.0004028	0.0136128	0.0002828	0.02948806	0.0001442	0.000108921	4.96E-07	6.86E-07	1957.320688	448.95	4.382567	19023.8
Riverside (	2040	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Gasoline	9.07E-05	9.06E-05	9.98E-05	0.0035304	8.28E-05	0.026087265	3.85E-05	2.91E-05	3.03E-07	4.19E-07	1195.547186	102.2	3.765781	8993.6
Riverside (	2040	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	9.96E-05	0.0001198	0.0001432	0.0004397	0.0007562	0.00114279	2.56E-05	1.93E-05	1.08E-08	9.34E-09	37.17126406	0	6.073893	0
Riverside (	2040	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Gasoline	0.004946455	0.0049959	0.0054433	0.1492108	0.0032837	6.17E-06	0.0014865	0.001123136	2.43E-06	3.35E-06	9389.310297	0	543.4013	0
Riverside (	2040	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Diesel	0.000122114	0.0001469	0.0001755	0.0007155	0.0009215	0.00167718	3.21E-05	2.43E-05	1.59E-08	1.37E-08	54.55324198	0	42.18039	0
Riverside (	2040	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Gasoline	0.004088871	0.0041251	0.0044996	0.1323373	0.0029774	0.069630836	0.0016744	0.001265071	2.82E-06	3.84E-06	10929.69529	821.25	77.02083	38022.05
Riverside (	2040	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Diesel	4.61E-05	5.50E-05	6.63E-05	0.0005375	0.0004716	0.065383256	6.00E-06	4.81E-06	8.25E-07	5.35E-07	2126.706177	1540.3	3.916581	50829.9
Riverside (	2040	Construction and Mining - Misc - Cranes	Aggregate	Aggregate	Gasoline	1.98E-05	1.82E-05	2.18E-05	0.0015063	4.25E-05	0.023190239	1.62E-06	1.22E-06	2.35E-07	3.39E-07	967.25	324.85	0.77	20257.5
Riverside (	2040	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	Aggregate	Gasoline	2.49E-05	2.52E-05	2.74E-05	0.0008573	1.76E-05	3.48E-08	1.13E-05	8.52E-06	1.36E-08	1.88E-08	53.4933759	0	0.398972	0
Riverside (	2040	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Gasoline	0.000533504	0.0005388	0.0005871	0.014156	0.0003676	0.001508101	0.0001644	0.000124222	2.46E-07	3.40E-07	955.5369365	0	36.30202	0
Riverside (	2040	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Diesel	1.23E-05	1.48E-05	1.77E-05	5.06E-05	9.38E-05	0.000135541	3.15E-06	2.38E-06	1.29E-09	1.11E-09	4.40869945	0	1.78197	0
Riverside (	2040	Construction and Mining - Misc - Excavators	Aggregate	Aggregate	Diesel	8.80E-05	0.0001059	0.0001265	0.0003613	0.000669	0.000967087	2.25E-05	1.70E-05	9.18E-09	7.91E-09	31.45621624	0	2.79621	0
Riverside (	2040	Construction and Mining - Misc - Other	Aggregate	Aggregate	Gasoline	1.39E-05	1.28E-05	1.53E-05	0.0011739	4.67E-05	0.037227251	2.67E-06	2.02E-06	3.70E-07	5.19E-07	1481.9	270.1	1.254334	34032.6
Riverside (	2040	Construction and Mining - Misc - Other	Aggregate	Aggregate	Diesel	0.000263781	0.0003173	0.0003792	0.0015607	0.0019901	0.003646787	6.94E-05	5.25E-05	3.46E-08	2.98E-08	118.6182033	0	27.24738	0
Riverside (	2040	Construction and Mining - Misc - Pavers	Aggregate	Aggregate	Diesel	2.33E-05	2.81E-05	3.35E-05	9.58E-05	0.0001773	0.000256371	5.96E-06	4.51E-06	2.43E-09	2.10E-09	8.338919736	0	1.110491	0
Riverside (	2040	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Gasoline	0.008802165	0.008888	0.0096862	0.2576745	0.0061243	0.026580851	0.0029112	0.002199577	4.45E-06	6.11E-06	17254.47449	441.65	387.6672	18881.45
Riverside (	2040	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Diesel	0.000039186	4.71E-05	5.63E-05	0.0001609	0.0002978	0.000430568	1.00E-05	7.57E-06	4.09E-09	3.52E-09	14.0050028	0	2.729296	0
Riverside (	2040	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Gasoline	0.003656801	0.0036934	0.0040241	0.1015841	0.0023829	4.20E-06	0.0009854	0.00074453	1.66E-06	2.29E-06	6429.968259	0	212.842	0
Riverside (	2040	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Diesel	8.36E-05	0.0001006	0.0001202	0.0005274	0.0006297	0.00120714	2.21E-05	0.000016732	1.15E-08	9.87E-09	39.26437975	0	24.407	0
Riverside (	2040	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Gasoline	0.001782757	0.0017924	0.0019618	0.0620268	0.0013578	0.083708347	0.000694	0.000524369	1.72E-06	2.47E-06	7023.559034	916.15	39.91292	56783.05
Riverside (	2040	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Diesel	0.000576276	0.0006931	0.0008284	0.0030302	0.0043595	0.007372656	0.0001501	0.000113408	7.00E-08	6.03E-08	239.8086864	0	73.47118	0
Riverside (	2040	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	Aggregate	Gasoline	0.000117528	0.0001081	0.0001293	0.0079034	0.0002939	0.167854236	1.17E-05	8.85E-06	1.64E-06	2.39E-06	6818.2	1306.7	3.16	107463.3
Riverside (	2040	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Gasoline	7.10E-05	6.53E-05	7.81E-05	0.0051876	0.0001691	0.087345576	6.08E-06	4.60E-06	8.61E-07	1.27E-06	3620.8	992.8	2.084769	67860.8
Riverside (	2040	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	1.66E-05	1.99E-05	2.38E-05	6.80E-05	0.0001258	0.000181887	4.23E-06	3.20E-06	1.73E-09	1.49E-09	5.916185076	0	0.744985	0
Riverside (	2040	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Gasoline	8.81E-05	8.90E-05	9.69E-05	0.0029156	6.54E-05	1.22E-07	3.81E-05	2.88E-05	4.66E-08	6.44E-08	182.351728	0	2.569468	0
Riverside (	2040	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Diesel	0.001319158	0.0015865	0.0018963	0.0084472	0.0099944	0.047822323	0.0003469	0.000262227	5.43E-07	3.91E-07	1555.50573	562.1	214.4674	20797.7
Riverside (	2040	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Gasoline	0.002552466	0.0025622	0.0028088	0.0825006	0.0019203	0.239737858	0.0009202	0.000695239	3.69E-06	5.00E-06	14259.23451	3525.9	37.7915	176601.6
Riverside (	2040	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Diesel	0.004396972	0.0052886	0.0063207	0.0180507	0.0334198	0.04831313	0.0011239	0.000849143	4.59E-07	3.95E-07	1571.470114	0	278.6755	0
Riverside (	2040	Construction and Mining - Misc - Surfacing Equipment	Aggregate	Aggregate	Gasoline	0.00476649	0.0048142	0.0052452	0.1227803	0.0034677	5.12E-06	0.0015393	0.001163025	2.00E-06	2.77E-06	7816.737476	0	104.1196	0
Riverside (	2040	Construction and Mining - Misc - Tampers/Rammers	Aggregate	Aggregate	Gasoline	0.000406837	0.0004109	0.0004477	0.015715	0.0003144	6.95E-07	0.0002251	0.000170109	2.54E-07	3.51E-07	974.0366826	0	54.07737	0
Riverside (	2040	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Gasoline	4.48E-05	4.12E-05	4.93E-05	0.0031219	0.0001167	0.056421319	3.93E-06	2.97E-06	5.45E-07	8.15E-07	2325.05	795.7	1.084056	50129.1
Riverside (	2040	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	0.000423645	0.0005096	0.000609	0.0017392	0.00322	0.004654934	0.0001083	8.18E-05	4.42E-08	3.81E-08	151.4099568	0	20.67114	0
Riverside (	2040	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Gasoline	0.003081789	0.0030958	0.0033913	0.1092901	0.0023283	0.15370547	0.0012252	0.000925716	3.19E-06	4.44E-06	12641.9369	2533.1	35.62721	98725.2
Riverside (	2040	Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Diesel	0.000513533	0.0006177	0.0007382	0.0023643	0.0038952	0.006043747	0.0001323	1.00E-04	5.74E-08	4.94E-08	196.5835716	0	31.02835	0
Riverside (	2040	Construction and Mining - Off-Highway Tractors	Aggregate	Aggregate	Diesel	0.007282529	0.0088119	0.0104868	0.092657	0.0258798	22.02158753	0.000865	0.000795775	0.0002086	0	715595.3289	210473.3243	274.3617	13818933.54
Riverside (	2040	Construction and Mining - Off-Highway Trucks	Aggregate	Aggregate	Diesel	0.014004626	0.0169456	0.0201667	0.1150594	0.0664569	51.8974185	0.0018557	0.001707224	0.0004916	0	1686415.669	192867.0299	244.803	33860824.23
Riverside (	2040	Construction and Mining - Pavers	Aggregate	Aggregate	Diesel	0.002172462	0.0026287	0.0031283	0.0320573	0.0099666	7.823743014	0.0003337	0.000307019	7.41E-05	0	254233.8942	76967.50752	158.9455	4851907.476
Riverside (	2040	Construction and Mining - Paving Equipment	Aggregate	Aggregate	Diesel	0.002243008	0.002714	0.0032299	0.0327181	0.0081929	8.695027664	0.0003119	0.000286909	8.24E-05	0	282546.4409	87634.16484	168.3298	5463763.93
Riverside (	2040	Construction and Mining - Rollers	Aggregate	Aggregate	Diesel	0.006355048	0.0076896	0.0091513	0.1191585	0.0356658	21.3608317	0.0009192	0.000845631	0.0002023	0	694123.953	351907.3664	800.867	12622135.81
Riverside (	2040	Construction and Mining - Rough Terrain Forklifts	Aggregate	Aggregate	Diesel	0.006199598	0.0075015	0.0089274	0.1501581	0.033409	25.85857975	0.0009248	0.00085081	0.000245	0	840279.0603	373164.9647	931.3922	15731187.17
Riverside (	2040	Construction and Mining - Rubber Tired Dozers	Aggregate	Aggregate	Diesel	0.001335286	0.0016157	0.0019228	0.0136147	0.0032663	5.300536846	0.000155	0.000142605	5.02E-05	0	172241.8696	29183.21777	49.22972	3392724.277
Riverside (	2040	Construction and Mining - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	0.024133883	0.029202	0.0347528	0.2840304	0.0558823	89.29603356	0.0028185	0.002593065	0.0008459	0	2901690.19	732727.0547	1054.174	57171865.13
Riverside (	2040	Construction and Mining - Scrapers	Aggregate	Aggregate	Diesel	0.010169847	0.0123055	0.0146446	0.1084481	0.0220965	53.63400907	0.0013646	0.00125543	0.0005081	0	1742846.482	187661.7544	523.755	34646763.87
Riverside (	2040	Construction and Mining - Skid Steer Loaders	Aggregate	Aggregate	Diesel	0.014816154	0.0179275	0.0213353	0.2522497	0.14604	42.94098071	0.0023241	0.002138175	0.0004068	0	1395374.66	884495.1459	1996.629	24086726.35
Riverside (	2040	Construction and Mining - Surfacing Equipment	Aggregate	Aggregate	Diesel	0.001060209	0.0012829	0.0015267	0.0105102	0.0040354	4.211307591	0.0001498	0.000137777	3.99E-05	0	136847.1749	28091.7731	46.9745	2685259.932
Riverside (	2040	Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	0.03391714	0.0410397	0.0488407	0.6156466	0.1616356	120.9452785	0.0057898	0.005326644	0.0011457	0	3930137.925	1739806.921	3386.976	71864027.56
Riverside (	2040	Construction and Mining - Trenchers	Aggregate	Aggregate	Diesel	0.001367776	0.001655	0.0019696	0.0186749	0.0116406	4.26064369	0.000244	0.000224439	4.04E-05	0	138450.36	48842.04845	148.5323	2472184.109

Population, Employment, and Land Use Summary

	Building Area (Square Feet)		
Land Use	2024	2040	
Residential	74,681,050	103,725,513	
Mixed Use	-		103,324,320
Commercial	7,288,053	9,241,218	
Office	465,215	2,386,955	
Industrial	33,746,988	74,884,455	
Public	76,334,544	42,166,080	

Land Use	2024 Base Year[1]	2040 Proposed GP[4]	2040 Proposed GP - 2024 Base Year Delta[2,3]
Population	205,620	298,440	92,820
Household	53,048	86,860	33,812
Total Employment	65,303	104,296	38,993

Table 3-3
SCAG Growth Projections for Moreno Valley[1,2]

	Existing -2024	SCAG Projected (2040)	Increment
Population	213,511	235,987	21,476
Households[3]	54,738	65,362	10,624
Employment	50,742	70,716	19,974

SOURCE:
1. Connect SoCal 2024-2050 RTP/SCS Demographics and Growth Forecast.
2. Data for 2024 and 2040 were interpolated using 2019 and 2050 SCAG data.
3. Household values were calculated by multiplying by 94% assuming a 6% vacancy.

Area Sources - Summary

2024 Unmitigated	pounds/day						tons/year						MT/year
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
Architectural Coatir	434.51	-	-	-	-	-	78.00	-	-	-	-	-	-
Degreaser on Parkir	123.30	-	-	-	-	-	0.06	-	-	-	-	-	-
Consumer Products	3,927.32	-	-	-	-	-	716.74	-	-	-	-	-	-
Landscape Equipme	416.85	141.63	16,391.88	0.76	0.76	0.76	52.11	17.70	2,048.98	0.09	0.09	0.09	6,631
Natural Gas	32.54	1,110.70	263.22	3.62	45.19	45.19	5.94	202.70	48.04	0.66	8.25	8.25	117,551
Electricity	-	-	-	-	-	-	-	-	-	-	-	-	33,056
Water	-	-	-	-	-	-	-	-	-	-	-	-	7,251
Wastewater	-	-	-	-	-	-	-	-	-	-	-	-	5,641
Solid Waste	-	-	-	-	-	-	-	-	-	-	-	-	102,970
Refrigerants	-	-	-	-	-	-	-	-	-	-	-	-	151,687
Total	*4,934.53*	*1,252.32*	*16,655.09*	*4.37*	*45.95*	*45.95*	*852.84*	*220.41*	*2,097.02*	*0.75*	*8.34*	*8.34*	*424,787*

Area Sources Total	4,901.99	141.63	16,391.88	0.76	0.76	0.76	846.90	17.70	2,048.98	0.09	0.09	0.09	6,631
Natural Gas	32.54	1,110.70	263.22	3.62	45.19	45.19	5.94	202.70	48.04	0.66	8.25	8.25	117,551
Electricity	-	-	-	-	-	-	-	-	-	-	-	-	33,056
Water/Wastewate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,892
Solid Waste	-	-	-	-	-	-	-	-	-	-	-	-	102,970
Refrigerants	-	-	-	-	-	-	-	-	-	-	-	-	151,687

Area Sources - Summary

2040 Unmitigated	pounds/day						tons/year						MT/year
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
Architect	513.15	-	-	-	-	-	92.11	-	-	-	-	-	-
Degrease	110.94	-	-	-	-	-	0.06	-	-	-	-	-	-
Consume	4,741.05	-	-	-	-	-	865.24	-	-	-	-	-	-
Landscap	591.12	200.42	23,223.25	1.07	1.07	1.07	73.89	25.05	2,902.91	0.13	0.13	0.13	9,393
Natural G	59.22	1,573.17	457.27	6.58	82.26	82.26	10.81	287.10	83.45	1.20	15.01	15.01	213,961
Electricity	-	-	-	-	-	-	-	-	-	-	-	-	29,493
Water	-	-	-	-	-	-	-	-	-	-	-	-	7,140
Wastewa	-	-	-	-	-	-	-	-	-	-	-	-	8,001
Solid Wa	-	-	-	-	-	-	-	-	-	-	-	-	149,453
Refrigera	-	-	-	-	-	-	-	-	-	-	-	-	151,687
Total	*6,015.49*	*1,773.58*	*23,680.52*	*7.65*	*83.33*	*83.33*	*1,042.11*	*312.16*	*2,986.36*	*1.33*	*15.15*	*15.15*	*569,128*
Area Sou	5,956.26	200.42	23,223.25	1.07	1.07	1.07	1,031.30	25.05	2,902.91	0.13	0.13	0.13	9,393
Natural G	59.22	1,573.17	457.27	6.58	82.26	82.26	10.81	287.10	83.45	1.20	15.01	15.01	213,961
Electricit	-	-	-	-	-	-	-	-	-	-	-	-	29,493
Water/W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,140
Solid Wa	-	-	-	-	-	-	-	-	-	-	-	-	149,453
Refrigera	-	-	-	-	-	-	-	-	-	-	-	-	151,687

2024 Architectural Coatings - Operations

$E_{AC} = EF_{AC} \times F\ A_{paint} \times$ Reapplication

Where:	E_{AC}=		emissions (lb VOC)
	EF =	0.004635831	emissions factor (lb/sf) (unmitigated)
	EF =	0.002317916	emissions factor (lb/sf) (unmitigated residential)
	EF =	0.000463583	emissions factor (lb/sf) (mitigated)
	A =		building surface area (sf) (assumes 2 times the floor square footage for nonresidential)
	F =	0.25	exterior (fraction of surface area, 25% for exterior)
		0.75	interior (fraction of surface area, 75% for interior)
		0.06	parking (Default parking lot area)
	Reapplication =	0.1	Rate at which surfaces are repainted (10% of area per year)

Unmitigated		Reapplication	Emissions (VOC)				
	Total SF	Area SF	Exterior	Interior	Total (lbs)	Total (tons)	Pounds/Day
Residential	74,681,050	20,163,883	11684.545	35053.63	46,738.18	23.37	130.19
Commercial	7,288,053	1,457,611	1689.3092	5067.927	6,757.24	3.38	18.82
Office	465,215	93,043	107.83291	323.4987	431.33	0.22	1.20
Industrial	33,746,988	6,749,398	7822.2669	23466.8	31,289.07	15.64	87.16
Public	76,334,544	15,266,909	17693.703	53081.11	70,774.81	35.39	197.14
					Unmitigated Total:	78.00	434.51

Mitigated		Reapplication	Emissions (VOC)				
	Total SF	Area SF	Exterior	Interior	Total (lbs)	Total (tons)	Pounds/Day
Residential	74,681,050	20,163,883	2336.909	7010.727	9,347.64	4.67	26.04
Commercial	7,288,053	1,457,611	168.93092	506.7927	675.72	0.34	1.88
Office	465,215	93,043	10.783291	32.34987	43.13	0.02	0.12
Industrial	33,746,988	6,749,398	782.22669	2346.68	3,128.91	1.56	8.72
Public	76,334,544	15,266,909	1769.3703	5308.111	7,077.48	3.54	19.71
					Mitigated Total:	10.14	56.47

Emissions Factor

$EF_{AC} = C_{VOC}$ / 454 (g/lb) x 3.785 (L/gal)/180 (sf)

Where:	EF =		emissions factor (lb/sf)
	C =	100	VOC content (g/L) (unmitigated)
		10	VOC content (g/L) (mitigated)

EF_{AC} =	0.004635831	Umitigated	EF_{AC} =	0.00231792	Umitigated Residential
	0.000463583	Mitigated		0.00046358	Mitigated Residential

VOC Content

	Unmitigated
Nonresidential Interior:	100 g/L
Nonresidential Exterior:	100 g/L
Residential Interior:	50 g/L
Residential Exterior:	50 g/L
Parking:	100 g/L

Unmitigated VOC content per CalEEMod defaults (CalEEMod User's Guide, Appendix D, Table 6.1)

VOC from Parking Lot Striping

$A_{paint} = A_{PL} \times P\%$

Where:	A_{PL} =		Parking lot area
	P% =	0.06	Default percent of parking lot area that is painted (6%)

Source: Architectural Coatings calculated per California Air Pollution Control Officers Association, *CalEEMod User's Guide, AppendixA: Calculation Details, pages 32-33* , May 2021.

2040 Architectural Coatings - Operations

$E_{AC} = EF_{AC} \times F\ A_{paint} \times$ Reapplication

Where:	E_{AC}=		emissions (lb VOC)
	EF =	0.004635831	emissions factor (lb/sf) (unmitigated)
	EF =	0.002317916	emissions factor (lb/sf) (unmitigated residential)
	EF =	0.000463583	emissions factor (lb/sf) (mitigated)
	A =		building surface area (sf) (assumes 2 times the floor square footage for nonresidential)
	F =	0.25	exterior (fraction of surface area, 25% for exterior)
		0.75	interior (fraction of surface area, 75% for interior)
		0.06	parking (Default parking lot area)
	Reapplication =	0.1	Rate at which surfaces are repainted (10% of area per year)

Unmitigated		Reapplication	Emissions (VOC)				
	Total SF	Area SF	Exterior	Interior	Total (lbs)	Total (tons)	Pounds/Day
Residential	103,725,513	28,005,889	16228.821	48686.46	64,915.29	32.46	180.82
Mixed Use	0	0	0	0	0.00	0.00	0.00
Commercial	9,241,218	1,848,244	2142.0363	6426.109	8,568.15	4.28	23.87
Office	2,386,955	477,391	553.27602	1659.828	2,213.10	1.11	6.16
Industrial	74,884,455	14,976,891	17357.584	52072.75	69,430.34	34.72	193.40
Public	42,166,080	8,433,216	9773.7414	29321.22	39,094.97	19.55	108.90
					Unmitigated Total:	92.11	513.15

Mitigated		Reapplication	Emissions (VOC)				
	Total SF	Area SF	Exterior	Interior	Total (lbs)	Total (tons)	Pounds/Day
Residential	103,725,513	28,005,889	3245.7643	9737.293	12,983.06	6.49	36.16
Mixed Use	0	0	0	0	0.00	0.00	0.00
Commercial	9,241,218	1,848,244	214.20363	642.6109	856.81	0.43	2.39
Office	2,386,955	477,391	55.327602	165.9828	221.31	0.11	0.62
Industrial	74,884,455	14,976,891	1735.7584	5207.275	6,943.03	3.47	19.34
Public	42,166,080	8,433,216	977.37414	2932.122	3,909.50	1.95	10.89
					Mitigated Total:	12.46	69.40

Emissions Factor

$EF_{AC} = C_{VOC}$ / 454 (g/lb) x 3.785 (L/gal)/180 (sf)

Where:	EF =		emissions factor (lb/sf)
	C =	100	VOC content (g/L) (unmitigated)
		10	VOC content (g/L) (mitigated)

EF_{AC} =	0.004635831	Umitigated	EF_{AC} =	0.00231792	Umitigated Residential
	0.000463583	Mitigated		0.00046358	Mitigated Residential

VOC Content

	Unmitigated
Nonresidential Interior:	100 g/L
Nonresidential Exterior:	100 g/L
Residential Interior:	50 g/L
Residential Exterior:	50 g/L
Parking:	100 g/L

Unmitigated VOC content per CalEEMod defaults (CalEEMod User's Guide, Appendix D, Table 6.1)

VOC from Parking Lot Striping

$A_{paint} = A_{PL} \times P\%$

Where:	A_{PL} =		Parking lot area
	P% =	0.06	Default percent of parking lot area that is painted (6%)

Source: Architectural Coatings calculated per California Air Pollution Control Officers Association, *CalEEMod User's Guide, AppendixA: Calculation Details, pages 32-33* , May 2021.

2024 Consumer Products

Emissions = EF x Building Area

Where:

EF = 2.14E-05 pounds of VOC per building square foot per day (non-SCAQMD)
2.04E-05 pounds of VOC per building square foot per day (SCAQMD)

	SF	VOC (lbs/day)
Residential	74,681,050	1,523.49
Commercial	7,288,053	148.68
Office	465,215	9.49
Industrial	33,746,988	688.44
Public	76,334,544	1,557.22
Total:	192,515,850	3,927.32

Source: Architectural Coatings calculated per California Air Pollution Control Officers Association, *CalEEMod User's Guide, Appendix D3: Consumer Products Summary, page D-8* , April 2022.

2040 Consumer Products

Emissions = EF x Building Area

Where:

EF = 2.14E-05 pounds of VOC per building square foot per day (non-SCAQMD)
2.04E-05 pounds of VOC per building square foot per day (SCAQMD)

	SF	VOC (lbs/day)
Residential	103,725,513	2,116.00
Mixed Use	0	0.00
Commercial	9,241,218	188.52
Office	2,386,955	48.69
Industrial	74,884,455	1,527.64
Public	42,166,080	860.19
Total:	232,404,221	4,741.05

Source: Architectural Coatings calculated per California Air Pollution Control Officers Association, *CalEEMod User's Guide, Appendix D3: Consumer Products Summary, page D-8* , April 2022.

Landscape Equipment

Days/Year: 250

	2024 Landscaped Area (SF)
Residential	26,138,367
Commercial	214,371
Office	52,965
Industrial	463,137
Public	697,357
Parks	179,227,620
Total Landscaped Area:	206,793,818

	2040 Landscaped Area (SF)
Residential	36,303,930
Mixed Use	-1,600
Commercial	241,595
Office	121,998
Industrial	690,686
Public	517,883
Parks	255,087,360
Total Landscaped Area:	292,961,853

Per Muni Code section 9.17, landscaping at multi-family must be 35 percent of the site area. Assumption that this would include all residential.
Per Muni Code Title 9, most commercial, industrial and public uses would have a 10 to 20 foot setback. Assumption that 20 foot setbacks would be used as a conservative estimate

Nonresidential Landscape Equipment	Fuel	Usage hrs/day/sf	HP	LF
Leaf Blowers/Vacuums	Gasoline 4-Stroke	2E-06	10	0.94
Other Lawn & Garden Equipment	Gasoline 4-Stroke	1E-07	25	0.58
Riding Mowers	Gasoline 4-Stroke	1E-06	20	0.38
Trimmers/Edgers/Brush Cutters	Gasoline 2-Stroke	2E-05	10	0.91

Source: California Air Resources Board, Small Off-Road Engines Model v1.1, 2020.
https://ww2.arb.ca.gov/sites/default/files/classic/msei/sore2020/sore2020_final_version1.1.zip

2024
grams per horsepower-hour

	TOG	ROG	NOX	CO	SO2	PM2.5	PM10	CO2	CH4	N2O
Leaf Blowers/Vacuums	6.45	6.13	2.69	257.7	0.01	0.01	0.01	658.31	0.03	0.01
Other Lawn & Garden Equipment	4.53	4.2	2.49	317.15	0.01	0.01	0.01	657.61	0.03	0.01
Riding Mowers	5.67	5.27	2.27	305.04	0.01	0.01	0.01	623.79	0.03	0.01
Trimmers/Edgers/Brush Cutters	5.85	5.47	1.73	204.46	0.01	0.01	0.01	796.48	0.03	0.01

2040
grams per horsepower-hour

	TOG	ROG	NOX	CO	SO2	PM2.5	PM10	CO2	CH4	N2O
Leaf Blowers/Vacuums	6.47	6.14	2.69	257.7	0.01	0.01	0.01	658.31	0.03	0.01
Other Lawn & Garden Equipment	4.54	4.21	2.49	317.32	0.01	0.01	0.01	657.61	0.03	0.01
Riding Mowers	5.59	5.19	2.23	305.36	0.01	0.01	0.01	623.79	0.03	0.01
Trimmers/Edgers/Brush Cutters	5.85	5.48	1.73	204.45	0.01	0.01	0.01	796.48	0.03	0.01

2024
pounds per day

	TOG	ROG	NOX	CO	SO2	PM2.5	PM10	CO2	CH4	N2O
Leaf Blowers/Vacuums	54.729886	52.01460458	22.8253322	2186.65	0.0849	0.08485254	0.08485254	5585.927298	0.25456	0.0849
Other Lawn & Garden Equipment	4.1025941	3.803729657	2.2550683	287.2269	0.0091	0.0090565	0.0090565	595.5644428	0.02717	0.0091
Riding Mowers	22.199688	20.63357276	8.88770592	1194.32	0.0392	0.03915289	0.03915289	2442.318094	0.11746	0.0392
Trimmers/Edgers/Brush Cutters	364.04938	340.4017316	107.659049	12723.68	0.6223	0.62230664	0.62230664	49565.47919	1.86692	0.6223
Total	445.08155	416.8536385	141.627155	16391.88	0.7554	0.75536856	0.75536856			

2040
pounds per day

	TOG	ROG	NOX	CO	SO2	PM2.5	PM10	CO2	CH4	N2O
Leaf Blowers/Vacuums	77.775467	73.808558	32.336323	3097.7957	0.12020938	0.1202094	0.12021	7913.5035	0.3606281	0.12021
Other Lawn & Garden Equipment	5.8249168	5.4015198	3.1947231	407.12833	0.01283021	0.0128302	0.01283	843.72765	0.0384906	0.01283
Riding Mowers	31.006243	28.787549	12.369217	1693.7507	0.05546734	0.0554673	0.05547	3459.9972	0.166402	0.05547
Trimmers/Edgers/Brush Cutters	515.74357	483.12389	152.51904	18024.577	0.88161294	0.8816129	0.88161	70218.707	2.6448388	0.88161
Total	630.3502	591.12152	200.4193	23223.251	1.07011987	1.0701199	1.07012			

2024
Tons/Year

	TOG	ROG	NOX	CO	SO2	PM2.5	PM10	CO2	CH4	N2O	CO2e
								Metric Tons/Year			
Leaf Blowers/Vacuums	6.8412357	6.501825572	2.85316652	273.3312	0.0106	0.01060657	0.01060657	633.4333918	0.02887	0.0096	637.022
Other Lawn & Garden Equipment	0.5128243	0.475466207	0.28188354	35.90336	0.0011	0.00113206	0.00113206	67.53586019	0.00308	0.001	67.9189
Riding Mowers	2.774961	2.579196595	1.11096324	149.29	0.0049	0.00489411	0.00489411	276.9541656	0.01332	0.0044	278.61
Trimmers/Edgers/Brush Cutters	45.506173	42.55021644	13.4573811	1590.46	0.0778	0.07778833	0.07778833	5620.629829	0.21171	0.0706	5646.95
Total	55.635194	52.10670482	17.7033944	2048.985	0.0944	0.09442107	0.09442107	6598.553247	0.25697	0.0857	6630.5

2040
Tons/Year

	TOG	ROG	NOX	CO	SO2	PM2.5	PM10	CO2	CH4	N2O	CO2e
								Metric Tons/Year			
Leaf Blowers/Vacuums	9.7219334	9.2260697	4.0420403	387.22446	0.01502617	0.0150262	0.01503	897.37605	0.0408945	0.01363	902.4606
Other Lawn & Garden Equipment	0.7281146	0.67519	0.3993404	50.891041	0.00160378	0.0016038	0.0016	95.67709	0.0043648	0.00145	96.219775
Riding Mowers	3.8757804	3.5984437	1.5461521	211.71884	0.00693342	0.0069334	0.00693	392.35702	0.0188697	0.00629	394.70314
Trimmers/Edgers/Brush Cutters	64.467946	60.390486	19.06488	2253.0721	0.11020162	0.1102016	0.1102	7962.6661	0.2999196	0.09997	7999.9561
Total	78.793775	73.89019	25.052413	2902.9064	0.13376498	0.133765	0.13376	9348.0763	0.3640486	0.12135	9393.3396

2024 Natural Gas

	Therms	kBTU	MMBTU
Residential	19,711,057	1,971,105,700	1,971,106
Non-Residential	2,282,329	228,232,900	228,233

Source: From SCG Calculations

	Pounds/Day										
Emissions	TOG	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2 NBIO	CH_4	N_2O	CO_2e
Residential	58.32	29.16	497.91	211.69	3.24	40.50	40.50	631,710.22	56.16	10.80	636,332.86
Non-Residential	6.75	3.38	612.79	51.52	0.38	4.69	4.69	73,145.27	6.50	1.25	73,680.52
Total	*65.08*	*32.54*	*1,110.70*	*263.22*	*3.62*	*45.19*	*45.19*				

	Tons/Year							Metric Tons/Year			
Emissions	TOG	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2 NBIO	CH_4	N_2O	CO_2e
Residential	10.64	5.32	90.87	38.63	0.59	7.39	7.39	104,586.69	9.30	1.79	105,352.02
Non-Residential	1.23	0.62	111.83	9.40	0.07	0.86	0.86	12,110.02	1.08	0.21	12,198.63
Total	*11.88*	*5.94*	*202.70*	*48.04*	*0.66*	*8.25*	*8.25*	*116,696.71*	*10.38*	*2.00*	*117,550.66*

Table G-4. Natural Gas Emission Factors (pounds per MMBTU)

Land Use Type	TOG	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2 NBIO	CH_4	N_2O
Non Residential	0.0108	0.0054	0.98	0.0824	0.0006	0.0075	0.0075	116.9771	0.0104	0.002
Residential	0.0108	0.0054	0.0922	0.0392	0.0006	0.0075	0.0075	116.9771	0.0104	0.002

Source: CalEEMod 2022 Users Guide Appendix G, Table G-4.

2040 Natural Gas

	Therms	kBTU	MMBTU
Residential	28,608,928	2,860,892,837	3,772,120
Non-Residential	3,645,128	364,512,787	231,037

Source: From SCG Calculations

	Pounds/Day										
Emissions	TOG	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2 NBIO	CH_4	N_2O	CO_2e
Residential	111.61	55.81	952.85	405.12	6.20	77.51	77.51	1,208,908.66	107.48	20.67	1,217,755.05
Non-Residential	6.84	3.42	620.32	52.16	0.38	4.75	4.75	74,043.84	6.58	1.27	74,585.67
Total	*118.45*	*59.22*	*1,573.17*	*457.27*	*6.58*	*82.26*	*82.26*				

	Tons/Year							Metric Tons/Year			
Emissions	TOG	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2 NBIO	CH_4	N_2O	CO_2e
Residential	20.37	10.18	173.89	73.93	1.13	14.15	14.15	200,148.35	17.79	3.42	201,612.97
Non-Residential	1.25	0.62	113.21	9.52	0.07	0.87	0.87	12,258.79	1.09	0.21	12,348.49
Total	*21.62*	*10.81*	*287.10*	*83.45*	*1.20*	*15.01*	*15.01*	*212,407.14*	*18.88*	*3.63*	*213,961.46*

Table G-4. Natural Gas Emission Factors (pounds per MMBTU)

Land Use Type	TOG	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2 NBIO	CH_4	N_2O
Non Residential	0.0108	0.0054	0.98	0.0824	0.0006	0.0075	0.0075	116.9771	0.0104	0.002
Residential	0.0108	0.0054	0.0922	0.0392	0.0006	0.0075	0.0075	116.9771	0.0104	0.002

Source: CalEEMod 2022 Users Guide Appendix G, Table G-4.

Electricity Consumption

	2024	2024	2024	2040	2040	2040
		CO_2e	CO_2e Emissions		CO_2e	CO_2e Emissions
	MWh/year	MT/MWh	MT/Year	MWh/year	MT/MWh	MT/Year
Total Residential	41,091	0.159	6,535	78,635	0.119	9,373
Total Non-residential	166,760	0.159	26,521	168,809	0.119	20,121
MoVal Total	207,851	-	33,056	247,444	-	29,493

Source: Energy Calcs received from MoVal on December 12th

SCE electricity intensity factor from CalEEMod 2022 Users Guide, Appendix G, Table G-3.

2024	Acres	Rate (MWh/year/acre)
Residential Acreage	10,511	3.909286643
Nonresidential Acreage	22,525	7.403241163

2040	Acres	Electricity Usage
Residential Acreage	20,115	78635.30083
Nonresidential Acreage	22,802	168808.705

Electricity Consumption Rates

	Annual Energy Use	
	kWh/sq ft	kWh/KSF
Parking (Lighting)	0.876	0.000876

Source: CalEEMod 2022 Users Guide, Appendix D6, Page D-21.

Water and Solid Waste Data

Water Growth Rates for Each Land Use Type

Residential	39,289	gallos per DU
Commercial	177,734	gallons per ksf
Industrial	231,250	gallons per ksf
Public	198,660	gallons per ksf

From CalEEMod Appendix G-30

Most Conservative Residential

39,239 gallons per 960 sf

Change in Land Use from Baseline to 2040 (sf)

	2024	2040	Change	Overall Water Use Ch	Overall Water Use Change (MG)
Residential	457,859,596	979,533,720	521,674,124	21,322,886,424	21,323
Commercial	43,412,435	75,184,560	31,772,125	5,646,986,927	5,647
Industrial	69,115,336	201,508,560	132,393,224	30,615,933,124	30,616
Public	76,334,544	42,166,080	-34,168,464	-6,787,907,058	-6,788
			Change in Water use from 2024 to 2040:		50,798

SCAG Growth Projections for Moreno Valley

	2019	2024	2040
Population	206,800	205,620	298,440
Households	54,700	53,048	86,860
Employment	44,500	65,303	104,296

	2019	2024	2040
Acreage	32,997	33,080	42,917

2019 Water Usage (Mgal)	(Mgal/acre) Water Usage per Acre	2024 Water Usage (Mgal)	2040 Water Usage (Mgal)
7,401.13	0.22	7,419.75	9,626.16

2019 Solid Waste (ton)	(ton/pop) Solid Waste per Pop	2024 Solid Waste (ton)	2040 Solid Waste (ton)
167,830.00	1.22	251,421.86	364,917.51

from CalRecycle 2019

6.7 lbs/resident/day

from https://calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/mostrecent/

Solid Waste Growth Rates for Each Land Use Type

Residential	0.23	ton per resident
Commercial	5.7	ton per ksf
Industrial	1.24	ton per ksf
Public	5.7	tons per ksf

From CalEEMod Appendix G-36

	2040 Solid Waste	
Residence	68641	tons
Commercial	428552	
Industrial	249871	
Public	240347	
Total	987410	

Residential DU to SF

Single Family	1,950	sf
Low Rise	1,060	
High/Med Rise	960	
Mobile	1,300	
Retirement/Care	1,060	

From CalEEMod Appendix G-5

Wastewater Data

	2019		2021		2022		2023	
	MVRWRF	MV area Lift Stations	MVRWRF	MV area Lift Stations	MVRWRF	MV area Lift Stations	MVRWRF	MV area Lift Stations
Annual Volume of wastewater treated[1] (million gals)	3,946	-	4,219	-	4,034	-	4,145	-
Average Daily Volume of wastewater treated (million gals)	10.81		11.56		11.05		11.35	
Average Effluent Total Inorganic Nirogen (mg/L)	5.4		5.0		4.1		5.9	
Average Influent BOD (mg/L)	395		387		373		368	
Average BOD Removal	99.00%		99.00%		99.00%		99.00%	
Population	207,181		208,008		207,549		206,903	
Annual Digester Gas Generated[1] (cf)	7,213,000	-	64,673,603	-	72,706,659	-	63,166,883	-
Average Digester Gas Properties[1] (BTU/cf)	619	-	627	-	632	-	594	-
Annual Natural Gas Consumption[2] (therms)	419,097	-	356,205	-	277,567	-	260,026	-
Annual Electricity Consumption[2] (kWh)	9,061,376	346,521	7,635,037	403,894	9,270,085	397,735	10,181,048	398,011

Notes:

1) Data from SCAQMD Annua Data from SCAQMD Annual Emissions Report
2) Data from Greenhouse Ga Data from Greenhouse Gas Summary Report

Data received 1/8/25

2024 Water Consumption

	Million Gallons/Year
Water	7,420
Wastewater	4,145

	kWh per million gallons			
Hydrologic Region	Supply	Treat	Distribute	Wastewater
South Coast	3044	725	1537	1501

Source: CalEEMod 2022 Users Guide, Appendix G (Default Data Tables) Table G-32.

Project Water Energy Consumption (MWh)

Supply, Treatment, Distribution	39,369
Wastewater	6,222
Total	45,591

SCE Electricity Intensity Factor	CO_2e (Metric Tons/MWh)
	2024
	0.159

CO_2e Emissions (Metric Tons/Year)	2024
Water	6261
Wastewater	990
Total	*7251*

2040 Water Consumption

	Million Gallons/Year
Water	9,626
Wastewater	5,879

	kWh per million gallons			
Hydrologic Region	Supply	Treat	Distribute	Wastewater
South Coast	3044	725	1537	1501

Source: CalEEMod 2022 Users Guide, Appendix G (Default Data Tables) Table G-32.

Project Water Energy Consumption (MWh)

Supply, Treatment, Distribution	51,076
Wastewater	8,825
Total	59,901

SCE Electricity Intensity Factor	CO_2e (Metric Tons/MWh)
	2040
	0.119

CO_2e Emissions (Metric Tons/Year)	2040
Water	6088
Wastewater	1052
Total	*7140*

Wastewater

	2024	2040
Moreno Valley	4,145,100,000	5,879,181,713

2024	Percent of Wastewater Distribution	Metric Tons CO_2 BIO	CH_4	N_2O	CO_2e
Aerobic	87.46	1.28E+03	4.41E+00	2.80E+00	2,227.83
Anaerobic (Facultative Lagoons)	2.21	3.24E+01	3.33E+01	7.08E-02	886.63
Septic	10.33	0.00E+00	9.71E+01	3.31E-01	2,526.41
Total	-	*1,315.05*	*134.84*	*3.20*	*5,640.88*

2040	Percent of Wastewater Distribution	Metric Tons CO_2 BIO	CH_4	N_2O	CO_2e
Aerobic	87.46	1.82E+03	6.25E+00	3.97E+00	3,159.84
Anaerobic (Facultative Lagoons)	2.21	4.60E+01	4.73E+01	1.00E-01	1,257.55
Septic	10.33	0.00E+00	1.38E+02	4.69E-01	3,583.33
Total	-	*1,865.20*	*191.25*	*4.54*	*8,000.71*

Table G-35. Annual Wastewater Treatment Direct Emission Factors (short ton per gallon)

Wastewater Treatment Type	CO_2 BIO	CH_4	N_2O
Aerobic	3.90E-07	1.34E-09	8.52E-10
Anaerobic (Facultative Lagoons)	3.90E-07	4.01E-07	8.52E-10
Septic	0	2.50E-07	8.52E-10

Table G-34. Percent of Wastewater by Distribution Type and Analysis Level

Analysis Level	Name	Septic Tank	Aerobic	Anaerobic (Facultative Lagoons)	Anaerobic (Combustion of Gas)	Anaerobic (Cogeneration)
Air Basin	South Coast	10.33	87.46	2.21	100	0
Air District	South Coast	10.33	87.46	2.21	100	0
County	Riverside (SC)	10.33	87.46	2.21	100	0

Conversions

1 short ton = 0.9071847 Metric Tons

Solid Waste Generation

	Tons/Year	CO_2	CH_4	CO_2e
2024	*251,422*	*38,814.42*	*2,566.24*	*102,970.49*
2040	*364,918*	*56,335.84*	*3,724.68*	*149,452.94*

Transload employees assumes one employe per 1,000 square feet

Employee based rate for all industrial uses = 1.15 tons/employee/year

CalEEMod 2022 Users Guide, Appendix D9 - Default Solid Waste Generation For Industrial Land Uses, April 2022.

Table G-37. Solid Waste Emission Factors and Supporting Data

Waste Category	Organic Degradable Carbon per Waste (Fraction of Total Type [a]	Decomposable Anaerobic Fraction [b]	Waste Stream Composition Fraction [c]	Fraction of Carbon Emissions
Newspaper	0.470	0.150	0.007	0.000
Office Paper	0.396	0.874	0.040	0.001
Corrugated Boxes	0.449	0.446	0.052	0.005
Coated Paper	0.330	0.243	0.103	0.004
Food	0.148	0.865	0.149	0.010
Grass	0.133	0.325	0.012	0.000
Leaves	0.291	0.279	0.012	0.000
Branches	0.420	0.232	0.015	0.001
Lumber	0.430	0.233	0.000	0.000
Textiles	0.240	0.500	0.030	0.002
Diapers	0.240	0.500	0.020	0.001
Construction demolition	0.040	0.500	0.189	0.002
Medical waste	0.150	0.500	0.000	0.000
Sludge/manure	0.050	0.500	0.006	0.000
			mass carbon	0.02637
			mass CH4	0.03516
			mass CO2	0.09669

Waste Treatment Type	Carbon Efficiency	Destruction Fraction	Oxidation Fraction	Emissions Factor (short ton per short ton of waste) CO2 BIO	CH4
Burn	0.75	0.98	0.1	0.0985	0.0084
Cogen	-	-	-	0.0000	0.0084
No Gas Collection	0	0	0.1	0.0967	0.0316

[a] California Air Resources Board, the California Climate Action Registry, ICLEI-Local Governments for Sustainability and The Climate Registry, Local

[b] CARB, 2010, Table 9.7 Default Decomposable Anaerobic Fraction (DANF)of the TDOC per waste type.

[c] California Integrated Waste Management Board, 2018 Facility-Based Characterization of Solid Waste in California, May 15, 2020, Table 4.

Source: CalEEMod 2022 Users Guide, Appendix G, Table G-37. Solid Waste Emission Factors and Supporting Data, April 2022.

$ECH4 = T \times G \times [C \times (1 - D) + (1 - C) \times (1 - Ox)] \times R \times UC$

$ECO2 = T \times G \times [C \times D + (1 - C) \times Ox + 1] \times R \times UC$

T=		short tons of waste generated by the project
G=	0.02637	generation mass of carbon (short ton carbon per short ton of waste) (Table G-37)
	0.03516	(mass CH4)
	0.09669	(mass CO2)
C=	0.75	collection efficiency of landfill gas (75%)
D=	0.98	destruction efficiency of landfill gas (98%)
Ox=	0.1	oxidation efficiency (10%)
R =		ratio of molecular weights for CO2 and carbon (44 g CO2 / 12 g carbon) and CH4 to carbon (16 g CH4 / 12 g carbon).
	16	(CH4)
	12	(CO2)
UC=	0.907185	unit conversion from short tons to MT (0.907185 MT/short ton).

2024 Refrigerants

	Total SF	KSF	Unmitiated $MTCO_2e$/year
Residential	74,681,050	74681.04965	89
Commercial	7,288,053	7288.053	2,507
Office	465,215	465.215	160
Industrial	33,746,988	33746.988	148,900
Public	76,334,544	76334.544	31
Total	*192,515,850*	*192,516*	*151,687*

The commercial/retail use assumes one percent of all commercial floor space is grocery per the 2018 Commercial Buildings Energy Consumption Survey (CBECS).
Mitigation requires the use of a low GWP refrigerant (such as R-454B or better).

$$E = \sum(((CS \times OLR) + (CS \times SLR \times (TS \div L))) \times GWP)_r \times KSF \times UC_1$$

Where:

E=		average annual refrigerant emissions (MT CO_2e/yr).
CS=		equipment charge size (kg refrigerant/KSF).
		The equipment charge size is the total quantity of refrigerant installed in the refrigeration or A/C equipment.
		Default equipment charge sizes are based on industry data published by USEPA (2016b) (Table G-38).
OLR=		annual operational leak rate (%) (USEPA 2016b) (Table G-38).
SLR=		service leak rate (%) (USEPA 2016b) (Table G-38).
TS=		times serviced (number of times serviced over equipment lifetime) (USEPA 2016b) (Table G-38).
L=		average equipment operational lifetime (years) (USEPA 2016b) (Table G-38).
GWP=		global warming potential (unitless) (IPCC 2007; CARB 2020d; World Meteorological Organization 2018) (Table G-39).
KSF=		land use size (1,000 sqft). Emissions are quantified by land use subtype, with the input for the land use size.
UC_1=	0.001	unit conversion from kg to MT (0.001 MT/kg)
r=		refrigerant.
I=		equipment type.

Table G-38. Refrigerant Equipment Inventory and Operational Defaults by Land Use Subtype

			CS	OLR	SLR	TS	L
Land Use Subtype	Refrigeration E	Refrigerant	Quantity (kg per KSF)	Operational Leak Rate (%)	Service Leak Rate (%)	Times Serviced Over Life	Lifetime (years)
Unrefrigerated Warehouse-No Ra	Cold storage	R-404A	7.5	0.075	0.075	25	25
Unrefrigerated Warehouse-Rail	Cold storage	R-404A	7.5	0.075	0.075	25	25
Refrigerated Warehouse-No Rail	Cold storage	R-404A	7.5	0.075	0.075	25	25
Refrigerated Warehouse-Rail	Cold storage	R-404A	7.5	0.075	0.075	25	25
Single Family Housing	Average room /	R-410A	0.0023	0.025	0.025	10	15
Single Family Housing	Household refr	R-134a	0.1154	0.006	0	1	14
Convenience Market (24 hour)	Other commer	R-410A	0.0018	0.04	0.04	18	25
Convenience Market (24 hour)	Supermarket re	R-404A	26.52	0.165	0.165	18	18
Strip Mall	Stand-alone ret	R-134a	0.0375	0.01	0	1	10
Government Office Building	Household refr	R-134a	0.0168	0.006	0	1	14
Government Office Building	Other commer	R-410A	0.0018	0.04	0.04	18	25

Table G-39. Global Warming Potentials

Substance	Global Warming Potential
R-404A	3922
R-454B	466
R-717	0
R-744	1
R-134a	1430
R-410A	2088

Source: CalEEMod 2022 Users Guide Appendix G, Tables G-38 and G-39.

2040 Refrigerants

	Total SF	KSF	Unmitiated $MTCO_2e$/year	Mitiated $MTCO_2e$/year
Residential	103,725,513	103725.5133	123	38
Mixed Use	0	0	0	0
Commercial	9,241,218	9241.218	3,179	379
Office	2,386,955	2386.955	821	98
Industrial	74,884,455	74884.455	330,409	39,258
Public	42,166,080	42166.08	17	4
Total	*232,404,221*	*232,404*	*334,550*	*39,778*

The commercial/retail use assumes one percent of all commercial floor space is grocery per the 2018 Commercial Buildings Energy Consumption Survey (CBECS).
Mitigation requires the use of a low GWP refrigerant (such as R-454B or better).

$$E = \sum(((CS \times OLR) + (CS \times SLR \times (TS \div L))) \times GWP)_r \times KSF \times UC_1$$

Where:

E=		average annual refrigerant emissions (MT CO_2e/yr).
CS=		equipment charge size (kg refrigerant/KSF).
		The equipment charge size is the total quantity of refrigerant installed in the refrigeration or A/C equipment.
		Default equipment charge sizes are based on industry data published by USEPA (2016b) (Table G-38).
OLR=		annual operational leak rate (%) (USEPA 2016b) (Table G-38).
SLR=		service leak rate (%) (USEPA 2016b) (Table G-38).
TS=		times serviced (number of times serviced over equipment lifetime) (USEPA 2016b) (Table G-38).
L=		average equipment operational lifetime (years) (USEPA 2016b) (Table G-38).
GWP=		global warming potential (unitless) (IPCC 2007; CARB 2020d; World Meteorological Organization 2018) (Table G-39).
KSF=		land use size (1,000 sqft). Emissions are quantified by land use subtype, with the input for the land use size.
UC_1=	0.001	unit conversion from kg to MT (0.001 MT/kg)
r=		refrigerant.
I=		equipment type.

Table G-38. Refrigerant Equipment Inventory and Operational Defaults by Land Use Subtype

Land Use Subtype	Refrigeration Ei	Refrigerant	CS Quantity (kg per KSF)	OLR Operational Leak Rate (%)	SLR Service Leak Rate (%)	TS Times Serviced Over Life	L Lifetime (years)
Unrefrigerated Warehouse-No Ra	Cold storage	R-404A	7.5	0.075	0.075	25	25
Unrefrigerated Warehouse-Rail	Cold storage	R-404A	7.5	0.075	0.075	25	25
Refrigerated Warehouse-No Rail	Cold storage	R-404A	7.5	0.075	0.075	25	25
Refrigerated Warehouse-Rail	Cold storage	R-404A	7.5	0.075	0.075	25	25
Single Family Housing	Average room /	R-410A	0.0023	0.025	0.025	10	15
Single Family Housing	Household refr	R-134a	0.1154	0.006	0	1	14
Convenience Market (24 hour)	Other commerc	R-410A	0.0018	0.04	0.04	18	25
Convenience Market (24 hour)	Supermarket re	R-404A	26.52	0.165	0.165	18	18
Strip Mall	Stand-alone ret	R-134a	0.0375	0.01	0	1	10
Government Office Building	Household refr	R-134a	0.0168	0.006	0	1	14
Government Office Building	Other commerc	R-410A	0.0018	0.04	0.04	18	25

Table G-39. Global Warming Potentials

Substance	Global Warming Potential
R-404A	3922
R-454B	466
R-717	0
R-744	1
R-134a	1430
R-410A	2088

Source: CalEEMod 2022 Users Guide Appendix G, Tables G-38 and G-39.

Table G-3. Electric Utility Greenhouse Gas Emissions Factors

Utility	Year	CH4 (lb/MWh)	CO2 (lb/MWh)	N2O (lb/MWh)
Southern California Edison	2019	0.033	531.983	0.004
	2020	0.033	390.704	0.004
	2021	0.033	390.704	0.004
	2022	0.033	348.637	0.004
	2023	0.033	348.637	0.004
	2024	0.033	348.637	0.004
	2025	0.033	348.637	0.004
	2026	0.033	346.196	0.004
	2027	0.033	346.196	0.004
	2028	0.033	346.196	0.004
	2029	0.033	346.196	0.004
	2030	0.033	260.788	0.004
	2031	0.033	260.788	0.004
	2032	0.033	260.788	0.004
	2033	0.033	260.788	0.004
	2034	0.033	260.788	0.004
	2035	0.033	260.788	0.004
	2036	0.033	260.788	0.004
	2037	0.033	260.788	0.004
	2038	0.033	260.788	0.004
	2039	0.033	260.788	0.004
	2040	0.033	260.788	0.004
	2041	0.033	260.788	0.004
	2042	0.033	260.788	0.004
	2043	0.033	260.788	0.004
	2044	0.033	260.788	0.004
	2045	0.033	260.788	0.004
	2046	0.033	260.788	0.004
	2047	0.033	260.788	0.004
	2048	0.033	260.788	0.004
	2049	0.033	260.788	0.004
	2050	0.033	260.788	0.004

Source:
CalEEMod 2022 Users Guide Appendix G, Table G-3.

Mobile Source Emissions Summary

			ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
2024 Annual	Vehicle	Exhaust, BW, & TW	550.75	662.11	5,141.60	12.70	76.00	28.50	1,196,839.41
(Tons/Year)		Dust					695.26	170.65	
(MT/yr for GHG)		Annual Total	550.75	662.11	5,141.60	12.70	771.26	199.15	1,196,839.41
2024 Summer	Vehicle	Exhaust, BW, & TW	3,298.21	3,628.03	31,941.27	73.25	430.64	166.69	
(Pounds/Day)		Dust					3,809.63	935.09	
		Summer Total	3,298.21	3,628.03	31,941.27	73.25	4,240.26	1,101.78	
2024 Winter	Vehicle	Exhaust, BW, & TW	3,064.98	3,889.81	26,985.45	68.61	430.69	166.73	
(Pounds/Day)		Dust					3,809.63	935.09	
		Winter Total	3,064.98	3,889.81	26,985.45	68.61	4,240.31	1,101.82	

			ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
2040 Annual	Vehicle	Exhaust, BW, & TW	468.09	426.85	4,466.83	13.56	102.23	35.10	1,274,641.79
(Tons/Year)		Dust					996.10	244.50	
(MT/yr for GHG)		Annual Total	468.09	426.85	4,466.83	13.56	1,098.33	279.59	1,274,641.79
2040 Summer	Vehicle	Exhaust, BW, & TW	2,720.61	2,338.91	27,936.23	78.45	565.55	196.77	
(Pounds/Day)		Dust					5,458.07	1,339.71	
		Summer Total	2,720.61	2,338.91	27,936.23	78.45	6,023.62	1,536.47	
2040 Winter	Vehicle	Exhaust, BW, & TW	2,605.12	2,509.11	23,527.01	73.42	565.57	196.79	
(Pounds/Day)		Dust					5,458.07	1,339.71	
		Winter Total	2,605.12	2,509.11	23,527.01	73.42	6,023.64	1,536.50	

2024 Baseline

	Daily	VMT	
	Trips	Daily	Annual
Vehicles:	1,011,253	8,842,663	3,227,571,978

Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.485901	0.0302052	0.2366326	0.15110666	0.027401267	0.0075889	0.0172588	0.0188232	0.0005117	0.0004151	0.020132342	0.001070523	0.002953

*Fleet Mix from CalEEMod for Riverside County

Emissions Summary

Annual

	ROG	NOX	CO	SOX	PM10	PM2.5	TOG	CH4	N2O	CO2	CO2e
Tons/Year	550.75	662.11	5,141.60	12.70	76.00	28.50	608.45				
MT/Year								56.06	58.76	1,177,926.92	1,196,839.41

Summer

	ROG	NOX	CO	SOX	PM10	PM2.5	TOG
Lbs/Day	3,298.21	3,628.03	31,941.27	73.25	430.64	166.69	3,611.43

Total PM10	Total PM2.5
4,240.26	1,101.78

Winter

	ROG	NOX	CO	SOX	PM10	PM2.5	TOG
Lbs/Day	3,064.98	3,889.81	26,985.45	68.61	430.69	166.73	3,382.01

2040 Proposed General Plan

	Daily	VMT	
	Trips	Daily	Annual
Vehicles:	1,402,938	12,668,913	4,624,153,222

Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.485901	0.0302052	0.2366326	0.151106656	0.027401267	0.0075889	0.0172588	0.0188232	0.0005117	0.0004151	0.020132342	0.001070523	0.002953

*Fleet Mix from CalEEMod for Riverside County

Emissions Summary

Annual

	ROG	NOX	CO	SOX	PM10	PM2.5	TOG	CH4	N2O	CO2	CO2e
Tons/Year	468.09	426.85	4,466.83	13.56	102.23	35.10	516.66				
MT/Year								46.86	54.83	1,257,131.30	1,274,641.79

Summer

	ROG	NOX	CO	SOX	PM10	PM2.5	TOG
Lbs/Day	2,720.61	2,338.91	27,936.23	78.45	565.55	196.77	2,987.25

Total PM10	Total PM2.5
6,023.62	1,536.47

Winter

	ROG	NOX	CO	SOX	PM10	PM2.5	TOG
Lbs/Day	2,605.12	2,509.11	23,527.01	73.42	565.57	196.79	2,872.80

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2024
Season: Summer, Winter, Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Emissions Rate (g/mile or g/trip)

Seas	Emission Type	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004735	0.002656	0.018278	0.113544	0.022653	0	0	0.501225	0
A	CH4_RUNEX	0.002141	0.009398	0.002935	0.004347	0.002444	0.000702	0.006806	0.024024	0.034924	0.936323	0.171711	1.349462	0.007807
A	CH4_STREX	0.063317	0.126853	0.078517	0.102841	0.019652	0.009844	0.006276	3.5E-08	0.025286	0.03736	0.176253	0.007631	0.026079
A	CO_IDLEX	0	0	0	0	0.176531	0.126604	0.668769	5.073429	0.483584	0	0	3.006147	0
A	CO_RUNEX	0.698638	1.986463	0.862999	1.082947	0.523129	0.182089	0.182122	0.209135	0.787937	16.55998	13.46544	5.259419	0.917057
A	CO_STREX	2.710557	6.194042	3.353459	3.804411	1.696657	0.867208	0.733279	0.003023	2.754819	2.69574	7.753673	1.006483	2.202475
A	CO2_NBIO_ID	0	0	0	0	9.132942	14.73366	168.634	809.4136	66.97549	0	0	270.8634	0
A	CO2_NBIO_RI	266.1346	339.0822	341.2468	423.9643	333.4197	180.5672	1118.285	1552.031	1397.614	1797.251	189.3589	1236.685	1528.962
A	CO2_NBIO_ST	66.0129	89.39977	85.43425	105.4796	14.82794	7.647493	6.30139	0.036032	22.87662	27.38972	48.60502	6.313741	21.74678
A	NOX_IDLEX	0	0	0	0	0.072596	0.117951	0.906188	4.009519	0.252582	0	0	1.261743	0
A	NOX_RUNEX	0.035938	0.18788	0.066771	0.111874	0.088496	0.035573	0.826712	1.560875	1.089349	0.482765	0.58818	2.614039	1.48451
A	NOX_STREX	0.224487	0.460629	0.312916	0.435998	0.378431	0.195557	1.504814	2.74752	0.676444	0.290332	0.136366	0.16199	0.293847
A	PM10_IDLEX	0	0	0	0	0.000909	0.001514	0.001758	0.001978	0.000485	0	0	0.001542	0
A	PM10_PMBW	0.006804	0.00848	0.007999	0.008322	0.042079	0.023814	0.042151	0.073077	0.048096	0.107091	0.012	0.046807	0.042167
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.004329	0.002105	0.012	0.035101	0.012	0.023494	0.004	0.01023	0.013186
A	PM10_RUNEX	0.001243	0.002286	0.001302	0.001463	0.000606	0.000255	0.010636	0.027372	0.022531	0.00062	0.001827	0.014403	0.043566
A	PM10_STREX	0.001979	0.00342	0.002055	0.002168	0.000188	7.2E-05	6.83E-05	8.72E-07	0.000184	0.000181	0.003178	5.02E-05	0.000255
A	PM25_IDLEX	0	0	0	0	0.00087	0.001449	0.001681	0.001888	0.000464	0	0	0.001461	0
A	PM25_PMBW	0.002381	0.002968	0.0028	0.002913	0.014728	0.008335	0.014753	0.025577	0.016834	0.037482	0.0042	0.016382	0.014758
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.001082	0.000526	0.003	0.008775	0.003	0.005873	0.001	0.002558	0.003297
A	PM25_RUNEX	0.001145	0.002104	0.001197	0.00135	0.000557	0.000234	0.010173	0.026186	0.021545	0.000575	0.001709	0.013716	0.041653
A	PM25_STREX	0.001819	0.003145	0.00189	0.001993	0.000172	6.62E-05	6.28E-05	8.02E-07	0.000169	0.000166	0.002985	4.62E-05	0.000235
A	ROG_DIURN	0.299509	0.931077	0.321224	0.442006	0.125918	0.057438	0.021741	0.000255	0.124154	0.072282	2.463773	0.064768	33.56213
A	ROG_HTSK	0.081572	0.224277	0.081339	0.106179	0.029067	0.013205	0.004681	6.12E-05	0.026546	0.021814	3.582821	0.014676	7.897797
A	ROG_IDLEX	0	0	0	0	0.020231	0.014607	0.023714	0.333077	0.043762	0	0	0.306623	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.0079	0.041801	0.011288	0.018136	0.011889	0.003125	0.018439	0.013404	0.051836	0.017806	1.131014	0.086636	0.050084
A	ROG_RUNLS	0.021193	0.077399	0.023034	0.034767	0.06077	0.025105	0.010725	6.33E-05	0.041354	0.001122	1.297057	0.014335	0.002078
A	ROG_STREX	0.277146	0.664602	0.353678	0.506184	0.095845	0.047397	0.034763	1.8E-07	0.134685	0.147928	1.299763	0.044436	0.102562
A	SO2_IDLEX	0	0	0	0	8.85E-05	0.000141	0.001554	0.007371	0.000601	0	0	0.001455	0
A	SO2_RUNEX	0.002631	0.003352	0.003373	0.004189	0.003296	0.001785	0.010555	0.01442	0.01301	0.005622	0.001872	0.007223	0.014996
A	SO2_STREX	0.000653	0.000884	0.000845	0.001043	0.000147	7.56E-05	6.23E-05	3.56E-07	0.000226	0.000271	0.000481	6.24E-05	0.000215
A	TOG_DIURN	0.299509	0.931077	0.321224	0.442006	0.125918	0.057438	0.021741	0.000255	0.124154	0.072282	2.463773	0.064768	33.56213
A	TOG_HTSK	0.081572	0.224277	0.081339	0.106179	0.029067	0.013205	0.004681	6.12E-05	0.026546	0.021814	3.582821	0.014676	7.897797
A	TOG_IDLEX	0	0	0	0	0.02835	0.019435	0.045046	0.477748	0.073509	0	0	0.880071	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.011509	0.060968	0.016457	0.026371	0.017349	0.004559	0.027623	0.038818	0.094999	0.960618	1.355503	1.45496	0.066027
A	TOG_RUNLS	0.021193	0.077399	0.023034	0.034767	0.06077	0.025105	0.010725	6.33E-05	0.041354	0.001122	1.297057	0.014335	0.002078
A	TOG_STREX	0.30344	0.727655	0.387233	0.554207	0.104938	0.051894	0.038061	1.97E-07	0.147463	0.161962	1.413095	0.048652	0.112293
A	N2O_IDLEX	0	0	0	0	0.000822	0.001941	0.026248	0.128959	0.008737	0	0	0.039006	0
A	N2O_RUNEX	0.004276	0.013044	0.006034	0.009302	0.005145	0.002306	0.1579	0.245851	0.121474	0.257607	0.040299	0.165304	0.061303
A	N2O_STREX	0.030861	0.04261	0.036334	0.041537	0.030021	0.015411	0.004413	9.33E-06	0.021998	0.029012	0.008072	0.006978	0.032624
S	CH4_IDLEX	0	0	0	0	0.004752	0.002666	0.018234	0.113441	0.022718	0	0	0.501333	0
S	CH4_RUNEX	0.002274	0.009951	0.003116	0.004616	0.002392	0.003397	0.006827	0.024025	0.035038	0.936363	0.171536	1.349582	0.00798
S	CH4_STREX	0.055159	0.109651	0.068338	0.089425	0.018909	0.009473	0.006032	3.34E-08	0.024144	0.034059	0.156282	0.006363	0.024762
S	CO_IDLEX	0	0	0	0	0.176531	0.126604	0.624755	5.006358	0.477871	0	0	2.994539	0
S	CO_RUNEX	0.933843	2.636137	1.153504	1.44159	0.165843	0.19893	0.184501	0.209353	0.801094	16.56378	13.58886	5.272022	0.940444
S	CO_STREX	2.269993	5.134553	2.800577	3.173295	1.610255	0.823385	0.692017	0.002853	2.561447	2.292484	6.986769	0.722467	2.047181
S	CO2_NBIO_ID	0	0	0	0	9.132942	14.73366	167.3896	800.042	66.49686	0	0	274.3587	0
S	CO2_NBIO_RI	288.25	365.0659	364.4518	448.2702	224.4714	432.691	1118.289	1552.031	1397.638	1797.258	189.5191	1236.708	1529.003
S	CO2_NBIO_ST	65.18244	87.39411	84.38863	104.2366	14.6775	7.571365	6.230879	0.035762	22.5479	26.7041	46.8629	5.838104	21.48365
S	NOX_IDLEX	0	0	0	0	0.072596	0.117951	0.878529	3.823941	0.24328	0	0	1.295023	0
S	NOX_RUNEX	0.030826	0.16064	0.057215	0.096003	0.825874	0.997422	0.777429	1.475855	1.015991	0.473054	0.510039	2.451286	1.384406
S	NOX_STREX	0.209124	0.428908	0.291507	0.406099	0.363581	0.187896	1.502278	2.747505	0.663813	0.276094	0.128108	0.156722	0.281547
S	PM10_IDLEX	0	0	0	0	0.000909	0.001514	0.001493	0.001749	0.000415	0	0	0.00136	0
S	PM10_PMBW	0.006804	0.00848	0.007999	0.008322	0.035921	0.067186	0.042151	0.073077	0.048096	0.107091	0.012	0.046807	0.042167
S	PM10_PMTW	0.008	0.008	0.008	0.008	0.005533	0.008865	0.012	0.035101	0.012	0.023494	0.004	0.01023	0.013186
S	PM10_RUNEX	0.001243	0.002286	0.001302	0.001463	0.013063	0.019143	0.010636	0.027372	0.022531	0.00062	0.001827	0.014403	0.043566
S	PM10_STREX	0.001979	0.00342	0.002055	0.002168	0.000188	7.2E-05	6.83E-05	8.72E-07	0.000184	0.000181	0.003178	5.02E-05	0.000255
S	PM25_IDLEX	0	0	0	0	0.00087	0.001449	0.001437	0.001669	0.000396	0	0	0.001287	0
S	PM25_PMBW	0.002381	0.002968	0.0028	0.002913	0.012572	0.023515	0.014753	0.025577	0.016834	0.037482	0.0042	0.016382	0.014758
S	PM25_PMTW	0.002	0.002	0.002	0.002	0.001383	0.002216	0.003	0.008775	0.003	0.005873	0.001	0.002558	0.003297
S	PM25_RUNEX	0.001145	0.002104	0.001197	0.00135	0.012498	0.018315	0.010173	0.026186	0.021545	0.000575	0.001709	0.013716	0.041653
S	PM25_STREX	0.001819	0.003145	0.00189	0.001993	0.000172	6.62E-05	6.28E-05	8.02E-07	0.000169	0.000166	0.002985	4.62E-05	0.000235
S	ROG_DIURN	0.391407	1.21494	0.408631	0.547593	0.157381	0.071599	0.029705	0.000369	0.165464	0.114836	3.665015	0.086236	42.99079
S	ROG_HTSK	0.088003	0.244398	0.087566	0.113779	0.031348	0.014221	0.005064	6.71E-05	0.028427	0.023821	3.756632	0.015639	8.562674
S	ROG_IDLEX	0	0	0	0	0.020231	0.014657	0.023779	0.352377	0.044585	0	0	0.306439	0
S	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
S	ROG_RUNEX	0.008285	0.043889	0.01184	0.019028	0.051503	0.07314	0.018535	0.013409	0.052379	0.017914	1.118698	0.087224	0.050961
S	ROG_RUNLS	0.021963	0.080364	0.023756	0.035659	0.0631	0.026003	0.011155	6.7E-05	0.042481	0.0012	1.351909	0.014398	0.002157
S	ROG_STREX	0.238025	0.567983	0.303559	0.434262	0.091872	0.045434	0.033262	1.73E-07	0.128167	0.134298	1.141571	0.036994	0.09758
S	SO2_IDLEX	0	0	0	0	8.85E-05	0.000141	0.001542	0.007282	0.000597	0	0	0.001488	0
S	SO2_RUNEX	0.002849	0.003609	0.003603	0.004429	0.002127	0.0041	0.010555	0.01442	0.01301	0.005622	0.001874	0.007224	0.014996
S	SO2_STREX	0.000644	0.000864	0.000834	0.00103	0.000145	7.49E-05	6.16E-05	3.54E-07	0.000223	0.000264	0.000463	5.77E-05	0.000212
S	TOG_DIURN	0.391407	1.21494	0.408631	0.547593	0.157381	0.071599	0.029705	0.000369	0.165464	0.114836	3.665015	0.086236	42.99079
S	TOG_HTSK	0.088003	0.244398	0.087566	0.113779	0.031348	0.014221	0.005064	6.71E-05	0.028427	0.023821	3.756632	0.015639	8.562674
S	TOG_IDLEX	0	0	0	0	0.02835	0.019435	0.044986	0.499719	0.074445	0	0	0.879862	0
S	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
S	TOG_RUNEX	0.01207	0.064016	0.017263	0.027672	0.058633	0.083265	0.027762	0.038826	0.095791	0.960775	1.343642	1.455818	0.067307
S	TOG_RUNLS	0.021963	0.080364	0.023756	0.035659	0.0631	0.026003	0.011155	6.7E-05	0.042481	0.0012	1.351909	0.014398	0.002157
S	TOG_STREX	0.260607	0.62187	0.332359	0.475462	0.100588	0.049744	0.036417	1.89E-07	0.140326	0.147039	1.241185	0.040504	0.106837
S	N2O_IDLEX	0	0	0	0	0.000824	0.001942	0.02603	0.127482	0.008666	0	0	0.03963	0
S	N2O_RUNEX	0.003807	0.011636	0.005383	0.008391	0.035366	0.068171	0.157738	0.245848	0.120578	0.256952	0.036459	0.164242	0.059896
S	N2O_STREX	0.029771	0.04121	0.035078	0.04013	0.029937	0.015085	0.004332	9.12E-06	0.021582	0.028611	0.007914	0.006717	0.032512
W	CH4_IDLEX	0	0	0	0	0.004738	0.002658	0.01839	0.112306	0.022602	0	0	0.50122	0
W	CH4_RUNEX	0.002127	0.009333	0.002916	0.004317	0.002392	0.003397	0.006807	0.024024	0.034938	0.936326	0.170896	1.349475	0.007821
W	CH4_STREX	0.063285	0.126755	0.078481	0.1028	0.019522	0.00978	0.00622	3.47E-08	0.025206	0.037181	0.172886	0.007766	0.025986
W	CO_IDLEX	0	0	0	0	0.176531	0.126604	0.730064	5.16605	0.491473	0	0	3.022177	0
W	CO_RUNEX	0.658177	1.874066	0.813012	1.020998	0.165843	0.19893	0.182316	0.209152	0.789596	16.56012	13.23961	5.260503	0.918871
W	CO_STREX	2.690304	6.149354	3.330383	3.778906	1.682076	0.859991	0.725462	0.00299	2.74501	2.675038	7.583848	1.028104	2.194568
W	CO2_NBIO_ID	0	0	0	0	9.132942	14.73366	170.3494	822.3554	67.63646	0	0	266.0365	0
W	CO2_NBIO_RI	262.402	334.6947	337.3307	419.8618	224.4714	432.691	1118.285	1552.031	1397.617	1797.252	188.9728	1236.687	1528.966
W	CO2_NBIO_ST	65.98001	89.32593	85.3967	105.4378	14.80242	7.634886	6.28811	0.035981	22.85954	27.3543	48.24052	6.350739	21.73309
W	NOX_IDLEX	0	0	0	0	0.072596	0.117951	0.944382	4.265793	0.265427	0	0	1.215785	0
W	NOX_RUNEX	0.034648	0.181103	0.064361	0.10788	0.85962	1.038177	0.812997	1.538075	1.068951	0.480396	0.569176	2.571869	1.456121
W	NOX_STREX	0.222325	0.456365	0.309905	0.431843	0.372749	0.192615	1.504059	2.747516	0.672573	0.287837	0.134961	0.162249	0.290077
W	PM10_IDLEX	0	0	0	0	0.000909	0.001514	0.002124	0.002295	0.000583	0	0	0.001792	0
W	PM10_PMBW	0.006804	0.00848	0.007999	0.008322	0.035921	0.067186	0.042151	0.073077	0.048096	0.107091	0.012	0.046807	0.042167
W	PM10_PMTW	0.008	0.008	0.008	0.008	0.005533	0.008865	0.012	0.035101	0.012	0.023494	0.004	0.01023	0.013186
W	PM10_RUNEX	0.001243	0.002286	0.001302	0.001463	0.013063	0.019143	0.010636	0.027372	0.022531	0.00062	0.001827	0.014403	0.043566
W	PM10_STREX	0.001979	0.00342	0.002055	0.002168	0.000188	7.2E-05	6.83E-05	8.72E-07	0.000184	0.000181	0.003178	5.02E-05	0.000255
W	PM25_IDLEX	0	0	0	0	0.00087	0.001449	0.002031	0.002191	0.000557	0	0	0.001701	0
W	PM25_PMBW	0.002381	0.002968	0.0028	0.002913	0.012572	0.023515	0.014753	0.025577	0.016834	0.037482	0.0042	0.016382	0.014758
W	PM25_PMTW	0.002	0.002	0.002	0.002	0.001383	0.002216	0.003	0.008775	0.003	0.005873	0.001	0.002558	0.003297
W	PM25_RUNEX	0.001145	0.002104	0.001197	0.00135	0.012498	0.018315	0.010173	0.026186	0.021545	0.000575	0.001709	0.013716	0.041653
W	PM25_STREX	0.001819	0.003145	0.00189	0.001993	0.000172	6.62E-05	6.28E-05	8.02E-07	0.000169	0.000166	0.002985	4.62E-05	0.000235
W	ROG_DIURN	0.304651	0.935154	0.326358	0.450408	0.126901	0.057989	0.022673	0.000264	0.130881	0.077537	2.551382	0.069548	33.83653
W	ROG_HTSK	0.081584	0.223951	0.081378	0.106309	0.029055	0.013202	0.004677	6.1E-05	0.02656	0.021775	3.599689	0.014696	7.89293
W	ROG_IDLEX	0	0	0	0	0.020231	0.014657	0.023633	0.306426	0.042627	0	0	0.306877	0
W	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
W	ROG_RUNEX	0.007846	0.041482	0.011209	0.017999	0.051503	0.07314	0.018448	0.013404	0.051905	0.017816	1.122602	0.086715	0.05015
W	ROG_RUNLS	0.021524	0.079469	0.023333	0.0352	0.062226	0.025607	0.010997	6.61E-05	0.042058	0.001161	1.397914	0.01447	0.002133
W	ROG_STREX	0.276918	0.663728	0.353399	0.505806	0.095137	0.047053	0.034501	1.79E-07	0.134235	0.147162	1.271111	0.045238	0.10222
W	SO2_IDLEX	0	0	0	0	8.85E-05	0.000141	0.00157	0.007494	0.000608	0	0	0.00141	0
W	SO2_RUNEX	0.002594	0.003309	0.003334	0.004148	0.002127	0.0041	0.010555	0.01442	0.01301	0.005622	0.001868	0.007223	0.014996
W	SO2_STREX	0.000652	0.000883	0.000844	0.001042	0.000146	7.55E-05	6.22E-05	3.56E-07	0.000226	0.00027	0.000477	6.28E-05	0.000215
W	TOG_DIURN	0.304651	0.935154	0.326358	0.450408	0.126901	0.057989	0.022673	0.000264	0.130881	0.077537	2.551382	0.069548	33.83653
W	TOG_HTSK	0.081584	0.223951	0.081378	0.106309	0.029055	0.013202	0.004677	6.1E-05	0.02656	0.021775	3.599689	0.014696	7.89293
W	TOG_IDLEX	0	0	0	0	0.02835	0.019435	0.04514	0.447407	0.072216	0	0	0.88036	0
W	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
W	TOG_RUNEX	0.01143	0.060504	0.016342	0.026173	0.058633	0.083265	0.027636	0.038818	0.095099	0.960632	1.346185	1.455075	0.066123
W	TOG_RUNLS	0.021524	0.079469	0.023333	0.0352	0.062226	0.025607	0.010997	6.61E-05	0.042058	0.001161	1.397914	0.01447	0.002133
W	TOG_STREX	0.303191	0.726698	0.386928	0.553793	0.104163	0.051517	0.037775	1.96E-07	0.146971	0.161124	1.381979	0.04953	0.111918
W	N2O_IDLEX	0	0	0	0	0.000822	0.001941	0.026551	0.130998	0.008843	0	0	0.038258	0
W	N2O_RUNEX	0.004156	0.012688	0.005868	0.00907	0.035366	0.068171	0.157858	0.24585	0.121239	0.257449	0.039371	0.165049	0.060937
W	N2O_STREX	0.030787	0.042556	0.036253	0.04146	0.029743	0.015269	0.004387	9.27E-06	0.021856	0.029001	0.008065	0.007039	0.032527

Emissions (grams/day)

VMT or Trips	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
1011253.47 Trip	0	0	0	0	131.19777	20.38586	319.00504	2161.3179	11.723103	0	0	542.61117	0
8842662.95 VMT	9197.396	2510.2512	6141.8996	5808.0403	592.29264	47.087951	1038.7057	3998.6989	158.03853	3436.9731	30568.623	12774.376	203.83425
1011253.47 Trip	31112.182	3874.7347	18788.879	15714.809	544.56319	75.544889	109.54381	0.0006655	13.085812	15.683013	3588.3172	8.2606439	77.867651
1011253.47 Trip	0	0	0	0	4891.6085	971.58833	11672.047	96572.878	250.25906	0	0	3254.3652	0
8842662.95 VMT	3001809.3	530573.75	1805793.8	1447017.1	126754.33	12219.179	27794.302	34810.008	3565.5965	60786.276	2397165.3	49787.104	23943.787
1011253.47 Trip	1331883.8	189197.93	802467.96	581341.18	47013.726	6655.1761	12797.937	57.536268	1425.6435	1131.6325	157856.27	1089.5884	6576.3454
1011253.47 Trip	0	0	0	0	253070.41	113069.84	2943174.7	15407213	34660.418	0	0	293228.64	0
8842662.95 VMT	1.143E+09	90567062	714046232	566494840	80787638	12117080	170665827	258331232	6324529.9	6597192.6	33710341	11706803	39920269
1011253.47 Trip	32436696	2730729.4	20444039	16118030	410876.56	58688.794	109978.39	685.86702	11838.855	11497.808	989544.78	6835.0681	64933.473
1011253.47 Trip	0	0	0	0	2011.5965	905.18551	15815.729	76321.313	130.71329	0	0	1365.9252	0
8842662.95 VMT	154412.89	50181.626	139714.93	149483.81	21442.689	2387.1718	126167.71	259803.33	4929.5563	1772.0904	104709.82	24745.213	38759.63
1011253.47 Trip	110306.13	14069.988	74879.449	66623.648	10486.176	1500.7576	26263.569	52299.129	350.06593	121.87707	2776.2575	175.3657	877.39547
1011253.47 Trip	0	0	0	0	25.199271	11.620361	30.677049	37.649624	0.2511642	0	0	1.6689186	0
8842662.95 VMT	29234.793	2265.0771	16738.403	11120.289	10195.711	1598.0693	6432.811	12163.519	217.64619	393.09993	2136.2828	443.08525	1100.942
8842662.95 VMT	34373.276	2136.7584	16739.707	10689.485	1048.8519	141.24432	1831.3672	5842.51	54.302808	86.238639	712.09428	96.8436	344.2906
8842662.95 VMT	5342.3161	610.55171	2723.7072	1954.4203	146.77211	17.0961	1623.1675	4555.9995	101.95851	2.2757055	325.27434	136.33814	1137.4747
1011253.47 Trip	972.22552	104.47774	491.80798	331.23111	5.195656	0.5525083	1.1919039	0.0166023	0.0953936	0.0758511	64.704599	0.0543805	0.7620318
1011253.47 Trip	0	0	0	0	24.109162	11.11767	29.338993	35.942652	0.2400503	0	0	1.5815269	0
8842662.95 VMT	10232.178	792.77697	5858.441	3892.1013	3568.499	559.32427	2251.4838	4257.2316	76.176165	137.58497	747.69899	155.07984	385.32969
8842662.95 VMT	8593.3189	534.18961	4184.9266	2672.3712	262.21299	35.311081	457.8418	1460.6275	13.575702	21.55966	178.02357	24.2109	86.07265
8842662.95 VMT	4917.9163	561.91712	2505.7063	1803.9397	134.95154	15.719233	1552.4746	4358.5866	97.493933	2.1092109	304.27157	129.84142	1087.5216
1011253.47 Trip	893.92548	96.065204	452.20065	304.5624	4.7772139	0.508011	1.0959117	0.0152652	0.0877109	0.0697423	60.778501	0.0500009	0.7006601
1011253.47 Trip	147169.32	28439.892	76867.567	67541.634	3489.1526	440.79419	379.44364	4.8464032	64.250592	30.342781	50159.708	70.115494	100212.79
1011253.47 Trip	40082.105	6850.576	19464.085	16224.851	805.43836	101.33591	81.694208	1.1642097	13.738033	9.1573318	72942.292	15.888282	23581.942
1011253.47 Trip	0	0	0	0	560.59939	112.48213	413.88443	6340.1376	22.647409	0	0	331.94078	0
1011253.47 Trip	0	0	0	0	0	0	0	0	0	0	0	0	0
8842662.95 VMT	33945.058	11164.74	23619.121	24232.856	2880.8069	209.67747	2814.0602	2230.9791	234.57213	65.361842	201347.13	820.1205	1307.6734
1011253.47 Trip	10413.493	2364.1511	5511.9645	5312.6418	1683.9134	192.66496	187.18902	1.2044831	21.400822	0.4711624	26406.659	15.518904	6.2059788
1011253.47 Trip	136180.91	20300.355	84633.561	77348.525	2655.8316	363.73612	606.71313	0.0034323	69.700786	62.097963	26461.739	48.10535	306.23928
1011253.47 Trip	0	0	0	0	2.4510644	1.0802258	27.121664	140.31067	0.3111528	0	0	1.5754874	0
8842662.95 VMT	11303.526	895.33754	7058.2104	5596.7834	798.66805	119.78968	1610.8326	2400.1485	58.872888	20.635591	333.26104	68.378965	391.53648
1011253.47 Trip	320.66976	26.99604	202.11014	159.34314	4.0619331	0.5801985	1.0872484	0.

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Sub-Area
Region: Riverside (SC)
Calendar Year: 2040
Season: Summer, Winter, Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Emissions Rate (g/mile or g/trip)

Seas	Emission Type	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.002727	0.001387	0.014426	0.091667	0.027046	0	0	0.496191	0
A	CH4_RUNEX	0.000939	0.001528	0.001379	0.001546	0.000203	8.89E-05	0.004971	0.018026	0.051218	0.747305	0.133336	1.221887	0.002731
A	CH4_STREX	0.030908	0.042033	0.041724	0.046068	0.009436	0.00415	0.002453	1.03E-08	0.014499	0.006032	0.134817	0.004713	0.020662
A	CO_IDLEX	0	0	0	0	0.131688	0.09216	0.439997	4.651589	0.518797	0	0	2.473963	0
A	CO_RUNEX	0.438925	0.588624	0.565961	0.597714	0.218372	0.102537	0.040751	0.105594	0.323474	8.937167	9.860362	3.942087	0.171073
A	CO_STREX	1.454151	1.901288	1.975025	2.054565	1.375276	0.663976	0.230728	0.000341	1.569866	1.260241	7.406386	0.533659	1.492261
A	CO2_NBIO_ID	0	0	0	0	5.91594	10.18245	98.84695	602.7714	68.52977	0	0	211.4702	0
A	CO2_NBIO_RI	201.9195	262.2567	266.5575	320.7379	187.9272	98.52109	604.3759	1105.351	975.6597	412.5982	184.4004	897.7789	1472.046
A	CO2_NBIO_ST	48.65631	64.00409	64.59606	77.87273	10.50197	4.943573	2.537216	0.003463	13.53045	7.183049	38.27276	3.659663	17.85903
A	NOX_IDLEX	0	0	0	0	0.029644	0.058667	0.344561	3.01879	0.175984	0	0	0.329224	0
A	NOX_RUNEX	0.017465	0.029392	0.024418	0.03035	0.00996	0.005655	0.152232	0.999035	0.525497	0.022043	0.465923	0.412237	0.979985
A	NOX_STREX	0.14444	0.193994	0.195018	0.219858	0.185891	0.08533	0.747778	2.164309	0.482148	0.061348	0.077888	0.170536	0.308998
A	PM10_IDLEX	0	0	0	0	0.000614	0.001166	0.000167	0.001418	0.000222	0	0	0.000603	0
A	PM10_PMBW	0.006592	0.008118	0.007959	0.008085	0.043176	0.030833	0.033688	0.074084	0.04702	0.069367	0.012	0.040883	0.042188
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.005836	0.004022	0.012	0.035262	0.012	0.023494	0.004	0.010543	0.013488
A	PM10_RUNEX	0.000493	0.000648	0.000567	0.000601	0.000415	0.000186	0.002856	0.022566	0.011601	0.00024	0.002078	0.002993	0.02677
A	PM10_STREX	0.000875	0.001151	0.000946	0.001009	5.59E-05	2.23E-05	3.24E-05	3.62E-08	0.000134	3.01E-05	0.003461	4.64E-05	0.000199
A	PM25_IDLEX	0	0	0	0	0.000588	0.001115	0.000159	0.001351	0.000211	0	0	0.000557	0
A	PM25_PMBW	0.002307	0.002841	0.002786	0.00283	0.015111	0.010792	0.011791	0.02593	0.016457	0.024279	0.0042	0.014309	0.014766
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.001459	0.001005	0.003	0.008816	0.003	0.005873	0.001	0.002636	0.003372
A	PM25_RUNEX	0.000453	0.000596	0.000522	0.000553	0.000382	0.000171	0.002731	0.021588	0.011089	0.000224	0.001937	0.002796	0.025589
A	PM25_STREX	0.000805	0.001058	0.000869	0.000927	5.14E-05	2.05E-05	2.98E-05	3.33E-08	0.000123	2.77E-05	0.00323	4.27E-05	0.000183
A	ROG_DIURN	2.210737	0.396613	0.229483	0.300149	0.064192	0.035168	0.006938	8.21E-06	0.095792	0.018054	2.260803	0.093307	20.54967
A	ROG_HTSK	0.040038	0.071756	0.043306	0.054418	0.010447	0.005621	0.00104	1.31E-06	0.015606	0.00504	3.575829	0.013528	3.367532
A	ROG_IDLEX	0	0	0	0	0.011379	0.008682	0.012032	0.299299	0.038217	0	0	0.194776	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.00281	0.005214	0.004343	0.005141	0.000698	0.000302	0.0035	0.009114	0.018641	0.010892	0.801396	0.027261	0.02225
A	ROG_RUNLS	0.016079	0.02999	0.017832	0.02394	0.030383	0.016722	0.003677	1.73E-06	0.031239	0.000604	1.412882	0.027882	0.001196
A	ROG_STREX	0.119806	0.174197	0.165628	0.193058	0.042409	0.018513	0.012405	5.23E-08	0.080418	0.019281	0.951494	0.026678	0.072878
A	SO2_IDLEX	0	0	0	0	5.74E-05	9.72E-05	0.000893	0.005448	0.000588	0	0	0.00068	0
A	SO2_RUNEX	0.001996	0.002593	0.002635	0.003169	0.001858	0.000974	0.005676	0.010256	0.008681	0.000811	0.001823	0.003955	0.014402
A	SO2_STREX	0.000481	0.000633	0.000639	0.00077	0.000104	4.89E-05	2.51E-05	3.42E-08	0.000134	7.1E-05	0.000378	3.62E-05	0.000177
A	TOG_DIURN	2.210737	0.396613	0.229483	0.300149	0.064192	0.035168	0.006938	8.21E-06	0.095792	0.018054	2.260803	0.093307	20.54967
A	TOG_HTSK	0.040038	0.071756	0.043306	0.054418	0.010447	0.005621	0.00104	1.31E-06	0.015606	0.00504	3.575829	0.013528	3.367532
A	TOG_IDLEX	0	0	0	0	0.015814	0.011165	0.027997	0.418882	0.071024	0	0	0.737233	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.0041	0.007609	0.006324	0.007483	0.001018	0.000441	0.008858	0.028068	0.072453	0.762905	0.996259	1.258228	0.027082
A	TOG_RUNLS	0.016079	0.02999	0.017832	0.02394	0.030383	0.016722	0.003677	1.73E-06	0.031239	0.000604	1.412882	0.027882	0.001196
A	TOG_STREX	0.131173	0.190724	0.181341	0.211374	0.046432	0.02027	0.013582	5.73E-08	0.088048	0.021111	1.035796	0.029209	0.079792
A	N2O_IDLEX	0	0	0	0	0.000501	0.001355	0.015553	0.096239	0.009892	0	0	0.034234	0
A	N2O_RUNEX	0.002821	0.003817	0.003585	0.004304	0.000843	0.000513	0.087481	0.175172	0.115818	0.06794	0.035037	0.127096	0.065675
A	N2O_STREX	0.022823	0.027876	0.029154	0.030207	0.017407	0.007795	0.001824	2.81E-07	0.010629	0.010383	0.005015	0.005832	0.035511
S	CH4_IDLEX	0	0	0	0	0.002737	0.001392	0.014403	0.092493	0.027119	0	0	0.496283	0
S	CH4_RUNEX	0.000998	0.001623	0.001466	0.001643	0.000629	0.000396	0.004974	0.018326	0.051241	0.747307	0.13592	1.221907	0.002771
S	CH4_STREX	0.026998	0.036674	0.036399	0.040182	0.009084	0.003995	0.002361	9.8E-09	0.013854	0.005491	0.121606	0.003932	0.019627
S	CO_IDLEX	0	0	0	0	0.131688	0.09216	0.421766	4.594307	0.51374	0	0	2.471742	0
S	CO_RUNEX	0.588069	0.787237	0.758113	0.799554	0.031604	0.073698	0.040919	0.105617	0.32587	8.939195	10.06376	3.943734	0.173378
S	CO_STREX	1.230248	1.603263	1.661114	1.726705	1.307019	0.631085	0.217747	0.000321	1.460013	1.071601	6.475566	0.383068	1.387839
S	CO2_NBIO_ID	0	0	0	0	5.91594	10.18245	97.58109	595.3017	67.89039	0	0	211.5664	0
S	CO2_NBIO_RI	218.8013	281.4917	284.3721	338.4578	126.0947	272.0893	604.3762	1105.351	975.6639	412.6014	184.7773	897.7818	1472.05
S	CO2_NBIO_ST	48.24512	63.4495	64.02023	77.26168	10.38779	4.888823	2.514819	0.003432	13.34308	6.877444	36.4658	3.405715	17.68149
S	NOX_IDLEX	0	0	0	0	0.029644	0.058667	0.328124	2.871515	0.169098	0	0	0.328037	0
S	NOX_RUNEX	0.014966	0.025184	0.02093	0.026027	0.114241	0.286647	0.143356	0.944972	0.494007	0.021619	0.406035	0.384586	0.920004
S	NOX_STREX	0.134519	0.180708	0.181689	0.204822	0.178652	0.082015	0.746865	2.164309	0.475489	0.05833	0.073506	0.165896	0.296064
S	PM10_IDLEX	0	0	0	0	0.000614	0.001166	0.00015	0.001273	0.000197	0	0	0.000595	0
S	PM10_PMBW	0.006592	0.008118	0.007959	0.008085	0.034824	0.060167	0.033688	0.074084	0.04702	0.069367	0.012	0.040883	0.042188
S	PM10_PMTW	0.008	0.008	0.008	0.008	0.006061	0.00859	0.012	0.035262	0.012	0.023494	0.004	0.010543	0.013488
S	PM10_RUNEX	0.000493	0.000648	0.000567	0.000601	0.003877	0.008509	0.002856	0.022566	0.011601	0.00024	0.002078	0.002993	0.02677
S	PM10_STREX	0.000875	0.001151	0.000946	0.001009	5.59E-05	2.23E-05	3.24E-05	3.62E-08	0.000134	3.01E-05	0.003461	4.64E-05	0.000199
S	PM25_IDLEX	0	0	0	0	0.000588	0.001115	0.000142	0.001213	0.000187	0	0	0.000549	0
S	PM25_PMBW	0.002307	0.002841	0.002786	0.00283	0.012189	0.021058	0.011791	0.02593	0.016457	0.024279	0.0042	0.014309	0.014766
S	PM25_PMTW	0.002	0.002	0.002	0.002	0.001515	0.002147	0.003	0.008816	0.003	0.005873	0.001	0.002636	0.003372
S	PM25_RUNEX	0.000453	0.000596	0.000522	0.000553	0.000382	0.000171	0.002731	0.021588	0.011089	0.000224	0.001937	0.002796	0.025589
S	PM25_STREX	0.000805	0.001058	0.000869	0.000927	5.14E-05	2.05E-05	2.98E-05	3.33E-08	0.000123	2.77E-05	0.00323	4.27E-05	0.000183
S	ROG_DIURN	2.241049	0.450366	0.261817	0.339025	0.071424	0.038731	0.007973	9.54E-06	0.111464	0.024097	3.125453	0.105295	22.73217
S	ROG_HTSK	0.042593	0.076228	0.046052	0.057735	0.011077	0.005937	0.0011	1.39E-06	0.016475	0.005445	3.729437	0.014213	3.553363
S	ROG_IDLEX	0	0	0	0	0.011379	0.008682	0.01236	0.317088	0.039405	0	0	0.194852	0
S	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
S	ROG_RUNEX	0.002947	0.005468	0.004552	0.005389	0.013553	0.030049	0.003508	0.009114	0.018736	0.010897	0.814082	0.027344	0.022375
S	ROG_RUNLS	0.016308	0.030359	0.018082	0.024232	0.03083	0.016924	0.003722	1.75E-06	0.031553	0.000625	1.465642	0.027909	0.001208
S	ROG_STREX	0.103159	0.149871	0.142483	0.166019	0.040659	0.01775	0.011869	5.01E-08	0.076526	0.017406	0.852293	0.02221	0.069351
S	SO2_IDLEX	0	0	0	0	5.74E-05	9.72E-05	0.000881	0.005377	0.000582	0	0	0.000681	0
S	SO2_RUNEX	0.002163	0.002783	0.002811	0.003345	0.001195	0.002578	0.005676	0.010256	0.008681	0.000811	0.001827	0.003955	0.014402
S	SO2_STREX	0.000477	0.000627	0.000633	0.000764	0.000103	4.83E-05	2.49E-05	3.39E-08	0.000132	6.8E-05	0.000361	3.37E-05	0.000175
S	TOG_DIURN	2.241049	0.450366	0.261817	0.339025	0.071424	0.038731	0.007973	9.54E-06	0.111464	0.024097	3.125453	0.105295	22.73217
S	TOG_HTSK	0.042593	0.076228	0.046052	0.057735	0.011077	0.005937	0.0011	1.39E-06	0.016475	0.005445	3.729437	0.014213	3.553363
S	TOG_IDLEX	0	0	0	0	0.015814	0.011165	0.028306	0.439133	0.072376	0	0	0.73732	0
S	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
S	TOG_RUNEX	0.004299	0.007979	0.006629	0.007844	0.015429	0.034209	0.00887	0.028068	0.072592	0.762913	1.012839	1.25835	0.027265
S	TOG_RUNLS	0.016308	0.030359	0.018082	0.024232	0.03083	0.016924	0.003722	1.75E-06	0.031553	0.000625	1.465642	0.027909	0.001208
S	TOG_STREX	0.112947	0.16409	0.156001	0.18177	0.044516	0.019434	0.012995	5.48E-08	0.083786	0.019058	0.927855	0.024317	0.07593
S	N2O_IDLEX	0	0	0	0	0.000502	0.001356	0.015344	0.095062	0.009793	0	0	0.03429	0
S	N2O_RUNEX	0.002505	0.003389	0.003196	0.003881	0.019866	0.042868	0.087454	0.175172	0.115619	0.067885	0.031802	0.126597	0.064955
S	N2O_STREX	0.021997	0.026881	0.028101	0.029115	0.016981	0.007612	0.001783	2.79E-07	0.010393	0.010181	0.004932	0.005614	0.035356
W	CH4_IDLEX	0	0	0	0	0.002728	0.001388	0.014463	0.090526	0.026971	0	0	0.496175	0
W	CH4_RUNEX	0.000933	0.001518	0.001371	0.001536	0.000629	0.001396	0.004971	0.018026	0.051221	0.747305	0.133407	1.221889	0.002735
W	CH4_STREX	0.030881	0.042	0.041698	0.046042	0.00938	0.004125	0.002429	1.02E-08	0.014454	0.006065	0.133195	0.004797	0.020589
W	CO_IDLEX	0	0	0	0	0.131688	0.09216	0.465423	4.730693	0.525781	0	0	2.47703	0
W	CO_RUNEX	0.413349	0.554549	0.533011	0.563093	0.031604	0.073698	0.040765	0.105596	0.323791	8.937332	9.833808	3.942228	0.171264
W	CO_STREX	1.440072	1.884238	1.958861	2.038115	1.364738	0.658934	0.22827	0.000337	1.564308	1.268764	7.283347	0.545123	1.486979
W	CO2_NBIO_ID	0	0	0	0	5.91594	10.18245	100.5938	613.0867	69.41274	0	0	211.3375	0
W	CO2_NBIO_RI	199.0656	259.0093	263.5498	317.746	126.0947	272.0893	604.3759	1105.351	975.6602	412.5985	184.3628	897.7791	1472.046
W	CO2_NBIO_ST	48.6335	63.9764	64.5699	77.84608	10.4843	4.93517	2.533002	0.003457	13.52073	7.196967	38.0331	3.679468	17.84983
W	NOX_IDLEX	0	0	0	0	0.029644	0.058667	0.36726	3.22217	0.185492	0	0	0.330864	0
W	NOX_RUNEX	0.016834	0.02833	0.023536	0.029258	0.118907	0.298354	0.149786	0.984521	0.516681	0.021939	0.450993	0.40511	0.9627
W	NOX_STREX	0.143069	0.192134	0.193128	0.217734	0.183068	0.08403	0.747506	2.164309	0.480107	0.06078	0.077153	0.170763	0.305033
W	PM10_IDLEX	0	0	0	0	0.000614	0.001166	0.000191	0.001617	0.000258	0	0	0.000614	0
W	PM10_PMBW	0.006592	0.008118	0.007959	0.008085	0.034824	0.060167	0.033688	0.074084	0.04702	0.069367	0.012	0.040883	0.042188
W	PM10_PMTW	0.008	0.008	0.008	0.008	0.006061	0.00859	0.012	0.035262	0.012	0.023494	0.004	0.010543	0.013488
W	PM10_RUNEX	0.000493	0.000648	0.000567	0.000601	0.003877	0.008509	0.002856	0.022566	0.011601	0.00024	0.002078	0.002993	0.02677
W	PM10_STREX	0.000875	0.001151	0.000946	0.001009	5.59E-05	2.23E-05	3.24E-05	3.62E-08	0.000134	3.01E-05	0.003461	4.64E-05	0.000199
W	PM25_IDLEX	0	0	0	0	0.000588	0.001115	0.000182	0.001542	0.000245	0	0	0.000568	0
W	PM25_PMBW	0.002307	0.002841	0.002786	0.00283	0.012189	0.021058	0.011791	0.02593	0.016457	0.024279	0.0042	0.014309	0.014766
W	PM25_PMTW	0.002	0.002	0.002	0.002	0.001515	0.002147	0.003	0.008816	0.003	0.005873	0.001	0.002636	0.003372
W	PM25_RUNEX	0.000453	0.000596	0.000522	0.000553	0.003709	0.008141	0.002731	0.021588	0.011089	0.000224	0.001937	0.002796	0.025589
W	PM25_STREX	0.000805	0.001058	0.000869	0.000927	5.14E-05	2.05E-05	2.98E-05	3.33E-08	0.000123	2.77E-05	0.00323	4.27E-05	0.000183
W	ROG_DIURN	2.21295	0.40141	0.231872	0.303746	0.064737	0.035556	0.007127	8.46E-06	0.099217	0.017985	2.405741	0.09689	20.84493
W	ROG_HTSK	0.040133	0.071944	0.043412	0.054572	0.010471	0.005638	0.001042	1.32E-06	0.015649	0.00504	3.595651	0.013576	3.380027
W	ROG_IDLEX	0	0	0	0	0.011379	0.008682	0.011582	0.274733	0.036577	0	0	0.19467	0
W	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
W	ROG_RUNEX	0.002792	0.00518	0.004314	0.005107	0.013553	0.030049	0.0035	0.009114	0.018654	0.010892	0.801095	0.027272	0.022262
W	ROG_RUNLS	0.01614	0.030117	0.0179	0.024036	0.030667	0.016852	0.00371	1.74E-06	0.031414	0.000629	1.520866	0.027963	0.001204
W	ROG_STREX	0.119667	0.174006	0.165475	0.192893	0.042125	0.018393	0.012312	5.19E-08	0.080490	0.019399	0.938118	0.02716	0.072634
W	SO2_IDLEX	0	0	0	0	5.74E-05	9.72E-05	0.00091	0.005545	0.000596	0	0	0.000678	0
W	SO2_RUNEX	0.001968	0.002561	0.002605	0.00314	0.001195	0.002578	0.005676	0.010256	0.008681	0.000811	0.001823	0.003955	0.014402
W	SO2_STREX	0.000481	0.000632	0.000638	0.00077	0.000104	4.88E-05	2.5E-05	3.42E-08	0.000134	7.11E-05	0.000376	3.64E-05	0.000176
W	TOG_DIURN	2.21295	0.40141	0.231872	0.303746	0.064737	0.035556	0.007127	8.46E-06	0.099217	0.017985	2.405741	0.09689	20.84493
W	TOG_HTSK	0.040133	0.071944	0.043412	0.054572	0.010471	0.005638	0.001042	1.32E-06	0.015649	0.00504	3.595651	0.013576	3.380027
W	TOG_IDLEX	0	0	0	0	0.015814	0.011165	0.027576	0.390916	0.069157	0	0	0.737113	0
W	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
W	TOG_RUNEX	0.004072	0.007558	0.006282	0.007434	0.015429	0.034209	0.008859	0.028068	0.072472	0.762906	0.9961	1.258244	0.0271
W	TOG_RUNLS	0.01614	0.030117	0.0179	0.024036	0.030667	0.016852	0.00371	1.74E-06	0.031414	0.000629	1.520866	0.027963	0.001204
W	TOG_STREX	0.13102	0.190515	0.181174	0.211194	0.046122	0.020138	0.01348	5.68E-08	0.087753	0.021239	1.021256	0.029736	0.079526
W	N2O_IDLEX	0	0	0	0	0.000501	0.001356	0.015841	0.097864	0.010031	0	0	0.03422	0
W	N2O_RUNEX	0.002739	0.003707	0.003485	0.004195	0.019866	0.042868	0.087474	0.175172	0.115766	0.06797	0.034239	0.126972	0.065487
W	N2O_STREX	0.022768	0.027809	0.029076	0.030126	0.017232	0.007718	0.001811	2.8E-07	0.010552	0.010359	0.005014	0.005881	0.035398

Emissions (grams/day)

VMT or Trips	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
1402938.5 Trip	0	0	0	0	104.82413	14.766505	349.29445	2420.7259	19.417605	0	0	745.21784	0
12668912.9 VMT	5779.5968	584.65284	4135.0311	2958.7284	70.304247	8.5455235	1086.9085	4298.5422	332.06127	3930.107	34008.126	16571.67	102.14778
1402938.5 Trip	21069.85	1781.1895	13851.534	9766.2102	362.73866	44.179089	59.390281	0.0002713	10.409286	3.5128231	3807.8361	7.0779263	85.591525
1402938.5 Trip	0	0	0	0	5062.4051	981.20063	10653.665	122838.22	372.47259	0	0	3715.59	0
12668912.9 VMT	2701948.7	225247.33	1696681.3	1144238.1	75806.7	9858.18	8910.1496	25181.058	2097.1869	47000.948	2514933.7	53464.014	6399.3246
1402938.5 Trip	991278.92	80569.171	655670.88	435554.15	52868.753	7069.144	5586.6383	8.9937473	1127.0909	733.93855	209189.21	801.49089	6181.5459
1402938.5 Trip	0	0	0	0	227422.29	108409.39	2393386.8	15917866	49201.21	0	0	317602.51	0
1.243E+09	100357118	799107073	614006804	65237858	9472064.8	132147043	263592595	6325510	2169871.6	47033495	12176003	55064824	0
1402938.5 Trip	33168476	2712243.2	21444666	16508500	403719.79	52632.699	61433.745	91.437374	9714.2406	4183.2599	1080992.6	5496.3668	73979.265
1402938.5 Trip	0	0	0	0	1139.5993	624.61349	8342.8806	79719.6	126.3482	0	0	494.45444	0
12668912.9 VMT	107512.41	11247.531	73200.766	58100.635	3457.4068	543.70883	33285.666	238239.43	3406.9649	115.92549	118835.91	5590.9116	36658.299
1402938.5 Trip	98462.973	8220.7218	64742.383	46608.41	7146.059	908.48484	18105.979	57154.648	346.16011	35.72799	2199.8909	256.12365	1279.9921
1402938.5 Trip	0	0	0	0	23.614575	12.412072	4.0445242	37.434169	0.1595192	0	0	0.9055974	0
12668912.9 VMT	40576.884	3106.5784	23860.496	15477.447	14988.192	2964.3702	7365.877	17666.854	304.8483	364.80529	3060.6596	554.46615	1578.1323
12668912.9 VMT	49246.708	3061.341	23983.034	15314.861	2025.906	386.67705	2623.8059	8408.9947	77.799816	123.55439	1020.2199	142.99339	504.55821
12668912.9 VMT	3034.7707	248.15789	1700.5217	1150.9224	144.04041	17.912254	624.48021	5381.3392	75.213431	1.2640349	529.89446	40.594866	1001.3672
1402938.5 Trip	596.4637	48.756864	313.93044	213.82589	2.1470529	0.2372367	0.7848624	0.0009556	0.0959231	0.017531	97.746384	0.0697411	0.8227101
1402938.5 Trip	0	0	0	0	22.593019	11.875132	3.8513668	35.6883	0.1517862	0	0	0.8360773	0
12668912.9 VMT	14201.909	1087.3024	8351.1737	5417.1065	5245.8672	1037.5296	2578.0569	6183.399	106.6969	127.68185	1071.2309	194.06315	552.34631
12668912.9 VMT	12311.677	765.33525	5995.7585	3828.7152	506.47651	96.669263	655.95148	2102.2487	19.449954	30.888597	255.05497	35.748349	126.13955
12668912.9 VMT	2790.6618	228.17259	1565.161	1059.5772	132.43984	16.469656	597.07659	5148.1975	71.894502	1.1758257	494.12388	37.918395	957.2063
1402938.5 Trip	548.42636	44.830136	288.64745	196.60502	1.9741359	0.2181304	0.721652	0.0008787	0.0881978	0.0161191	91.239892	0.0641244	0.7564516
1402938.5 Trip	164320.65	19084.746	86918.434	71871.08	2745.6944	412.35432	193.04435	0.2519489	80.025649	14.033526	88276.669	158.14026	94165.795
1402938.5 Trip	29035.159	3230.2254	15288.26	12239.411	425.82579	63.212665	26.624579	0.0366394	11.828528	3.1711522	105335.86	21.346305	14719.458
1402938.5 Trip	0	0	0	0	437.44072	92.431512	299.27524	8373.5832	28.29086	0	0	292.64367	0
1402938.5 Trip	0	0	0	0	0	0	0	0	0	0	0	0	0
12668912.9 VMT	18140.895	2092.5431	13647.086	10315.621	4704.7559	2889.0175	766.99953	2173.3679	121.47017	57.30762	207635.5	370.85383	836.99187
1402938.5 Trip	11116.855	1286.5064	6002.801	5136.9656	1185.1817	180.18129	90.119339	0.0461715	22.653576	0.3640108	41396.222	41.915608	5.0045751
1402938.5 Trip	70322.639	6350.9615	47301.647	35194.912	1563.0152	188.98319	287.38705	0.0013218	54.942105	10.137147	24072.53	33.357124	287.27886
1402938.5 Trip	0	0	0	0	2.2056239	1.035047	21.342575	141.99398	0.4177783	0	0	1.0221569	0
12668912.9 VMT	13315.251	1064.899	8426.8359	6402.6191	414.77177	247.87309	1241.1327	2445.8416	56.281017	4.2662367	465.91179	53.633369	538.74471
1402938.5 Trip

Paved Road Dust Calculations (EPA AP-42 13.2.1, equation 2)

E = (k*(sL)^0.91*(W)^1.02)*(1-P/4N)

	PM_{10}	$PM_{2.5}$	
E =			emission factor
k =	0.0022	0.00054	particle size multiplier (lb/vmt)
sL =	0.08	0.08	surface silt loading (CARB Miscellaneous Process Methodology 7.9, Entrained Road Travel, Paved Road Dust, November 2016)
W =	2	2	average vehicle weight (tons) (based on EMFAC2021 User's Guide Appendix 4: Vehicle Categories)
P =	56	56	Number of days per year with >0.01 inches of rain (Source: WRCC data https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4259
N =	365	365	Days per period

2024

VMT/year	lb/vmt		g/vmt		lbs/day		tons/year	
2024 Baseline	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
3,227,571,978	0.00043	0.00011	0.1954183	0.0479663	3809.6273	935.09033	695.25698	170.65399
				Total	3809.6273	935.09033	695.25698	170.65399

Mitigated

lbs/day	
PM_{10}	$PM_{2.5}$
3135.343	770.0316

CalEEMod Mitigation reduction

	PM_{10}	$PM_{2.5}$
mitigated	39.71	10.59
unmitigated	48.25	12.86
reduction	0.823005	0.823484

2040

VMT/year	lb/vmt		g/vmt		lbs/day		tons/year	
2040 GP	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
4,624,153,222	0.00043	0.00011	0.1954183	0.0479663	5458.0658	1339.7071	996.09701	244.49654
				Total	5458.0658	1339.7071	996.09701	244.49654

Mitigated

lbs/day	
PM_{10}	$PM_{2.5}$
4416.208	1084.016

	PM_{10}	$PM_{2.5}$
mitigated	167.22	44.6
unmitigated	206.67	55.12
reduction	0.809116	0.809144

City of Moreno Valley Total VMT

VMT Type	Analysis Year			
	2019	2024	2030	2040 PP
Internal-Internal	1,468,198	1,668,273	1,908,363	2,308,512
Internal-External*	1,518,372	1,765,201	2,061,395	2,555,053
External-Internal*	1,571,009	1,821,994	2,123,177	2,625,147
Total	*4,557,579*	*5,255,468*	*6,092,935*	*7,488,713*

* Only 50% of I-E and E-I VMT is included in this summary table

100% I-E and E-I VMT

Total VMT 2019	Total VMT 2024	Truck VMT 2030	Total VMT 2040
1,468,198	1,668,273	1,908,363	2,308,512
3,036,744	3,530,402	4,122,791	5,110,106
3,142,018	3,643,989	4,246,353	5,250,295
7,646,960	8,842,663	10,277,507	12,668,913

City of Moreno Valley Total Trips

VMT Type	Analysis Year			
	2019	2024	2030	2040 PP
Internal-Internal	575,391	640,830	719,357	850,236
Internal-External*	76,813	91,128	108,306	136,937
External-Internal*	79,917	94,083	111,082	139,414
Total	*732,121*	*826,042*	*938,746*	*1,126,587*

* Only 50% of I-E and E-I VMT is included in this summary table

100% I-E and E-I Trips

Total Trips 2019	Total Trips 2024	Total Trips 2030	Total Trips 2040
575,391	640,830	719,357	850,236
153,627	182,257	216,613	273,873
159,835	188,167	222,165	278,829
888,852	1,011,253	1,158,135	1,402,938