APPENDIX B.2 – GHG STUDY

Greenhouse Gas Analysis for the Foothill Central Specific Plan Rialto, California

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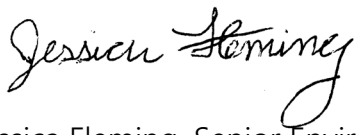

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ATTACHMENT

Acronyms and Abbreviations

2017 Scoping Plan	*2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target*
2022 Scoping Plan	*2022 Scoping Plan Update for Achieving Carbon Neutrality*
AB	Assembly Bill
BAU	business as usual
BRT	bus rapid transit
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Rialto
CO_2	carbon dioxide
EMFAC2021	California Air Resources Board 2021 EMission FACtor model
EO	Executive Order
GHG	greenhouse gas
GWP	global warming potential
IPCC	Intergovernmental Panel on Climate Change
MMT CO_2E	million metric tons carbon dioxide equivalent
MPO	Metropolitan Planning Organizations
MT CO_2E	metric tons of carbon dioxide equivalent
Municipal Code	City of Rialto Municipal Code
N_2O	nitrous oxide
OPR	Governor's Office of Planning and Research
Proposed Project	Foothill Central Specific Plan
RPS	Renewables Portfolio Standard
SB	Senate Bill
SBCOG	San Bernardino Council of Governments
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
Scoping Plan	*Climate Change Scoping Plan: A Framework for Change*
SCS	Sustainable Communities Strategy
SGC	Strategic Growth Council
U.S. EPA	U.S. Environmental Protection Agency

Executive Summary

The Foothill Central Specific Plan (Proposed Project or Specific Plan) provides the overall vision for the Foothill Central Area of the city of Rialto. The Foothill Central Area is defined as the area along Foothill Boulevard bounded by Maple Avenue to the east and Pepper Avenue to west, in addition to central Rialto, bounded by Merrill Avenue to the south, Foothill Boulevard to the north, Willow Avenue to the west, and Sycamore Avenue to the east. The Proposed Project updates and merges the existing City of Rialto (City) Foothill Boulevard and Central Area Specific Plans into the Foothill Central Specific Plan and amends the City's Municipal Code Chapter 18 Zoning. The Proposed Project increases the allowable density of residential and commercial uses within the Foothill Central Area and provides updates to the development standards for this area. The Specific Plan identifies permitted land uses within the Foothill Central Area and establishes development standards for implementation of future development within the Specific Plan area.

This report evaluates the significance of potential greenhouse gas (GHG) emissions impacts that may be generated by the project in accordance with the California Environmental Quality Act and guidance from the South Coast Air Quality Management District. This report evaluates the significance of potential impacts in terms of (1) the project's contribution of GHGs to cumulative statewide emissions and (2) whether the project would conflict with local and/or state regulations, plans, and policies adopted to reduce GHG emissions.

GHG emissions would be generated during construction and operation of future projects implemented under the Specific Plan. Construction activities emit GHGs primarily through the combustion of fuels in on- and off-road equipment and vehicles. Operational emissions include mobile, energy (electricity and natural gas), area (landscape maintenance equipment), water and wastewater, solid waste, and refrigerant sources. GHG emissions were calculated for the existing condition, buildout of the adopted land use plan, and buildout of the Proposed Project. As calculated in this analysis, the Proposed Project would result in a decrease in GHG emissions per service population. The Specific Plan would reduce vehicle miles travelled and GHG impacts by creating housing opportunities in areas with pedestrian connectivity between residential and commercial uses and near public transportation along established transportation corridors. Future housing development facilitated by the Proposed Project would also be required to meet the mandatory energy requirements of California Green Building Standards Code and the Energy Code (California Code of Regulations Title 24, Part 6) in effect at the time of development. These regulations require that new development incorporate design features to capture energy efficiencies associated with building heating, ventilating, and air conditioning mechanical systems, water heating systems, and lighting. Additionally, future development proposed under the Specific Plan would undergo discretionary review. At the time of their initiation, new developments facilitated by the Proposed Project would be required to comply with applicable federal, state, and local regulations regarding GHG emissions. This includes policies instituted by the South Coast Air Quality Management District in which developers would be required to comply with one of five exclusion tiers in order to avoid significant environmental impacts.

Because the Proposed Project would result in a decrease in GHG emissions per service population and because future development would be required to comply with applicable federal, state, and

local regulations regarding GHG emission, the Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant. Additionally, the Proposed Project would be consistent with applicable Scoping Plan, Connect SoCal, and City General Plan policies. Therefore, the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

1.0 Introduction

This report evaluates the significance of potential impacts associated with greenhouse gas (GHG) emissions that would result from the Foothill Central Specific Plan (Proposed Project).

1.1 Understanding Global Climate Change

To evaluate the incremental effect of the project on statewide GHG emissions and global climate change, it is important to have a basic understanding of the nature of the global climate change problem. Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. The earth's climate is in a state of constant flux with periodic warming and cooling cycles. Extreme periods of cooling are termed "ice ages," which may then be followed by extended periods of warmth. For most of the earth's geologic history, these periods of warming and cooling have been the result of many complicated interacting natural factors that include volcanic eruptions that spew gases and particles (dust) into the atmosphere; the amount of water, vegetation, and ice covering the earth's surface; subtle changes in the earth's orbit; and the amount of energy released by the sun (sun cycles). However, since the beginning of the Industrial Revolution around 1750, the average temperature of the earth has been increasing at a rate that is faster than can be explained by natural climate cycles alone.

With the Industrial Revolution came an increase in the combustion of carbon-based fuels such as wood, coal, oil, natural gas, and biomass. Industrial processes have also created emissions of substances not found in nature. This in turn has led to a marked increase in the emissions of gases shown to influence the world's climate. These gases, termed "greenhouse" gases, influence the amount of heat trapped in the Earth's atmosphere. Recently observed increased concentrations of GHGs in the atmosphere appear to be related to increases in human activity. Therefore, the current cycle of "global warming" is believed to be largely due to human activity. Of late, the issue of global warming, or global climate change, has arguably become the most important and widely debated environmental issue in the United States and the world. Because it is believed that the increased GHG concentrations around the world are related to human activity and the collective of human actions taking place throughout the world, it is quintessentially a global or cumulative issue.

1.2 Greenhouse Gases of Primary Concern

There are numerous GHGs, both naturally occurring and manmade. Each GHG has variable atmospheric lifetime and global warming potential (GWP). The atmospheric lifetime of the gas is the average time a molecule stays stable in the atmosphere. Most GHGs have long atmospheric lifetimes, staying in the atmosphere hundreds or thousands of years. GWP is a measure of the potential for a gas to trap heat and warm the atmosphere. Although GWP is related to its atmospheric lifetime,

many other factors including chemical reactivity of the gas also influence GWP. GWP is reported as a unitless factor representing the potential for the gas to affect global climate relative to the potential of carbon dioxide (CO_2). Because CO_2 is the reference gas for establishing GWP, by definition its GWP is 1. Although methane (CH_4) has a shorter atmospheric lifetime than CO_2, it has a 100-year GWP of 28; this means that CH_4 has 28 times more effect on global warming than CO_2.

The GWP is officially defined as (U.S. Environmental Protection Agency [U.S. EPA] 2010):

> The cumulative radiative forcing—both direct and indirect effects—integrated over a period of time from the emission of a unit mass of gas relative to some reference gas.

GHG emissions estimates are typically represented in terms of equivalent metric tons of CO_2 (MT CO_2E). CO_2E emissions are the product of the amount of each gas by its GWP. The effects of several GHGs may be discussed in terms of MT CO_2E and can be summed to represent the total potential of these gases to warm the global climate. Table 1 summarizes some of the most common GHGs.

It should be noted that the U.S. EPA and other organizations update the GWP values they use occasionally. This change can be due to updated scientific estimates of the energy absorption or lifetime of the gases or to changing atmospheric concentrations of GHGs that result in a change in the energy absorption of one additional ton of a gas relative to another. The GWPs shown in Table 1 are the most current. However, it should be noted that in the California Emissions Estimator Model (CalEEMod), which is the model used in this analysis to calculate emission, CH_4 has a GWP of 25 and nitrous oxide (N_2O) has a GWP of 298, consistent with the *2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target* (2017 Scoping Plan; California Air Resources Board [CARB] 2017).

All of the gases in Table 1 are produced by either biogenic (natural) or anthropogenic (human) sources or both. These are the GHGs of primary concern in this analysis. CO_2 would be emitted by the Proposed Project due to the combustion of fossil fuels in vehicles (including construction), from electricity generation and natural gas consumption, from water use, and from solid waste disposal. Smaller amounts of CH_4 and N_2O would be emitted from the same project operations.

Table 1
Global Warming Potentials and Atmospheric Lifetimes
(years)

Gas	Atmospheric Lifetime (years)	100-year GWP	20-year GWP
Carbon dioxide (CO_2)	50–200	1	1
Methane (CH_4)	12.4	25/28*	84
Nitrous oxide (N_2O)	121	298/265*	264
HFC-23	222	12,400	10,800
HFC-32	5.2	677	2,430
HFC-125	28.2	3,170	6,090
HFC-134a	13.4	1,300	3,710
HFC-143a	47.1	4,800	6,940
HFC-152a	1.5	138	506
HFC-227ea	38.9	3,350	5,360

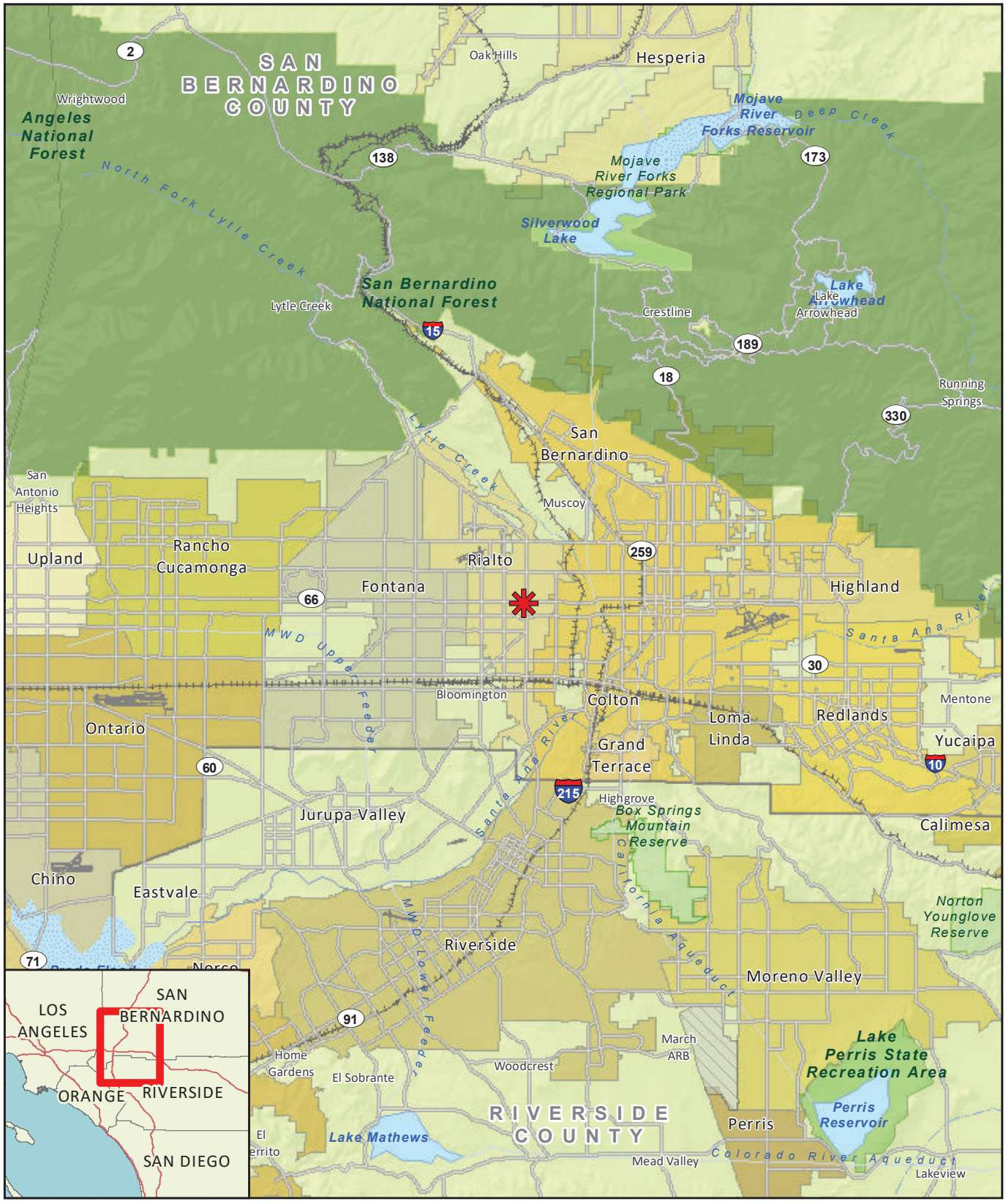
Table 1 Global Warming Potentials and Atmospheric Lifetimes (years)			
Gas	Atmospheric Lifetime (years)	100-year GWP	20-year GWP
HFC-236fa	242	8,060	6,940
HFC-43-10mee	16.1	1,650	4,310
CF_4	50,000	6,630	4,880
C_2F_6	10,000	11,100	8,210
C_3F_8	2,600	8,900	6,640
C_4F_{10}	2,600	9,200	6,870
c-C_4F_8	3,200	9,540	7,110
C_5F_{12}	4,100	8,550	6,350
C_6F_{14}	3,100	7,910	5,890
SF_6	3,200	23,500	17,500
SOURCE: Intergovernmental Panel on Climate Change (IPCC) 2007, 2014. *The CH_4 and N_2O 100-year GWPs included in CalEEMod are 25 and 298, respectively, from the IPCC Fourth Assessment Report. All other values are from the current Fifth Assessment Report.			

2.0 Project Description

The Proposed Project provides the overall vision for the Foothill Central Area of the city of Rialto. The Foothill Central Area is defined as the area along Foothill Boulevard bounded by Maple Avenue to the east and Pepper Avenue to west, in addition to central Rialto, bounded by Merrill Avenue to the south, Foothill Boulevard to the north, Willow Avenue to the west, and Sycamore Avenue to the east. Figure 1 shows the regional location. Figure 2 shows an aerial photograph of the Specific Plan area.

The Proposed Project updates and merges the existing City of Rialto (City) Foothill Boulevard and Central Area Specific Plans into the Foothill Central Specific Plan and amends the City's Municipal Code (Municipal Code) Chapter 18 Zoning. The Specific Plan is intended to guide development in the Foothill Central Area. The Specific Plan increases the allowable density of residential and commercial uses within the Foothill Central Area (see Table 2) and establishes development standards for implementation of future development within the Specific Plan area.

Table 2 Proposed Land Uses				
	Existing Development	Total 2045 Buildout (Current Adopted Land Use) (0.75 Realistic Factor)	Total 2045 Buildout (Proposed Specific Plan Land Use) (0.75 Realistic Factor)	Delta (change 2045 Adopted to 2045 Proposed)
Dwelling Units	7,476	9,141	10,056	915
Retail/Office Space (square feet)	1,732,653	4,767,915	5,138,749	370,834



Project Location

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FIGURE 1
Regional Location

Image Source: NearMap (flown May 2023)

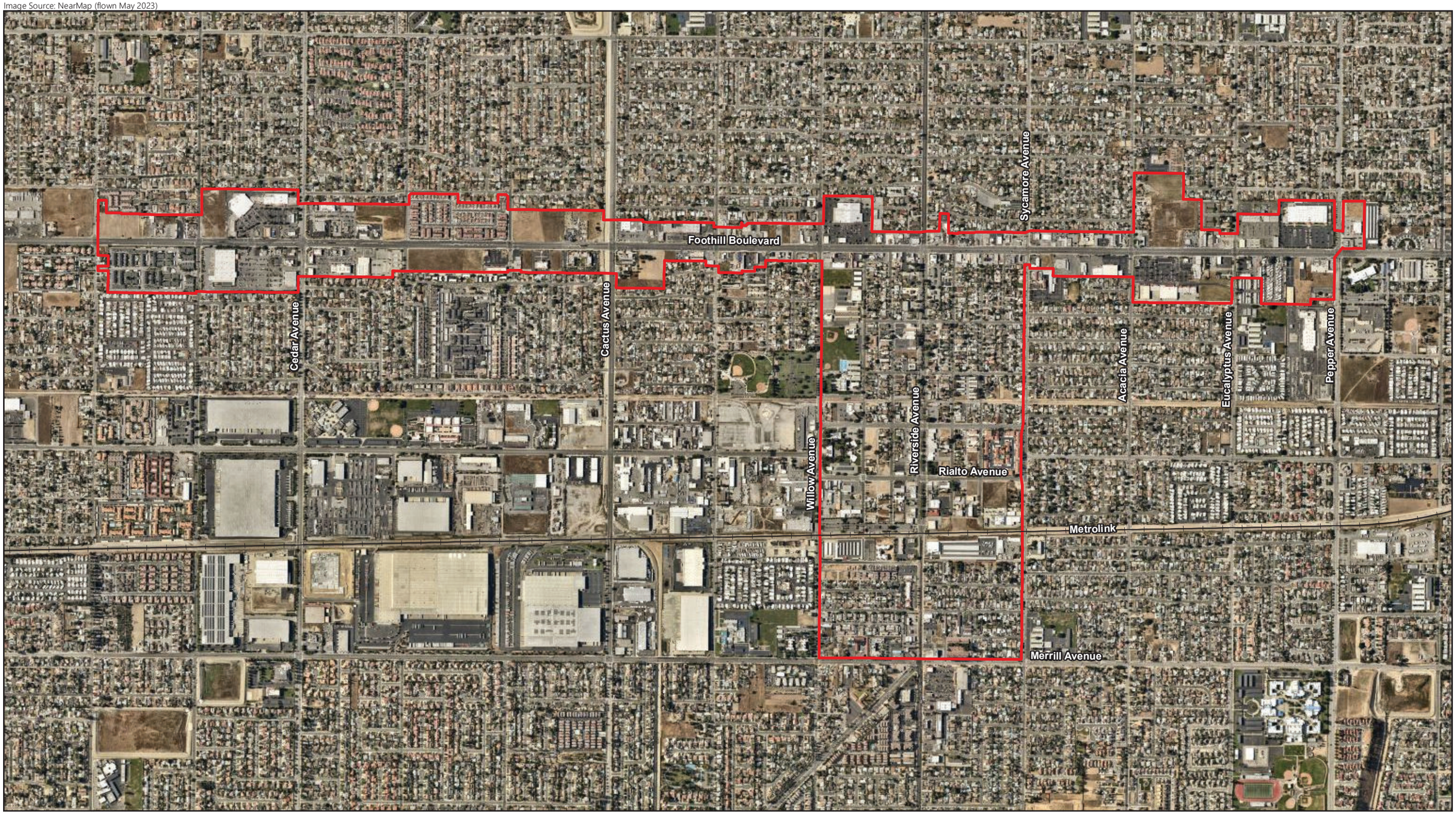

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FIGURE 2
Project Location on Aerial Photograph

Figure 3 shows the proposed zoning. Proposed districts within the Foothill Central Area include:

Residential Districts

Single Family Residential (SFR): Provides low-density residential uses in downtown Rialto. Encourages single family dwellings separated from multi-family and non-residential uses to protect the residential characteristics of these areas and encourage a suitable environment for family life.

Multi-Family Residential (MFR): Provides medium-density residential uses in downtown Rialto to encourage the creation of walkable interconnected residential neighborhoods. Allows a mix of medium-density housing types, such as apartments, townhomes, and duplexes.

Increased Density Residential (R-X): Encourages the development of housing through increase of allowable density and flexibility to lot development standards. Allows a mix of medium-density housing types, such as apartments, townhomes, and duplexes, intended to support adjacent commercial uses.

Mixed-Use Districts

Foothill Mixed-Use (FMUZ): Encourages a combination of ground floor retail, with office and/or residential uses above around the future bus rapid transit (BRT) stops located along Foothill Boulevard. Allows a variety of uses at the ground floor, including restaurants, retail, gyms, and salons. Ground floor activities must be compatible with upper floor residences.

Downtown Mixed-Use (DMUZ): Encourages a walkable interconnected mixed-use urban area by providing a combination of ground-floor retail, higher intensity office, and/or residential near the Rialto Metrolink Station in downtown Rialto. Provides retail and commercial uses, including restaurants, breweries, and entertainment destinations.

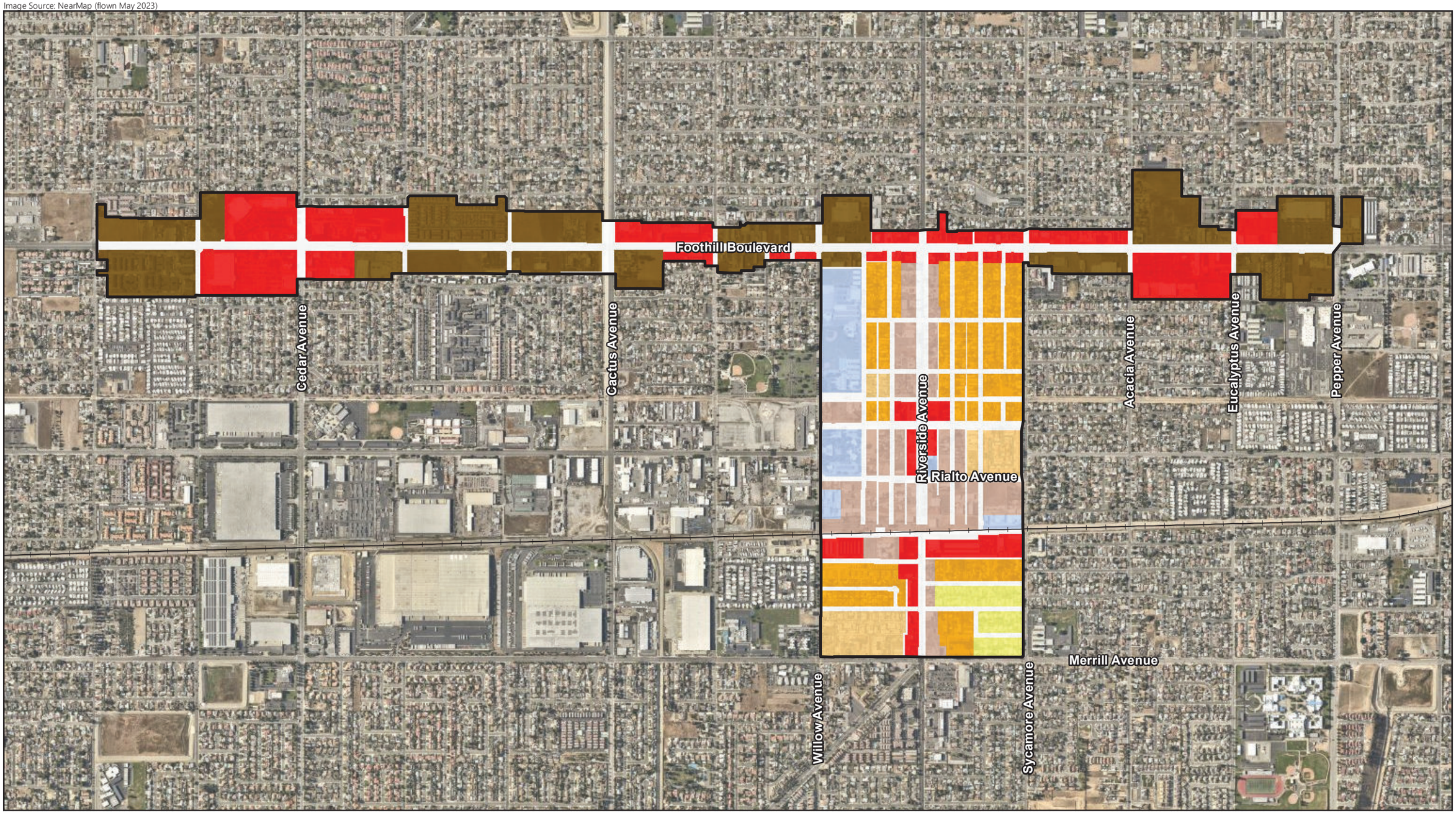
Commercial Districts

Commercial (C): Allows retail establishments, including businesses that may rely on customers arriving by auto, with on-site parking. Examples of uses include bars, restaurants, medical offices, and furniture stores. Offices may be allowed on the second floor or above.

Other Districts

Public Facilities (PF): Includes facilities serving the public and the larger community, including the Civic Center, fire stations, government buildings, libraries, public utility stations and yards, public schools, and other community-serving centers and recreational facilities.

Image Source: NearMap (flown May 2023)



Project Boundary

Metrolink

Proposed Zoning

- Commercial (C)
- Public Facilities (PF)
- Multi-Family Residentail (MFR)
- Increased Density Residential (R-X)
- Single Family Residential (SFR)
- Downtown Mixed-Use Zone (DMUZ)
- Foothill Mixed-Use Zone (FMUZ)

0 Feet 1,200

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FIGURE 3
Proposed Zoning

3.0 Existing Conditions

3.1 Environmental Setting

3.1.1 State GHG Inventory

The CARB performs statewide GHG inventories. The inventory is divided into nine broad sectors of economic activity: agriculture, commercial, electricity generation, forestry, high GWP emitters, industrial, recycling and waste, residential, and transportation. Emissions are quantified in million metric tons of CO_2 equivalent (MMT CO_2E). Table 3 shows the estimated statewide GHG emissions for the years 1990, 2016, and 2020. Although annual GHG inventory data is available for years 2000 through 2020, the years 1990, 2016, and 2020 are highlighted in Table 3 because 1990 is the baseline year for established reduction targets, 2016 corresponds to the same years for which inventory data for the City is available, and 2020 is the most recent data available.

Table 3
California GHG Emissions by Sector

Sector	1990[1] Emissions in MMT CO_2E (% total)[2]	2016[3] Emissions in MMT CO_2E (% total)[2]	2020[3] Emissions in MMT CO_2E (% total)[2]
Electricity Generation	110.5 (25.7%)	70.5 (17.0%)	59.8 (16.2%)
Transportation	150.6 (35.0%)	169.7 (40.9%)	139.9 (37.9%)
Industrial	105.3 (24.4%)	93.0 (22.4%)	85.3 (23.1%)
Commercial	14.4 (3.4%)	21.6 (5.2%)	22.0 (6.0%)
Residential	29.7 (6.9%)	27.5 (6.6%)	30.7 (8.3%)
Agriculture & Forestry	18.9 (4.4%)	32.2 (7.8%)	31.6 (8.6%)
Not Specified	1.3 (0.3%)	-	-
Total[4]	**430.7**	**414.5**	**369.3**

SOURCE: CARB 2007 and 2022a.
[1]1990 data was obtained from the CARB 2007 source and are based on IPCC fourth assessment report GWPs.
[2]Percentages may not total 100 due to rounding.
[3]2016 and 2020 data was retrieved from the CARB 2022 source and are based on IPCC fourth assessment report GWPs.
[4]Totals may vary due to independent rounding.

As shown in Table 3, statewide GHG source emissions totaled approximately 431 MMT CO_2E in 1990, 415 MMT CO_2E in 2016, and 369 MMT CO_2E in 2020. Many factors affect year-to-year changes in GHG emissions, including economic activity, demographic influences, environmental conditions such as drought, and the impact of regulatory efforts to control GHG emissions. As shown in Table 3, transportation-related emissions consistently contribute to the most GHG emissions.

3.1.2 Local GHG Inventory

The San Bernardino Council of Governments (SBCOG) compiled a GHG emissions inventory and an evaluation of GHG reduction measures that could be adopted by the 25 Partnership Cities of San Bernardino County, which includes the City of Rialto. A baseline (2016) emissions inventory is included in SBCOG's *San Bernardino County Regional Greenhouse Gas Reduction Plan* (SBCOG 2021). The results of the inventory for 2016 are summarized in Table 4. Similar to the statewide emissions, transportation-related GHG emissions contributed the most countywide, followed by emissions associated with energy use.

Table 4
Rialto GHG Emissions in 2016

Source	2016 Baseline Emissions	
	MT CO_2E	%
Building Energy	200,714	39.5
On-Road Transportation	261,846	51.5
Off-Road Equipment	10,796	2.1
Waste	25,459	5.0
Agriculture	212	0.0
Water Treatment	3,111	0.6
Water Conveyance	6,166	1.2
Total Inventory	**508,304**	-

SOURCE: SBCOG 2021.
NOTE: Total may vary due to independent rounding.

3.2 Regulatory Background

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The following is a discussion of the federal, state, and local plans and regulations most applicable to the Proposed Project.

3.2.1 Federal

3.2.1.1 U.S. Environmental Protection Agency

In 2009, the U.S. EPA issued its science-based finding that the buildup of heat-trapping GHGs in the atmosphere endangers public health and welfare. The "Endangerment Finding" reflects the overwhelming scientific evidence on the causes and impacts of climate change. It was made after a thorough rulemaking process considering thousands of public comments and was upheld by the federal courts.

The U.S. EPA has many federal level programs and projects to reduce GHG emissions. The U.S. EPA provides technical expertise and encourages voluntary reductions from the private sector. One of the voluntary programs applicable to the project is the Energy Star program. Energy Star products

such as appliances, building products, heating and cooling equipment, and other energy-efficient equipment will be utilized by the Proposed Project.

Energy Star is a joint program of U.S. EPA and the U.S. Department of Energy, which promotes energy-efficient products and practices. Tools and initiatives include the Energy Star Portfolio Manager, which helps track and assess energy and water consumption across an entire portfolio of buildings, and the Energy Star Most Efficient 2020, which provides information on exceptional products which represent the leading edge in energy-efficient products in the year 2020 (U.S. EPA 2020a).

The U.S. EPA also collaborates with the public sector, including states, tribes, localities, and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy – Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership (U.S. EPA 2020b).

3.2.1.2 Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy standards determine the fuel efficiency of certain vehicle classes in the U.S. The National Highway Traffic Safety Administration sets Corporate Average Fuel Economy standards for passenger cars and for light trucks (collectively, light-duty vehicles) and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines. With improved gas mileage, fewer gallons of transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel. The most recent standards require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025 and 10 percent annually for model year 2026.

3.2.2 State

The State of California has adopted a number of plans and regulations aimed at identifying statewide and regional GHG emissions caps, GHG emissions reduction targets, and actions and timelines to achieve the target GHG reductions.

3.2.2.1 Executive Orders and Statewide GHG Emission Targets

Executive Order S-3-05

Executive Order (EO) S-3-05 established the following GHG emission reduction targets for the State of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels;
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This EO also directs the secretary of the California Environmental Protection Agency (CalEPA) to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and document mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006, and has since been updated every two years.

Executive Order B-30-15

EO B-30-15, issued on April 29, 2015, establishes an interim GHG emission reduction goal for the state of California by 2030 of 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directed CARB to update its Climate Change Scoping Plan to address the 2030 goal.

Assembly Bill 1279

Assembly Bill (AB) 1279, approved in September 2022, requires the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below 1990 levels. The bill would require the state board to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies.

3.2.2.2 California Global Warming Solutions Act

In response to EO S-3-05, the California Legislature passed AB 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009, indicating how emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

In 2008, CARB estimated that annual statewide GHG emissions were 427 MMT CO_2E in 1990 and would reach 596 MMT CO_2E by 2020 under a business as usual (BAU) condition (CARB 2008). To achieve the mandate of AB 32, CARB determined that a 169 MMT CO_2E (or approximate 28.5 percent) reduction in BAU emissions was needed by 2020. In 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. CARB determined that the economic downturn reduced the 2020 BAU by 55 MMT CO_2E; as a result, achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 (not 28.5) percent from the 2020 BAU. California has achieved its 2020 goal.

Approved in September 2016, Senate Bill (SB) 32 updates the California Global Warming Solutions Act of 2006 and enacts EO B-30-15. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. This is equivalent to an emissions level of approximately 260 MMT CO_2E for 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs; where "social costs" is defined as "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."

3.2.2.3 Climate Change Scoping Plan

As directed by the California Global Warming Solutions Act of 2006, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), which identifies the main strategies California will implement to achieve the GHG reductions necessary to reduce forecasted BAU emissions in 2020 to the state's historic 1990 emissions level (CARB 2008). In November 2017, CARB released the 2017 Scoping Plan (CARB 2017). The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 GHG emissions reduction target codified by SB 32. Measures under the 2017 Scoping Plan Scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, Renewables Portfolio Standard (RPS), Sustainable Communities Strategy (SCS), Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Additionally, the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands. The *2022 Scoping Plan Update for Achieving Carbon Neutrality* (2022 Scoping Plan; CARB 2022b) was adopted in December 2022. The 2022 Scoping Plan assesses the progress towards the 2030 GHG emissions reduction target identified in the 2017 Scoping Plan and lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The 2022 Scoping Plan identifies strategies related to clean technology, energy development, natural and working lands, and others, and is designed to meet the state's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

3.2.2.4 Regional Emissions Targets – Senate Bill 375

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a SCS or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan. Southern California Association of Governments (SCAG) is the region's MPO. In 2018, CARB set targets for the SCAG region of an 8 percent reduction in GHG emissions per capita from automobiles and light-duty trucks compared to 2005 levels by 2020 and a 19 percent reduction by 2035. These targets are periodically reviewed and updated.

3.2.2.5 Renewables Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "Initial RPS"), the goal has been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, SB 2 (1X) codified California's 33 percent RPS goal. SB 350 (2015) increased California's renewable energy mix goal to 50 percent by 2030. SB 100 (2018) further increased the standard set by SB 350 establishing the RPS goal of 44 percent by the end of 2024, 52 percent by the end of 2027, and 60 percent by 2030.

3.2.2.6 Assembly Bill 341 – Solid Waste Diversion

The Commercial Recycling Requirements mandate that businesses (including public entities) that generate 4 cubic yards or more of commercial solid waste per week and multi-family residential with five units or more arrange for recycling services. Businesses can take one or any combination of the following in order to reuse, recycle, compost, or otherwise divert solid waste from disposal. Additionally, AB 341 mandates that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020.

3.2.2.7 California Code of Regulations, Title 24 – California Building Code

The California Code of Regulations (CCR), Title 24, is referred to as the California Building Code, or CBC. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, handicap accessibility, and so on. Of particular relevance to GHG reductions are the CBC's energy efficiency and green building standards as outlined below.

a. Title 24, Part 6 – Energy Efficiency Standards

CCR, Title 24, Part 6 is the California Energy Efficiency Standards for Residential and Nonresidential Buildings (also known as the Energy Code). This code, originally enacted in 1978, establishes energy-efficiency standards for residential and nonresidential buildings in order to reduce California's energy consumption. The Energy Code is updated periodically to incorporate and consider new energy-efficient technologies and methodologies as they become available, and incentives in the form of rebates and tax breaks are provided on a sliding scale for buildings achieving energy efficiency above the minimum standards.

The current 2022 Title 24 Building Energy Efficiency Standards went into effect on January 1, 2023. The 2022 Energy Code increases on-site renewable energy generation from solar, increases electric load flexibility to support grid reliability, reduces emissions from newly constructed buildings, reduces air pollution for improved public health, and encourages adoption of environmentally beneficial efficient electric technologies.

New construction and major renovations must demonstrate their compliance with the current Energy Code through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission (CEC). The compliance reports must demonstrate a building's energy performance through use of CEC approved energy performance software that shows iterative increases in energy efficiency given the selection of various heating, ventilation, and air conditioning; sealing; glazing; insulation; and other components related to the building envelope.

b. Title 24, Part 11 – California Green Building Standards

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The most recent 2022 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of nonresidential and residential structures. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements. The mandatory measures are related to planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The 2022 CALGreen also includes two tiers of residential and nonresidential voluntary measures that encourage local jurisdictions to raise the sustainability goals: Tier 1 adds additional requirements beyond the mandatory measures, and Tier 2 further increases the requirements.

Similar to the reporting procedure for demonstrating Energy Code compliance in new buildings and major renovations, compliance with the CALGreen mandatory requirements must be demonstrated through completion of compliance forms and worksheets.

3.2.3 Local

3.2.3.1 South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) is the agency responsible for air quality planning and regulation in the South Coast Air Basin. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, the SCAQMD formed a working group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the South Coast Air Basin. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – *Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans*, which could be applied by lead agencies. The working group met again in 2010 to review the guidance. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can

be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach (SCAQMD 2008, 2010):

- Tier 1 – The project is exempt from the California Environmental Quality Act (CEQA).
- Tier 2 – The project is consistent with an applicable regional GHG emissions reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 – Project GHG emissions represent an incremental increase below or mitigated to less than Significance Screening Levels, where
  - Residential/Commercial Screening Level
    - Option 1: 3,000 MT CO_2E screening level for all residential/commercial land uses
    - Option 2: Screening level thresholds for land use type acceptable if used consistently by a lead agency:
      - Residential: 3,500 MT CO_2E
      - Commercial: 1,400 MT CO_2E
      - Mixed-Use: 3,000 MT CO_2E
  - 10,000 MT CO_2E is the Permitted Industrial Screening Level
- Tier 4 – The project achieves performance standards, where performance standards may include:
  - Option 1: Percent emission reduction target. SCAQMD has no recommendation regarding this approach at this time.
  - Option 2: The project would implement substantial early implementation of measures identified in the CARB's Scoping Plan. This option has been folded into Option 3.
  - Option 3: SCAQMD Efficiency Targets.
    - 2020 Targets: 4.8 MT CO_2E per service population for project-level analyses or 6.6 MT CO_2E per service population for plan level analyses where service population includes residential and employment populations provided by a project.
    - 2035 Targets: 3.0 MT CO_2E per service population for project-level analyses or 4.1 MT CO_2E per service population for plan level analyses.
- Tier 5 – Offsets along or in combination with the above target Significance Screening Level. Offsets must be provided for a 30-year project life, unless the project life is limited by permit, lease, or other legally binding condition.

If a project complies with any one of these tiers, its impacts related to GHG emissions would be considered less than significant.

The SCAQMD's interim thresholds used the EO S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the EO's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 parts per million, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Proposed Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009, includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

3.2.3.2 Southern California Association of Governments

In September 2020, the SCAG adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/SCS. The Connect SoCal plan identifies that land use strategies that focus on new housing and job growth in areas with a variety of destinations and mobility options would support and complement the proposed transportation network. The overarching strategy in Connect SoCal is to provide for a plan that allows the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). The Connect SoCal plan contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as projected development that promotes active transport and reduces GHG emissions.

3.2.3.3 San Bernardino County

As previously discussed, as a part of the *San Bernardino County Regional Greenhouse Gas Reduction Plan* (SBCOG 2021), SBCOG compiled a GHG emissions inventory and an evaluation of GHG reduction measures that could be adopted by the 25 Partnership Cities of San Bernardino County, which includes the City. Potential GHG reduction measures necessary to achieve a reduction goal of 40 percent below 2016 baseline levels by 2030 were identified, consistent with AB 32 targets. These reduction measures are summarized in Table 5. Although not formally adopted by the City, the City's General Plan policies (see Section 3.2.3.3[a]) support these GHG reduction strategies.

Table 5 SBCOG Regional GHG Reduction Plan – Rialto GHG Reduction Measures		
Measure Number	Measure Description	Reductions (MT CO_2E)
State Measures		
SB 100	Requires renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045.	66,672
SB 350	Increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030.	40,214
Title 24	Energy Efficiency Standards	4,907
Solar Water Heater	Solar Water Heaters (Residential)	62
Increased CHP	Increased Combined Heat and Power (Commercial)	737
On Road	State Fuel Efficiency Measures	86,740
SB 1383	Methane Capture	15,225
Total State Reductions		**214,558**
Local Measures		
Building Energy		
Energy-1	Building Energy Efficiency	2,579
Energy-2	Lighting Efficiency	141
Energy-3	All Electric Buildings	34,906
Energy-5	Renewable Energy – New Commercial/Industrial	1,034
Energy-6	Solar Energy for Warehouse Space	13,328
Energy-7	Solar Installation for Existing Housing	4,953
Energy-8	Solar Installation for Existing Commercial/Industrial	4,538
Energy-9	Rooftop Gardens	0
Energy-10	Urban Tree Planting for Shading and Energy Savings	0
On-Road Transportation		
OnRoad-1	Alternative Fueled Transit Fleets	409
OnRoad-2	Encourage Use of Mass Transit	0
OnRoad-3	Transportation Demand Management and Synchronization	0
OnRoad-4	Expand Bike Routes	0
OnRoad-5	Community Fleet Electrification	2,360
Off-Road Equipment		
OffRoad-1	Electric-Powered Construction Equipment	792
OffRoad-2	Idling Ordinance	166
OffRoad-3	Electric Landscaping Equipment	43
Waste		
Waste-1	Methane Capture – Local	0
Waste-2	Waste Diversion and Reduction	7,543
Agriculture		
Agriculture-1	Methane Capture at Large Dairies	-
Wastewater		
Wastewater-1	Methane Recovery at Wastewater Treatment Plants	78
Wastewater-2	Equipment Upgrades at Wastewater Treatment Plants	177
Water Conveyance		
Water-1	Require Tier 1 Voluntary CALGreen Standards for New Construction	1,742
Water-2	Renovate Existing Buildings to Achieve Higher Levels of Water Efficiency	0
Water-3	Water-Efficient Landscaping Practices	729

Table 5 SBCOG Regional GHG Reduction Plan – Rialto GHG Reduction Measures		
Measure Number	Measure Description	Reductions (MT CO_2E)
GHG Performance Standard for New Development		
PS-1	GHG Performance Standard for New Development (29 percent below projected BAU emissions for the project)	0
Total Local Reductions		**75,519**
Total Reductions		**290,077**
SOURCE: SBCOG 2021 NOTE: Totals may vary due to rounding.		

3.2.3.4 City of Rialto

a. General Plan

The City's 2010 General Plan is a long-range planning document that puts forward a path for realizing the community's vision through specific goals and policies (City of Rialto 2010). The General Plan provides the City a framework for action and the direction for the physical development of the community over the next 20 to 30 years. The General Plan planning horizon is the year 2040. The General Plan contains guidance on a range of topics such as land use, community design, conservation, goods movement, noise, hazardous materials, etc. The relevant policies that serve to reduce GHG emissions related to building energy, transportation, solid waste management, wastewater treatment, and water conveyance are discussed in detail in Table 10 in Section 6.0.

b. Climate Adaptation Plan

The City prepared a Climate Adaption Plan in 2021 to help prepare the City and its residents for the expected impacts of climate change (City of Rialto 2021). The Climate Adaption Plan builds on the City's existing General Plan Safety Element and Local Hazard Mitigation Plan to evaluate Rialto's vulnerabilities and capabilities and propose policy around four climate-related hazards: air pollution, extreme heat, wildfire, and flooding. These hazards were selected because they currently threaten the health and safety of Rialto residents and are the most likely to get worse as a result of climate change. The Climate Adaption Plan focuses on the communities that are already disproportionately exposed to these hazards and are the least able to respond to climate change due to their physiological conditions or socio-economic factors. The Climate Adaption Plan has the following goals and policies to address impacts from air pollution, extreme heat, wildfires, and flooding.

Goal 1: Streets that are safe and comfortable to walk and bike through.

- Policy 1.1: Safe Routes to School. Prioritize Safe Routes to School (SRTS) in areas most affected by extreme heat and air pollution.
- Policy 1.2: Cool Corridors. Create shaded and safe corridors between transit stops and important community services, including cooling centers, job centers, and residential areas where people depend on transit.

Goal 2: A community with clean air.

- Policy 2.1: Low-Emission Vehicles. Increase the use of low-emission and electric vehicles where feasible.
- Policy 2.2: Truck Routes. Prevent truck routes from disproportionately impacting disadvantaged communities.
- Policy 2.3: Diverse Urban Forest. Adopt an Urban Forestry Master Plan or updated planting list to encourage greater species diversity.

Goal 3: A built environment resistant to extreme heat.

- Policy 3.1: Hydration Stations. Provide working touchless water refill stations at public facilities, parks, and bus shelters.
- Policy 3.2: Cool Buildings. Adopt building and maintenance standards that reflect the regional best practices in reducing urban heat island effect.

Goal 4: Public infrastructure resistant to climate hazards.

- Policy 4.1: Flood-Proofed Infrastructure. Assess infrastructure and maintenance standards to withstand current and forecasted localized flooding events.
- Policy 4.2: Fire-Proofed Infrastructure. Retrofit Infrastructure to be resistant to wildfires.

Goal 5: A community prepared for disasters.

- Policy 5.1: Inform and Assist At-Risk Community Members. Provide culturally relevant preparedness education and notification.
- Policy 5.2: Retrofit Community Centers to Increase Resilience During a Hazard Event. Increase the capacity of public facilities to provide shelter and services during hazard events.
- Policy 5.3: Commit to Adaptation. Ensure that the City is making progress on climate adaptation.

Goal 6: Emergency response designed to serve a range of community needs.

- Policy 6.1: Emergency Operations Center. Ensure the Emergency Operations Center (EOC) has adequate capacity to respond to hazard events.
- Policy 6.2: Special Needs Populations. Include provisions for special needs populations and communities with low rates of car ownership in emergency response procedures.

Goal 7: A community that builds back stronger.

- Policy 7.1: Fire-Resistant Code. Require and enforce standards that create a more fire-safe community.
- Policy 7.2 Landscape Standards in Wildfire Hazard Severity Zones. Increase the survivability of homes in the High Fire Hazard Severity Zone through the adoption of defensible space standards and landscape guidelines.
- Policy 7.3: Flood Plain Standards. Require and enforce standards that create a more flood-safe community.

c. Transportation Demand Management

Municipal Code Chapter 18.59 – Transportation Control Measures identifies regulations that would reduce vehicle trips and therefore reduce transportation-related GHG emissions. The requirements of Chapter 18.59 apply to all new non-residential, new single family residential developments of five hundred or more units, and multi-family residential developments of ten or more units. The following requirements would be applicable to future development implemented in the Specific Plan Area:

A. Bicycle parking facilities to include bicycle racks and/or secured bicycle lockers shall be provided at a rate of one bicycle space per thirty parking spaces with a minimum requirement of three bicycle spaces.

B. On-site pedestrian walkways and bicycle facilities shall be provided connecting each building in a development to public streets.

C. A minimum of one shower facility accessible to both men and women shall be provided for persons bicycling or walking to work for all new nonresidential development meeting the city's adopted congestion management plan thresholds of two hundred fifty or more peak hour trips.

D. Passenger loading areas shall be provided in locations close to building entrances (but not interfering with vehicle circulation) for developments containing at least one hundred parking spaces (loading area is equivalent to a minimum of five parking spaces).

E. Preferred parking facilities at a rate of two parking spaces per one hundred spaces shall be provided near building entrances for vanpools in all new nonresidential development. Vertical clearances must be not less than nine feet.

F. Provide transit improvements such as bus pullouts, bus pads and bus shelters for all new residential and nonresidential development along existing or planned transit routes. The need for and nature of such improvements to be defined by the City engineer in cooperation with Omnitrans.

G. New residential development of five hundred or more units shall provide telecommuting facilities or contribute toward development of a telecommuting center.

H. New office park developments of one thousand or more employees shall provide on-site video conferencing facilities.

I. The minimum parking space requirements for new nonresidential development may be reduced in number up to a maximum of ten percent when linked to other actions that reduce trips to account for increased ridesharing and other modes of transportation.

J. The city will participate in the implementation of the adopted countywide bicycle plan to conform with SCAG Regional Mobility Element.

K. Sidewalks shall be installed or widened when possible, as approved by the city engineer, to accommodate pedestrians.

4.0 Significance Criteria and Analysis Methodologies

4.1 Determining Significance

Based on the CEQA Guidelines Appendix G, impacts related to GHG emissions would be significant if the project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

2. Conflict with the City's CAP or an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs.

State CEQA Guidelines Section 15064.4 states that "the determination of the significance of greenhouse gas emissions (GHG) calls for careful judgment by the lead agency, consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project." Section 15064.4(b) further states that a lead agency should consider the following non-exclusive factors when assessing the significance of GHG emissions:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency applies to the project; and

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

State CEQA Guidelines Section 15064(h)(1) states that "the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable." A cumulative impact may be significant when the project's incremental effect, though individually limited, is cumulatively considerable. Therefore, for the purposes of this analysis, the significance of impacts was evaluated using criteria (1) and (3) above. Specifically, the following analysis determines that the Proposed Project would not result in a significant GHG impact because it would result in an overall reduction in GHG emissions per service population, and because it would be consistent with state, regional, and local strategies, goals, and policies to reduce GHG emissions.

4.2 Calculation Methodology

The project's GHG emissions were calculated using the CalEEMod Version 2022.1 (California Air Pollution Control Officers Association [CAPCOA] 2022) and CARB's 2021 EMission FACtor model (EMFAC2021). GHG emissions are estimated in terms of total MT CO_2E.

The analysis methodology and input data are described in the following sections. Emissions were calculated for the existing condition (year 2023), buildout of the adopted land use plan (year 2045), and buildout of the Proposed Project (year 2045).

4.2.1 Land Use

Existing and proposed land uses in the Specific Plan area include residential and retail/office uses. For modeling purposes, the proportion of single family and multi-family dwelling units within the Specific Plan area was estimated as 90 percent multi-family and 10 percent single family based on the proportion of existing and proposed single family and multi-family zoning acreages. Multi-family residential units were modeled as mid-rise apartments in CalEEMod and retail/office land uses were modeled as all retail–strip mall land uses in CalEEMod. Table 6 summarizes the modeled existing and buildout land uses within the Specific Plan area.

Table 6
Modeled Land Uses

	Existing	Buildout of Adopted Plan	Buildout of Proposed Project
Residential (dwelling units)	7,476 *6,728 multi-family* *748 single family*	9,141 *8,227 multi-family* *914 single family*	10,056 *9,050 multi-family* *1,006 single family*
Retail/Office (square feet)	1,732,653	4,767,915	5,138,749
Population	27,790	35,284	38,816
Employment	6,276	6,218	7,937
VMT	757,999	876,958	918,731

4.2.2 Mobile Emissions

GHG emissions from vehicles come from the combustion of fossil fuels in vehicle engines. Mobile source operational emissions are based on the trip rate, trip length, and vehicle mix. The San

Bernardino Transportation Analysis Model was used as part of the VMT analysis prepared for the Proposed Project. The VMT associated with the existing condition and buildout of the adopted and proposed land uses are summarized in Table 6 (Iteris, Inc. 2023). Mobile-source emissions were estimated based on EMFAC2021 (CARB 2021) and the VMT analysis results prepared for the Proposed Project.

4.2.3 Energy Use Emissions

GHGs are emitted as a result of activities in buildings for which electricity and natural gas are used as energy sources. GHGs are emitted during the generation of electricity from fossil fuels off-site in power plants. These emissions are considered indirect but are calculated in association with a building's overall operation. Electric power generation accounts for the second largest sector contributing to both inventoried and projected statewide GHG emissions. Combustion of fossil fuel emits criteria pollutants and GHGs directly into the atmosphere. When this occurs in a building, it is considered a direct emissions source associated with the building. CalEEMod estimates emissions from the direct combustion of natural gas for space and water heating.

CalEEMod estimates GHG emissions from energy use by multiplying average rates of residential and nonresidential energy consumption by the quantities of residential units and nonresidential square footage entered in the land use module to obtain total projected energy use. This value is then multiplied by electricity and natural gas GHG emission factors applicable to the project location and utility provider.

The CEC adopted the 2022 Energy Code in August 2021, and it took effect January 1, 2023. The Energy Code contains energy conservation standards applicable to particular end-use categories for all new or altered residential and nonresidential buildings throughout California. Energy consumption values are based on the California Energy Commission's 2018–2030 Uncalibrated Commercial Sector Forecast and the 2019 Residential Appliance Saturation Survey. GHG emissions were calculated using the default CalEEMod Version 2022.1 emission factors.

The project would be served by Southern California Edison (SCE). Therefore, SCE's specific energy-intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kilowatt-hour) are used in the calculations of GHG emissions. Current and forecasted year 2024 SCE energy-intensity factors are included in CalEEMod version 2022.1. Emissions were modeled using the forecasted year 2024 energy-intensity factors. Statewide RPS goals are summarized in Section 3.2.2.5. As SCE continues to procure renewable energy sources in line with state goals, the energy-intensity factors will decrease.

4.2.4 Area Source Emissions

Area sources include criteria pollutant and GHG emissions that would occur from the use of landscaping equipment. The use of landscape equipment emits criteria pollutants and GHGs associated with the equipment's fuel combustion. Default statewide emission rates from landscaping equipment were developed using the CARB Small Off-Road Engines Model v1.1. Area sources also include consumer products and architectural coatings. However, only criteria pollutant emissions are associated with these sources and not GHG emissions. Area source emissions were calculated using default CalEEMod emission factors.

4.2.5 Water and Wastewater Emissions

The amount of water used and wastewater generated by a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat the water and wastewater. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both CH_4 and N_2O.

CalEEMod Version 2022.1 calculates outdoor water use based the Department of Water Resources Model Water Efficient Landscape Ordinance and calculates nonresidential indoor water used based on the Pacific Institute's *Waste Not, Want Not: The Potential for Urban Water Conservation in California* 2003 (as cited in CAPCOA 2022). Wastewater treatment is based on the region-specific distribution of wastewater treatment methods (CAPCOA 2022). Water and wastewater emissions were calculated using default CalEEMod data.

4.2.6 Solid Waste Emissions

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. To calculate the GHG emissions generated by disposing of solid waste for the project, the total volume of solid waste was calculated using waste disposal rates identified by the California Department of Resources Recycling and Recovery. The methods for quantifying GHG emissions from solid waste are based on the IPCC method, using the degradable organic content of waste. GHG emissions associated with the waste disposal were calculated using default parameters.

4.2.7 Refrigerants

Small amounts of GHG emissions result from refrigerants used in air conditioning and refrigeration equipment. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate. Emissions due to refrigerants were calculated using CalEEMod default values which are based on industry data from the U.S. EPA.

4.2.8 Construction Emissions

No specific development is proposed at this time. At a program level, it would be speculative to estimate the schedule and construction requirements of each individual project that could occur as a result of the Proposed Project. Based on the City's GHG inventory shown in Table 4, off-road construction equipment emissions are estimated as 2.1 percent of the total GHG emissions inventory, and 2.2 percent of the total operational emissions inventory (building energy, transportation, waste, wastewater treatment, and water conveyance). Thus, for the purposes of this analysis, construction emissions were calculated as 2.2 percent of the total operational emissions.

5.0 GHG Emission Calculations

Based on the methodology summarized in Section 4.2, the primary sources of direct and indirect GHG emissions have been calculated. The results are summarized in Table 7. EMFAC2021 emission calculations are provided in Attachment 1, and CalEEMod emission calculations for the existing condition, buildout of the adopted land uses, and buildout of the Proposed Project are provided in Attachments 2 through 4, respectively.

Table 7
Project GHG Emissions

Source	Existing (year 2023) Land Uses	Buildout (year 2045) of Adopted Land Uses	Buildout (year 2045) of Proposed Land Uses
Mobile	120,053	104,849	109,844
Energy	13,945	18,440	20,130
Area	164	255	278
Water/Wastewater	1,252	1,754	1,909
Solid Waste	2,566	4,099	4,475
Refrigerants	11	16	18
Construction	--	2,847	3,006
Total	**137,991**	**132,260**	**139,660**
Service Population (Residents + Employees)	*34,066*	*41,502*	*46,753*
GHG Emissions per Service Population	*4.05*	*3.19*	*2.99*

6.0 GHG Impact Analysis

1. *Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?*

As shown in Table 7, GHG emissions associated with buildout of the Proposed Project would total 139,660 MT CO_2E per year, or 2.99 MT CO_2E per service population. When compared to the existing condition, overall mobile-source GHG emissions due to buildout of both the adopted land use plan and the Proposed Project would decrease. This is due to vehicle emission regulations and improved technologies that result in cleaner and more efficient vehicles. Other sources of emissions would increase over the existing condition due to the increased amount of development. Although total GHG emissions would be greater than under buildout of the adopted land uses, the Proposed Project would result in a decrease in emissions per service population compared to both the existing condition and buildout of the adopted land uses. The modeled reduction in VMT per service population indicates that the Specific Plan would be a more efficient plan than the adopted General Plan in terms of vehicular trips. Features of the Specific Plan that promote reduced mobile source emissions and reduced VMT per service population include increased density near mass transit, mixed-use development, and road diets. Buildout of the Specific Plan would reduce communitywide daily per service population vehicle use by approximately 2.0 miles of travel per day. The 8.5 percent reduction in VMT would correlate directly to a reduction in mobile source GHG emissions in the region. The Specific Plan would reduce VMT per service population and GHG impacts by creating

housing opportunities in areas with pedestrian connectivity between residential and commercial uses and near public transportation along established transportation corridors.

Future housing development facilitated by the project would also be required to meet the mandatory energy requirements of CALGreen and the Energy Code (CCR Title 24, Part 6) in effect at the time of development. These regulations require that new development incorporate design features to capture energy efficiencies associated with building heating, ventilating, and air conditioning mechanical systems, water heating systems, and lighting.

Additionally, future development proposed under the Specific Plan would undergo discretionary review. At the time of their initiation, new developments facilitated by the Proposed Project would be required to comply with applicable federal, state, and local regulations regarding GHG emissions. This includes policies instituted by SCAQMD in which developers would be required to comply with one of five exclusion tiers in order to avoid significant environmental impacts (see Section 3.2.3.1).

The following mitigation measure is recommended for future development proposals:

GHG-1: Applications for future development shall prepare and submit a technical assessment evaluating potential project GHG impacts to the City for review and approval. The significance of project-level GHG impacts shall be evaluated using one of the following criteria:

1. The evaluation shall demonstrate consistency with a locally adopted qualified Climate Action Plan (CAP); or
2. In the absence of a qualified CAP, the evaluation shall be prepared in conformance with South Coast Air Quality Management District (SCAQMD) methodology for assessing GHG impacts, which consists of the following tiered approach:
    a. Tier 1 – The project is exempt from the California Environmental Quality Act (CEQA).
    b. Tier 2 – The project is consistent with an applicable regional GHG emissions reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
    c. Tier 3 – Project GHG emissions represent an incremental increase below or mitigated to less than a 3,000 MT CO2E screening level.
    d. Tier 4 – The project achieves performance standards, where performance standards may include a percent emission reduction target or an efficiency target per service population.
    e. Tier 5 – Offsets along or in combination with the above target Significance Screening Level. Offsets must be provided for a 30-year project life, unless the project life is limited by permit, lease, or other legally binding condition.

If GHG emissions are determined to have the potential to exceed the SCAQMD's recommended thresholds, the City shall require that applicants for new development projects incorporate mitigation measures to reduce GHG emissions. These identified measures shall be incorporated into all appropriate documents submitted to the City and shall be verified by the City.

Because the Proposed Project would result in a decrease in GHG emissions per service population and because future development would be required to comply with applicable federal, state, and local regulations regarding GHG emission and Mitigation Measure GHG-1, the Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant.

2. *Would the project conflict with the City's CAP or an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs?*

Applicable plans, policies, and regulations include statewide GHG emission targets established by AB 32 and SB 32; a longer-term statewide policy goals established by EO S-3-05; the 2017 Scoping Plan (which establishes a specific statewide plan to achieve the 2030 target); the 2020 Scoping Plan (which establishes targets for carbon neutrality by 2045); SCAG's RTP/SCS; regulations regarding increased use renewables for electricity production (RPS); the California Energy Code; and General Plan policies.

State Plans

Table 8 summarizes the Specific Plan's consistency with 2017 Scoping Plan actions.

Table 8
Project Consistency with 2017 Scoping Plan

Actions	Responsible Parties	Consistency
Implement SB 350 by 2030		
Increase the Renewables Portfolio Standard to 50% of retail sales by 2030 and ensure grid reliability.	California Public Utilities Commission, CEC, CARB	Consistent. Future development implemented under the Proposed Project would use energy from SCE which has committed to diversifying the portfolio of energy sources by increasing energy from wind and solar sources. The Proposed Project would not interfere with or obstruct SCE energy source diversification efforts.
Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.		Consistent. Future development implemented under the Proposed Project would be constructed in compliance with current California Building Code requirements. Currently, new buildings must achieve compliance with 2022 Title 24 Building Energy Efficiency Standards and the 2022 CALGreen requirements. Each version of the California Building Code improves the energy efficiency standards. Future development would be consistent with statewide energy requirements.
Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in Integrated Resource Planning (IRP) to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly- owned utilities meet GHG emissions reductions planning targets through a combination of measures as described in IRPs.		

Table 8 Project Consistency with 2017 Scoping Plan		
Actions	Responsible Parties	Consistency
Implement Mobile Source Strategy (Cleaner Technology and Fuels)		
At least 1.5 million zero emission and plug-in hybrid light-duty EVs by 2025.	CARB, California State Transportation Agency (CalSTA), Strategic Growth Council (SGC), California Department of Transportation (Caltrans), CEC, Governor's Office of Planning and Research (OPR), Local Agencies	Consistent. These strategies are a part of the CARB Mobile Source Strategy. The Proposed Project would not obstruct or interfere with the implementation of these strategies. As these are CARB enforced standards, vehicles within the Specific Plan area are required to comply with the standards and would therefore comply with these strategies.
At least 4.2 million zero emission and plug-in hybrid light-duty EVs by 2030		
Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations.		
Medium- and Heavy-Duty GHG Phase 2.		
Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20% of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100% of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO_X standard.		Not Applicable. This strategy is not specifically applicable to the Proposed Project. However, the Specific Plan area is served by Omnitrans bus routes. In 2021, Omnitrans purchased the first of its 100% electric powered buses. By 2040, the entire fleet of buses will be transitioned to zero-emission buses to comply with CARB regulations.
Last Mile Delivery: New regulation that would result in the use of low NO_X or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5% of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10% in 2025 and remaining flat through 2030.		Not Applicable. This strategy is not specifically applicable to the Proposed Project. This is a CARB Mobile Source Strategy. The Proposed Project would not obstruct or interfere with CARB efforts to improve last mile delivery emissions.
Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."		Consistent. The Proposed Project would be consistent with Connect SoCal (see Table 9), which is the region's SCS, and would therefore be consistent with SB 375. The Proposed Project would support the goals of these strategies by implementing sustainable infill development that reduces VMT and supports walkable, bikeable, transit-oriented communities.
Increase stringency of SB 375 Sustainable Communities Strategy (2035 targets).		

Table 8 Project Consistency with 2017 Scoping Plan		
Actions	Responsible Parties	Consistency
Harmonize project performance with emissions reductions and increase competitiveness of transit and active transportation modes (e.g., via guideline documents, funding programs, project selection, etc.).	CalSTA, SGC, OPR, CARB, Governor's Office of Business and Economic Development, California Infrastructure and Economic Development Bank, Department of Finance, California Transportation Commission, Caltrans	Consistent. Although this is directed towards CARB and Caltrans, the Proposed Project would increase the use of transit and active transportation modes.
By 2019, develop pricing policies to support low-GHG transportation (e.g., low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts)	CalSTA, Caltrans, California Transportation Commission, OPR, SGC, CARB	Not applicable. This measure is not within the purview of the Proposed Project.
Implement California Sustainable Freight Action Plan		
Improve freight system efficiency.	CalSTA, CalEPA, California Natural Resources Agency, CARB, Caltrans, CEC, Governor's Office of Business and Economic Development	Not applicable. These measures are not within the purview of the Proposed Project.
Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.		
Adopt a Low Carbon Fuel Standard with a Carbon Intensity reduction of 18%.		
Implement the Short-Lived Climate Pollutant Strategy (SLPS) by 2030		
40% reduction in methane and hydrofluorocarbon emissions below 2013 levels.	CARB, California Department of Resources Recycling and Recovery, California Department of Food and Agriculture, California State Water Resource Control Board, Local Air Districts	Not applicable. These measures are not within the purview of the Proposed Project.
50% reduction in black carbon emissions below 2013 levels.		
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.		
Implement the post-2020 Cap-and-Trade Program with declining annual caps.		
By 2018, develop Integrated Natural and Working Lands Implementation Plan to secure California's land base as a net carbon sink		
Protect land from conversion through conservation easements and other incentives.	California Natural Resources Agency, Departments Within California Department of Food and Agriculture, CalEPA, CARB	Not applicable. These measures are not within the purview of the Proposed Project.
Increase the long-term resilience of carbon storage in the land base and enhance sequestration capacity.		
Utilize wood and agricultural products to increase the amount of carbon stored in the natural and built environments.		
Establish scenario projections to serve as the foundation for the Implementation Plan.		

Table 8 Project Consistency with 2017 Scoping Plan		
Actions	Responsible Parties	Consistency
Implement Forest Carbon Plan	California Natural Resources Agency, California Department of Forestry and Fire Protection, CalEPA and Departments Within	
Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.	State Agencies & Local Agencies	
SOURCE: CARB 2017.		

As shown above, the Proposed Project would not conflict with any of the 2017 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Proposed Project. Further, recent studies show that the state's existing and proposed regulatory framework will allow the state to reduce its GHG emissions level to 40 percent below 1990 levels by 2030. Further, the Proposed Project would be consistent with the 2022 Scoping Plan strategies for reducing VMT. Specifically, it would allow for the redevelopment of infill sites surrounded by existing urban uses, it consists of transit-supportive densities, is in proximity to existing transit stops, and is consistent with the region's SCS (Connect SoCal, see Table 9). As demonstrated in Table 7, the Proposed Project would result in a reduction in GHG emissions per service population. Future development would be required to meet the mandatory energy requirements of CALGreen and the Energy Code (CCR Title 24, Part 6). Energy-related emissions would also be reduced as SCE increases its renewable sources of energy in accordance with RPS goals. Therefore, the project would not conflict with an applicable state plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

Regional Plans

The project was evaluated for consistency with the SCS strategies contained in Connect SoCal. As discussed in Table 9 below, the project would be consistent with applicable Connect SoCal strategies, particularly by constructing a high-density residential use adjacent to existing transit. Therefore, the project would not conflict with an applicable regional plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

Table 9 Project Consistency with Connect SoCal Strategies	
Strategy	Project Consistency
Focus Growth Near Destinations and Mobility Options	
• Emphasize land use patterns that facilitate multimodal access to work, educational, and other destinations. • Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets. • Plan for growth near transit investments and support implementation of first/last mile strategies. • Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses. • Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods. • Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations). • Identify ways to "right size" parking requirements and promote alternative parking strategies (e.g., shared parking or smart parking).	Consistent. The Proposed Project would be consistent with Connect SoCal's strategies to focus growth near destinations and mobility options. The Specific Plan area is an important job center and transportation hub. The purpose of the Proposed Project is to implement pro-housing legislation, goals from the Draft 6th Cycle Housing Element, and citywide GHG reduction strategies, such as reducing VMT and supporting walkable, bikeable, transit-oriented communities. Transportation options in the Specific Plan area include the Metrolink with the Rialto Station located in the southern portion of the Specific Plan area between Willow Avenue and Riverside Avenue, and Omnitrans Routes 14, 15, and 22, which travel along Foothill Boulevard, Merrill Avenue, and Riverside Avenue, respectively. Additionally, future BRT stations would be located along Foothill Boulevard. The Proposed Project would promote redevelopment of underperforming retail uses and would prioritize infill development and increased residential densities to accommodate more growth in a mixed-use environment and increase amenities and connectivity. The Proposed Project would specifically implement the Connect SoCal strategy of focusing growth near transit destinations and mobility options.
Promote Diverse Housing Options	
• Preserve and rehabilitate affordable housing and prevent displacement. • Identify funding opportunities for new workforce and affordable housing development. • Create incentives and reduce regulatory barriers for building context sensitive accessory dwelling units to increase housing supply. • Provide support to local jurisdictions to streamline and lessen barriers to housing development that supports reduction of greenhouse gas emissions.	Consistent. The Proposed Project would provide for a variety of housing options. This mix of housing options and mixed-use zones implement the City's 6th Cycle Housing Element. Policy 2.3 states "Encourage the infilling of vacant residential land and the recycling of underutilized residential land, particularly in Downtown Rialto, along Foothill Boulevard, the Pepper Avenue Specific Plan area, the Renaissance Specific Plan area, and the Lytle Creek Ranch Specific Plan." To implement this policy and promote diverse housing options, the Proposed Project includes the following residential and mixed-use zoning designations: Single Family Residential (SFR): Provides low-density residential uses in downtown Rialto. Encourages single family dwellings separated from multi-family and non-residential uses to protect the residential characteristics of these areas and encourage a suitable environment for family life. Multi-Family Residential (MFR): Provides medium-density residential uses in downtown Rialto to encourage the creation of walkable interconnected residential neighborhoods. Allows a mix of medium-density housing types, such as apartments, townhomes, and duplexes.

Table 9 Project Consistency with Connect SoCal Strategies	
Strategy	Project Consistency
	Increased Density Residential (R-X): Encourages the development of housing through increase of allowable density and flexibility to lot development standards. Allows a mix of medium-density housing types, such as apartments, townhomes, and duplexes, intended to support adjacent commercial uses. Foothill Mixed-Use (FMUZ): Encourages a combination of ground floor retail, with office and/or residential uses above around the future BRT stops located along Foothill Boulevard. Allows a variety of uses at the ground floor, including restaurants, retail, gyms, and salons. Ground floor activities must be compatible with upper floor residences. Downtown Mixed-Use (DMUZ): Encourages a walkable interconnected mixed-use urban area by providing a combination of ground-floor retail, higher intensity office, and/or residential near the Rialto Metrolink Station in downtown Rialto. Provides retail and commercial uses, including restaurants, breweries, and entertainment destinations.
Leverage Technology Innovations	
• Promote low emission technologies such as neighborhood electric vehicles, shared ride hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space. • Improve access to services through technology, such as telework and telemedicine as well as other incentives such as a mobility wallet. • Identify ways to incorporate micro-power grids in communities, for example solar energy, hydrogen fuel cell power storage and power generation.	Consistent. By promoting a more diverse and denser mixed-use downtown environment, the Proposed Project would include uses that would support low emission technologies include electric vehicle infrastructure, ride-sharing services, bike and scooter sharing, and would improve the street infrastructure to create a more walkable and bikeable community. Strategies related to improved access to services through technology and micro-power grids are not directly applicable to the Proposed Project. The Proposed Project would not interfere with SCAG's efforts to promote low emission technologies, improve access to telework and telemedicine, or incorporate micro-power grids in communities.
Support Implementation of Sustainable Policies	
• Pursue funding opportunities to support local sustainable development implementation projects that reduce greenhouse gas emissions. • Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations. • Support local jurisdictions in the establishment of EIFDs, CRIAS, or other tax increment or value capture tools to finance sustainable infrastructure and development projects including parks and open space. • Work with local jurisdictions/communities to identify opportunities and assess barriers for implementing sustainability strategies.	Not Applicable. These strategies are not directly applicable to the Proposed Project. The project would not interfere with SCAG's efforts to work with local jurisdictions, communities, and other planning organizations to implement sustainable policies. The Proposed Project would support the goals of these strategies by implementing sustainable infill development that reduces VMT and supports walkable, bikeable, transit-oriented communities.

Table 9 Project Consistency with Connect SoCal Strategies	
Strategy	Project Consistency
• Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region. • Continue to support long range planning efforts by local jurisdictions. • Provide educational opportunities to local decisions makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy.	
Promote a Green Region	
• Support development of local climate adaptation and hazard mitigation plans as well as project implementation that improves community resiliency to climate change and natural hazards. • Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration. • Integrate local food production into the regional landscape. • Promote more resource efficient development focused on conservation, recycling and reclamation. • Preserve, enhance and restore regional wildlife connectivity. • Reduce consumption of resource areas, including agricultural land. • Identify ways to improve access to public park space.	Consistent. The City's Climate Adaptation Plan is the local climate adaptation and hazard mitigation plan. The Climate Adaptation Plan contains goals and policies to address impacts from air pollution, extreme heat, wildfires, and flooding. The Proposed Project would support these goals and policies by encouraging improvements in street infrastructure to create a safe walkable and bikeable community, reducing VMT and thereby improving air quality and reducing GHG emissions, and creating shaded pedestrian-friendly environments. The Proposed Project would not conflict with the City's implementation of the Climate Adaptation Plan.
SOURCE: SCAG 2020.	

Local Plans

Table 10 summarizes the Proposed Project's consistency with the GHG related policies in the City's General Plan. As shown, the Proposed Project would not conflict with an applicable local plan, policy, or regulation adopted for the purpose of reducing GHG emissions, and impacts would be less than significant.

Table 10 Project Consistency with General Plan Policies	
Policies	Project Consistency
Building Energy	
• Parking Lot Design 3-23.1: Require mature trees and landscaping in street parking areas to make them more inviting and aesthetically appealing, and to provide sufficient shading to reduce heat. • Open Space and Recreation 3-26.2 Enhance street corridors by incorporating small green areas, extensive landscaping, and street trees. • Planned Development 3-21.7: Require parkways to be placed on the outside of the public sidewalk immediately adjoining the curb to provide shade for pedestrians, and provide a canopy of trees to be either uniformly spaced or informally grouped. • Public Realm— Streetscapes Policy 2-11.2: Provide and maintain street trees and parkway landscaping within the public right-of-way for developed properties within Rialto. Require private development to do the same as per City design regulations. • Public Realm—Streetscapes Policy 2-11.4: Incorporate street trees and other landscape treatments along corridors to provide sufficient shade canopy and promote pedestrian comfort. • Private Realm Policy 2-17.1: Require the planting of street trees along public streets and inclusion of trees and landscaping for private developments to improve airshed, minimize urban heat island effect, and lessen impacts of high winds. • Private Realm Policy 2-17.2: Require all new development to incorporate tree plantings dense enough to shade and beautify residential and commercial areas. • Parking Lot Design Policy 2-23.1: Require mature trees and landscaping in off-street parking areas to make them more inviting and aesthetically appealing, and to provide sufficient shading to reduce heat. • Open Space Policy 2-26.1: Require that private open space be integrated into new development by providing green spaces and landscaped plazas between buildings. • Open Space Policy 2-26.2: Enhance street corridors by incorporating small green areas, extensive landscaping, and street trees. • Open Space Policy 2-26.3: Explore opportunities to create pocket parks within urbanized areas for public and/or private use. • Sustainable Building Practices and Energy Conservation Policy 2-31.2: Provide incentives for the installation of energy conservation measures in existing multi-unit residential and commercial developments, including technical assistance and possibly low-interest loans.	Consistent. The Proposed Project would establish development standards for future land uses. The Proposed Project would create a shaded pedestrian-friendly environment with future street infrastructure improvements and landscaping requirements. Mixed-use developments would be connected with common plaza areas. Implementation of the City's Climate Adaptation Plan would encourage the planting of shade trees to reduce the urban heat effect and adapt to extreme heat. Future development implemented under the Proposed Project would be constructed in compliance with current California Building Code requirements. Currently, new buildings must achieve compliance with 2022 Title 24 Building Energy Efficiency Standards and the 2022 CALGreen requirements. Each version of the California Building Code improves the energy efficiency standards. Future development would be consistent with statewide energy requirements. Therefore, the Proposed Project would be consistent with General Plan policies related to building energy.

Table 10 Project Consistency with General Plan Policies	
Policies	Project Consistency
• Sustainable Building Practices and Energy Conservation Policy 2-31.3: Educate the public regarding the need for energy conservation techniques which can be employed and systems which are available.	
Transportation	
• Public Realm – Pedestrian Friendly Environment 2-12.5: Maximize potential pedestrian connections through the use of highly visible gateways, walkways, and directional signs and the installation of traffic-calming devices where appropriate. • Expanding Rialto's Mobility Policy 4-1.15: Support the construction of High Occupancy Vehicle (HOV) lanes on I-10 between Ontario and Redlands. • Accommodating Bicyclists and Pedestrians Policy 4-8.4: Require provision of secure bicycle storage, including bicycle racks and lockers, at the Metrolink station, public parks, schools, shopping centers, park-and-ride facilities, and other major activity centers. • Accommodating Bicyclists and Pedestrians Policy 4-8.5: Require major developments to include bicycle storage facilities, including bicycle racks and lockers. • Air Quality and Climate Policy 2-38.3: Provide enhanced bicycling and walking infrastructure, and support public transit, including public bus service, the Metrolink, and the potential for Bus Rapid Transit (BRT). • Public Realm – Pedestrian Friendly Environment 2-12.7: Shade bus shelters and other outdoor use areas from the sun. Commercial projects along major corridors in Rialto shall incorporate at least one bus shelter, taxi stop, bicycle rack, and/or similar transportation or pedestrian features. The design of these features shall be consistent with the identity, feel, and theme of that corridor. • Encouraging Rail and Bus Ridership Policy 4-6.1: Support the establishment of an east-west Bus Rapid Transit line through the Valley along on Foothill Boulevard. • Encouraging Rail and Bus Ridership Policy 4-6.3: Require major developments to include bus turnouts, bus shelters, and other transit facilities as appropriate. • Encouraging Rail and Bus Ridership Policy 4-6.4: Encourage accessible, flexible, and efficient public transit to all major activity areas in the Inland Empire. • Encouraging Rail and Bus Ridership Policy 4-6.5: Encourage clean, lighted, and convenient bus shelters and transit stops that are within walking distance of major activity areas and residential neighborhoods and along arterial roadways. • Encouraging Rail and Bus Ridership Policy 4-7.1: Support Metrolink regional rail services, and work with the Southern California Regional Rail Authority to expand services.	Consistent. The Proposed Project would be consistent with General Plan policies related to transportation by providing for a mix of residential and office/retail land uses focus growth near destinations and mobility options. The Specific Plan area is an important job center and transportation hub. The purpose of the Proposed Project is to implement pro-housing legislation, goals from the Draft 6th Cycle Housing Element, and citywide GHG reduction strategies, such as reducing VMT and supporting walkable, bikeable, transit-oriented communities. Transportation options in the Specific Plan area include the Metrolink with the Rialto Station located in the southern portion of the Specific Plan area between Willow Avenue and Riverside Avenue, and Omnitrans Routes 14, 15, and 22 which travel along Foothill Boulevard, Merrill Avenue, and Riverside Avenue, respectively. Additionally, future bus rapid transit stations would be located along Foothill Boulevard. The Proposed Project would promote redevelopment of underperforming retail uses and would prioritize infill development and increased residential densities to accommodate more growth in a mixed-use environment and increase amenities and connectivity. Location near quality public transit would encourage rail and bus ridership consistent with General Plan policies. The Proposed Project would specifically implement General Plan transportation-related policies.

Table 10 Project Consistency with General Plan Policies	
Policies	Project Consistency
• Encouraging Rail and Bus Ridership Policy 4-7.2: Achieve better integration of all transit and multi-modal options at the Rialto Metrolink Station. • Encouraging Rail and Bus Ridership Policy 4-7.3: Promote activity centers and transit-oriented development projects around the Rialto Metrolink Station and in Downtown. • Encouraging Rail and Bus Ridership Policy 4-7.4: Support the High Speed Train project sponsored by the California High Speed Railroad Authority. • Expanding Rialto's Mobility Policy 4-1.4: Reduce delays to local traffic, facilitate emergency response, and enhance safety by pursuing railroad grade separations. • Expanding Rialto's Mobility Policy 4-1.7: Cooperate with SBCOG in the implementation of Tier 1 through Tier 4 of the San Bernardino Valley Coordinated Traffic Signal System Plan. • Expanding Rialto's Mobility Policy 4-1.9: Work with Caltrans to improve coordination of traffic signals at freeway interchanges with those on City streets. • Downtown Rialto Policy 2-5.2: Support a complementary mix of land uses, including residential densities to support a multi-modal transit node at the rail station. • Air Quality and Climate Policy 2-35.3: Establish a balanced land use pattern, and facilitate developments that provide jobs for City residents in order to reduce vehicle trips Citywide. • Air Quality and Climate Policy 2-38.1: Consult with State agencies, SCAG, and SBCOG to implement AB 32 and SB 375 by utilizing incentives to facilitate infill and transit-oriented development. • Air Quality and Climate Policy 2-38.2: Encourage development of transit-oriented and infill development, and encourage a mix of uses that foster walking and alternative transportation in Downtown and along Foothill Boulevard. • Air Quality and Climate Policy 2-35.2: Require that new development projects incorporate design features that encourage ridesharing, transit use, park and ride facilities, and bicycle and pedestrian circulation. • Air Quality and Climate Policy 2-38.3: Provide enhanced bicycling and walking infrastructure, and support public transit, including public bus service, the Metrolink, and the potential for BRT. • Accommodating Bicyclists and Pedestrians Policy 4-9.4: Accommodate pedestrians and bicyclists – in addition to automobiles – when considering new development projects. • Accommodating Bicyclists and Pedestrians Policy 4-8.6: Coordinate recreational trail plans with neighboring jurisdictions and San Bernardino County to ensure linkage of local trails across jurisdictional boundaries and with regional trail systems.	

Table 10 Project Consistency with General Plan Policies	
Policies	Project Consistency
• Accommodating Bicyclists and Pedestrians Policy 4-9.1: Install sidewalks where they are missing, and make improvements to existing sidewalks for accessibility purposes. Priority should be given to needed sidewalk improvement near schools and activity centers. Provide wider sidewalks in areas with higher pedestrian volumes. • Accommodating Bicyclists and Pedestrians Policy 4-8.2: Pursue "rails-to-trails" conversion of the Pacific Electric Railroad right-of-way to a bicycle or multi-use path. • Accommodating Bicyclists and Pedestrians Policy 4-8.3: Connect school facilities, parks, and other activity nodes within residential neighborhoods with bicycle trails on neighborhood streets. • Accommodating Bicyclists and Pedestrians Policy 4-9.2: Require sidewalks and parkways on all streets in new development. • Accommodating Bicyclists and Pedestrians Policy 4-8.1: Expand Class I bicycle trails with amenities, particularly adjacent to open space areas, utility and flood control corridors, and abandoned rail corridors. • Air Quality and Climate Policy 2-35.1: Replace Rialto's vehicle fleet with low-emission, economically sensible vehicles.	
Solid Waste Management	
• Recycling Policy 2-34.1: Develop programs that promote reuse and recycling throughout the community. • Recycling Policy 2-34.2: Utilize source reduction, recycling, and other appropriate measures to reduce the amount of solid waste generated in Rialto that is disposed of in landfills. • Recycling Policy 2-34.3: Encourage the maximum diversion from landfills of construction and demolition materials through recycling and reuse programs. • Solid Waste and Recycling Policy 3-10.1: Encourage additional recycling in all sectors of the community. • Solid Waste and Recycling Policy 3-10.2: Encourage the recycling of construction and demolition materials in an effort to divert these items from entering landfills. • Solid Waste and Recycling Policy 3-10.3: Continue to provide and improve flexible fees and schedules for solid waste collection and recycling programs. • Solid Waste and Recycling Policy 3-10.4: Continue to educate the community regarding the benefits of solid waste diversion and recycling, and maintain programs that make it easy for all residents and businesses to work toward City waste reduction objectives.	Consistent. Construction of future development implemented under the Specific Plan would be required to recycle construction and demolition materials, and future development would include recycling storage spaces as required by CALGreen and the Municipal Code.

Table 10 Project Consistency with General Plan Policies	
Policies	Project Consistency
Wastewater Treatment	
• Wastewater Policy 3-9.1: Require that all new development or expansion of existing facilities bear the cost of expanding the wastewater disposal system to handle the increased loads which they are expected to generate. • Wastewater Policy 3-9.2: Evaluate the wastewater disposal system routinely to ensure its adequacy to meet changes in demand and changes in types of waste.	Consistent. Future development implemented under the Proposed Project would be required to meet all City wastewater codes and CALGreen mandatory measures related to plumbing fixtures and fittings.
Water Conveyance	
• Conserve Water Resource Policy 2-29.3: Educate the community about the importance of water conserving techniques and avoiding wasteful water habits. • Conserve Water Resources Policy 2-29.1: Require new development to use features, equipment, technology, landscaping, and other methods to reduce water consumption. • Private Realm Policy 2-17.3: Require the use of drought-tolerant, native landscaping and smart irrigation systems for new development to lower overall water usage. • Parking Lot Design Policy 2-23.3: Require use of drainage improvements designed, with native vegetation where possible, to retain or detain water runoff and minimize pollutants into drainage system. • Water Policy 3-8.9: Conserve potable water and utilize reclaimed water for meeting landscaping and irrigation demands as much as possible. • Water Policy 3-8.10: Support water conservation through requirements for landscaping with drought-tolerant plants and efficient irrigation for all new development and City projects. • Conserve Water Resources Policy 2-29.1: Require new development to use features, equipment, technology, landscaping, and other methods to reduce water consumption. • Conserve Water Resources Policy 2-29.2: Use reclaimed water as available for irrigation of City parks, median strips, and other public areas, and encourage its use in industrial applications, large turf and expansive landscaped areas, golf courses, mining, and other uses where potable quality of water is not necessary to its application.	Consistent. Future development implemented under the Specific Plan would be required to reduce water consumption by implementing all Municipal Code requirements and CALGreen mandatory measures related to plumbing fixtures and fittings, water meters, landscaping water requirements, etc. Future developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance, whichever is more stringent as required by CALGreen.
SOURCE: City of Rialto 2010.	

7.0 Conclusions

GHG emissions would be generated during construction and operation of future projects implemented under the Specific Plan. Construction activities emit GHGs primarily through the combustion of fuels in on- and off-road equipment and vehicles. Operational emissions include mobile, energy (electricity and natural gas), area (landscape maintenance equipment), water and wastewater, solid waste, and refrigerant sources. GHG emissions were calculated for the existing condition, buildout of the adopted land use plan, and buildout of the Proposed Project. As calculated in this analysis, the Proposed Project would result in a decrease in GHG emissions per service population. The Specific Plan would reduce VMT per service population and GHG impacts by creating housing opportunities in areas with pedestrian connectivity between residential and commercial uses and near public transportation along established transportation corridors. Future housing development facilitated by the project would also be required to meet the mandatory energy requirements of CALGreen and the Energy Code (CCR Title 24, Part 6) in effect at the time of development. These regulations require that new development incorporate design features to capture energy efficiencies associated with building heating, ventilating, and air conditioning mechanical systems, water heating systems, and lighting. Additionally, future development proposed under the Specific Plan would undergo discretionary review. At the time of their initiation, new developments facilitated by the Proposed Project would be required to comply with applicable federal, state, and local regulations regarding GHG emissions. This includes policies instituted by SCAQMD in which developers would be required to comply with one of five exclusion tiers in order to avoid significant environmental impacts.

Because the Proposed Project would result in a decrease in GHG emissions per service population and because future development would be required to comply with applicable federal, state, and local regulations regarding GHG emission, the Proposed Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and impacts would be less than significant. Additionally, the Proposed Project would be consistent with applicable Scoping Plan, Connect SoCal, and General Plan policies. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs, and impacts would be less than significant.

8.0 References Cited

California Air Pollution Control Officers Association (CAPCOA)
2022 California Emissions Estimator Model (CalEEMod). User's Guide Version 2022.1. April.

California Air Resources Board (CARB)
2007 California Greenhouse Gas Inventory – Summary by Economic Sector. Last updated November 19, 2007.

2008 *Climate Change Scoping Plan: A Framework for Change*. http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. December.

2017 *2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. January 20.

2021 EMissions FACtor Model (EMFAC2021). Version 1.0.2.

2022a Greenhouse Gas Inventory Data—2000 to 2020 (last updated October 26, 2022). https://ww2.arb.ca.gov/ghg-inventory-data.

2022b *Scoping Plan Update for Achieving Carbon Neutrality*. December.

Intergovernmental Panel on Climate Change (IPCC)
2007 *Fourth Assessment Report (AR4), Climate Change 2007: Synthesis Report*.

2014 *Fifth Assessment Report (AR5), Climate Change 2014: Synthesis Report.*

Iteris, Inc.
2023 Foothill Boulevard and Central Area Specific Plans Transportation Analysis. June 27, 2023.

Rialto, City of
2010 Rialto General Plan. December 2010.

2021 Climate Adaptation Plan. Prepared by Dudek.

San Bernardino Council of Governments (SBCOG)
2021 San Bernardino County Regional Greenhouse Gas Reduction Plan. Final March 2021.

South Coast Air Quality Management District (SCAQMD)
2008 Draft Guidance Document – *Interim CEQA GHG Significance Thresholds for Stationary Sources, Rules, and Plans*. October.

2010 Greenhouse Gas CEQA Significance Thresholds Stakeholder Working Group 15. September 28, 2010.

South Coast Association of Governments (SCAG)
2020 *Connect SoCal: The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy*. Adopted September 3, 2020.

U.S. Environmental Protection Agency (U.S. EPA)
2010 Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. U.S. Greenhouse Gas Inventory Program, Office of Atmospheric Programs. 430-R-10-006. April 15.

2020a Energy Star. Accessed June 17, 2020. Available at http://www.energystar.gov.

2020b U.S. EPA State and Local Climate and Energy Program. Accessed June 17, 2020. http://www.epa.gov/statelocalclimate/index.html.

ATTACHMENTS

ATTACHMENT 1

EMFAC2021 Vehicle Emission Calculations

VMT Emissions

		pounds per day			metric tons per year			
Year/Scenario	VMT	CO2	CH4	N2O	CO2	CH4	N2O	CO2E
Existing 2023	757,999	713,025	18	44	118,049	3	7	120,053
2045 Buildout/Adopted Land Use	876,958	633,295	6	43	104,849	1	7	104,849
2045 Buildout/Preferred Alternative	918,731	663,461	6	45	109,844	1	7	109,844

GHG Emissions

	Existing	2045 Adopted	2045 Proposed
Mobile	120,053	104,849	109,844
Energy	13,945	18,440	20,130
Area	164	255	278
Water	1,252	1,754	1,909
Waste	2,566	4,099	4,475
Refrigerants	11	16	18
Construction (2.2%)	0	2,847	3,006
Total	137,991	132,260	139,660
Population	27,790	35,284	38,816
Employment	6,276	6,218	7,937
Total SP	34,066	41,502	46,753
Total GHG per SP	4.05	3.19	2.99

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Diesel	222.6563	11,953.5741	11,953.5741	0.0000	1,981.6414	0.1233	1,473.3367	3.2482
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Natural Gas	31.5214	1,926.7731	1,926.7731	0.0000	280.5404	0.0072	13.8013	0.0304
San Bernardino	2023	LDA	Aggregate	Aggregate	Gasoline	773,664.0019	33,073,440.0728	33,073,440.0728	0.0000	3,594,279.0828	0.0100	329,802.0881	727.0891
San Bernardino	2023	LDA	Aggregate	Aggregate	Diesel	2,221.3770	77,366.1614	77,366.1614	0.0000	9,541.6207	0.0302	2,335.2844	5.1484
San Bernardino	2023	LDA	Aggregate	Aggregate	Electricity	27,031.1104	1,265,339.0013	0.0000	1,265,339.0013	136,160.7131	0.0000	0.0000	0.0000
San Bernardino	2023	LDA	Aggregate	Aggregate	Plug-in Hybrid	18,746.8361	952,397.5179	483,621.5765	468,775.9414	77,518.1671	0.0013	1,239.4276	2.7325
San Bernardino	2023	LDT1	Aggregate	Aggregate	Gasoline	73,981.3006	2,503,906.4991	2,503,906.4991	0.0000	318,282.9673	0.0466	116,768.6094	257.4307
San Bernardino	2023	LDT1	Aggregate	Aggregate	Diesel	29.7183	424.1577	424.1577	0.0000	86.2863	0.3078	130.5539	0.2878
San Bernardino	2023	LDT1	Aggregate	Aggregate	Electricity	77.7116	3,326.2683	0.0000	3,326.2683	378.6150	0.0000	0.0000	0.0000
San Bernardino	2023	LDT1	Aggregate	Aggregate	Plug-in Hybrid	54.9478	2,871.6300	1,324.1203	1,547.5097	227.2090	0.0012	3.3815	0.0075
San Bernardino	2023	LDT2	Aggregate	Aggregate	Gasoline	323,145.0561	13,160,212.6212	13,160,212.6212	0.0000	1,508,164.0997	0.0138	181,637.6625	400.4425
San Bernardino	2023	LDT2	Aggregate	Aggregate	Diesel	896.7675	39,572.0304	39,572.0304	0.0000	4,322.6339	0.0142	561.7515	1.2385
San Bernardino	2023	LDT2	Aggregate	Aggregate	Electricity	1,343.4002	49,491.3067	0.0000	49,491.3067	6,899.9219	0.0000	0.0000	0.0000
San Bernardino	2023	LDT2	Aggregate	Aggregate	Plug-in Hybrid	2,108.1344	106,791.6185	51,193.0911	55,598.5274	8,717.1356	0.0012	130.7829	0.2883
San Bernardino	2023	LHD1	Aggregate	Aggregate	Gasoline	30,742.2866	1,119,163.8276	1,119,163.8276	0.0000	458,014.2648	0.0359	40,209.9347	88.6477
San Bernardino	2023	LHD1	Aggregate	Aggregate	Diesel	22,607.1939	848,721.5839	848,721.5839	0.0000	284,370.0600	0.1197	101,577.2084	223.9394
San Bernardino	2023	LHD2	Aggregate	Aggregate	Gasoline	4,697.6861	167,949.3596	167,949.3596	0.0000	69,988.5227	0.0188	3,158.0063	6.9622
San Bernardino	2023	LHD2	Aggregate	Aggregate	Diesel	9,499.5369	366,079.7752	366,079.7752	0.0000	119,492.2238	0.1012	37,040.8644	81.6611
San Bernardino	2023	MCY	Aggregate	Aggregate	Gasoline	38,986.6467	229,041.1938	229,041.1938	0.0000	77,973.2935	1.2127	277,758.4191	612.3525
San Bernardino	2023	MDV	Aggregate	Aggregate	Gasoline	253,317.4035	9,891,874.8162	9,891,874.8162	0.0000	1,155,344.4544	0.0233	230,881.2241	509.0060
San Bernardino	2023	MDV	Aggregate	Aggregate	Diesel	3,646.5747	148,544.7897	148,544.7897	0.0000	16,970.7743	0.0171	2,535.6115	5.5901
San Bernardino	2023	MDV	Aggregate	Aggregate	Electricity	1,465.7161	53,973.5747	0.0000	53,973.5747	7,527.1299	0.0000	0.0000	0.0000
San Bernardino	2023	MDV	Aggregate	Aggregate	Plug-in Hybrid	1,377.5492	68,036.9530	33,936.4955	34,100.4575	5,696.1661	0.0013	86.8971	0.1916
San Bernardino	2023	MH	Aggregate	Aggregate	Gasoline	6,909.2790	60,515.3412	60,515.3412	0.0000	691.2043	0.0591	3,574.1207	7.8796
San Bernardino	2023	MH	Aggregate	Aggregate	Diesel	2,637.9341	23,417.8041	23,417.8041	0.0000	263.7934	0.0812	1,900.4723	4.1898
San Bernardino	2023	Motor Coach	Aggregate	Aggregate	Diesel	57.3061	8,164.7647	8,164.7647	0.0000	1,316.8934	0.0142	115.7001	0.2551
San Bernardino	2023	OBUS	Aggregate	Aggregate	Gasoline	666.2915	33,649.4899	33,649.4899	0.0000	13,331.1594	0.0711	2,393.7940	5.2774
San Bernardino	2023	PTO	Aggregate	Aggregate	Diesel	0.0000	46,360.7737	46,360.7737	0.0000	0.0000	0.0229	1,063.7617	2.3452
San Bernardino	2023	PTO	Aggregate	Aggregate	Electricity	0.0000	19.3946	0.0000	19.3946	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Gasoline	388.3618	19,636.7045	19,636.7045	0.0000	1,553.4471	0.0742	1,456.5539	3.2112
San Bernardino	2023	SBUS	Aggregate	Aggregate	Diesel	1,003.0031	22,681.4058	22,681.4058	0.0000	14,523.4846	0.0957	2,169.7276	4.7834
San Bernardino	2023	SBUS	Aggregate	Aggregate	Electricity	0.9643	11.2104	0.0000	11.2104	13.9626	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Natural Gas	385.6169	9,782.7488	9,782.7488	0.0000	5,583.7325	0.0613	599.2059	1.3210
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	24.7339	1,683.9687	1,683.9687	0.0000	568.3860	0.0105	17.6511	0.0389
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0309	1.1528	0.0000	1.1528	0.7096	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	33.1707	2,310.3397	2,310.3397	0.0000	762.2626	0.0069	16.0470	0.0354
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0348	1.3440	0.0000	1.3440	0.7989	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	105.0316	6,033.2257	6,033.2257	0.0000	2,413.6264	0.0086	51.9772	0.1146
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.2448	7.2699	0.0000	7.2699	5.6254	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	181.0770	37,859.3901	37,859.3901	0.0000	4,161.1484	0.0062	235.4596	0.5191
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.2051	21.6818	0.0000	21.6818	4.7143	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0396	7.9699	7.9699	0.0000	0.9098	0.0059	0.0472	0.0001
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	676.8253	23,257.5752	23,257.5752	0.0000	9,658.2968	0.0344	799.0105	1.7615
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.4714	8.5460	0.0000	8.5460	6.7274	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	1.9789	70.3492	70.3492	0.0000	28.2388	0.0067	0.4728	0.0010
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	772.0354	27,153.6790	27,153.6790	0.0000	11,016.9451	0.0127	344.7789	0.7601
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.4724	8.5816	0.0000	8.5816	6.7408	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	1.8023	64.9771	64.9771	0.0000	25.7185	0.0068	0.4408	0.0010
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	3,159.5532	110,002.8613	110,002.8613	0.0000	45,086.8245	0.0164	1,798.9667	3.9660
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	2.4962	45.6024	0.0000	45.6024	35.6215	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	8.4442	297.1274	297.1274	0.0000	120.4986	0.0066	1.9626	0.0043
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	577.7383	31,990.1184	31,990.1184	0.0000	8,244.3260	0.0071	228.1803	0.5031
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.3164	6.8467	0.0000	6.8467	4.5148	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	14.0861	785.3214	785.3214	0.0000	201.0080	0.0065	5.1276	0.0113
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1,452.8715	60,774.5430	60,774.5430	0.0000	16,795.1944	0.0364	2,213.0517	4.8789
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.3409	7.0609	0.0000	7.0609	3.9413	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	3.5221	155.2510	155.2510	0.0000	40.7159	0.0065	1.0051	0.0022
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	3,350.8856	148,926.3514	148,926.3514	0.0000	38,736.2376	0.0093	1,379.7354	3.0418
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	1.9505	40.6445	0.0000	40.6445	22.5477	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	7.5348	334.4288	334.4288	0.0000	87.1027	0.0065	2.1709	0.0048
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2,943.1991	127,856.7100	127,856.7100	0.0000	34,023.3821	0.0211	2,693.5163	5.9382
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	2.5448	53.2457	0.0000	53.2457	29.4176	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	6.4128	279.4676	279.4676	0.0000	74.1325	0.0063	1.7590	0.0039
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	1,656.9050	82,994.5924	82,994.5924	0.0000	19,153.8212	0.0088	729.7238	1.6088
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.9518	29.9881	0.0000	29.9881	11.0026	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	41.7106	2,156.6188	2,156.6188	0.0000	482.1741	0.0067	14.3817	0.0317
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	29.0374	1,519.0124	1,519.0124	0.0000	335.6720	0.0353	53.6318	0.1182
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0085	0.2436	0.0000	0.2436	0.0979	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.0662	3.7575	3.7575	0.0000	0.7654	0.0068	0.0255	0.0001
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	901.0312	56,024.8049	56,024.8049	0.0000	10,415.9212	0.0082	461.1779	1.0167
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.2686	9.7667	0.0000	9.7667	3.1050	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	20.7949	1,321.5593	1,321.5593	0.0000	240.3886	0.0064	8.4724	0.0187
San Bernardino	2023	T6 OOS Class 4	Aggregate	Aggregate	Diesel	14.1731	956.3940	956.3940	0.0000	325.6976	0.0132	12.6103	0.0278
San Bernardino	2023	T6 OOS Class 5	Aggregate	Aggregate	Diesel	18.9274	1,312.0006	1,312.0006	0.0000	434.9506	0.0075	9.8138	0.0216
San Bernardino	2023	T6 OOS Class 6	Aggregate	Aggregate	Diesel	60.1251	3,428.2952	3,428.2952	0.0000	1,381.6753	0.0106	36.3165	0.0801
San Bernardino	2023	T6 OOS Class 7	Aggregate	Aggregate	Diesel	97.5213	24,927.9692	24,927.9692	0.0000	2,241.0405	0.0061	153.0635	0.3374
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Diesel	133.3233	4,456.0018	4,456.0018	0.0000	683.9486	0.0351	156.4818	0.3450
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0140	0.2536	0.0000	0.2536	0.0717	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	6.8433	286.8788	286.8788	0.0000	35.1063	0.0068	1.9460	0.0043
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Diesel	217.6179	8,092.5719	8,092.5719	0.0000	1,116.3797	0.0173	140.2508	0.3092
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0218	0.3952	0.0000	0.3952	0.1118	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	32.6193	1,337.1760	1,337.1760	0.0000	167.3368	0.0063	8.4074	0.0185
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Diesel	184.9335	6,369.3642	6,369.3642	0.0000	948.7087	0.0410	261.0112	0.5754
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.1178	2.1409	0.0000	2.1409	0.6043	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	15.5206	639.6821	639.6821	0.0000	79.6205	0.0067	4.3067	0.0095
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Diesel	396.7144	17,621.6197	17,621.6197	0.0000	2,035.1447	0.0448	790.2884	1.7423
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.2472	7.1022	0.0000	7.1022	1.2681	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	28.5893	1,624.4885	1,624.4885	0.0000	146.6633	0.0071	11.5429	0.0254
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Diesel	198.5746	8,087.6191	8,087.6191	0.0000	2,541.7549	0.0062	50.1354	0.1105
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.9998	40.2149	40.2149	0.0000	12.7969	0.0063	0.2518	0.0006
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Diesel	37.6092	1,521.2773	1,521.2773	0.0000	481.3978	0.0055	8.3465	0.0184
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.3716	14.7189	14.7189	0.0000	4.7565	0.0059	0.0870	0.0002
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Diesel	42.7271	2,112.8786	2,112.8786	0.0000	546.9065	0.0044	9.3844	0.0207
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0696	1.9863	0.0000	1.9863	0.8908	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.4974	22.2159	22.2159	0.0000	6.3672	0.0059	0.1313	0.0003
San Bernardino	2023	T6TS	Aggregate	Aggregate	Gasoline	2,420.6492	143,249.0074	143,249.0074	0.0000	48,432.3497	0.0664	9,504.6265	20.9541
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	6,023.2549	1,254,697.2675	1,254,697.2675	0.0000	138,414.3975	0.0131	16,455.5241	36.2782
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	13.7053	1,462.6099	0.0000	1,462.6099	314.9474	0.0000	0.0000	0.0000
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	8.1579	1,690.4048	1,690.4048	0.0000	187.4695	0.0126	21.3178	0.0470
San Bernardino	2023	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	5,409.0539	1,487,277.3473	1,487,277.3473	0.0000	124,300.0576	0.0123	18,271.5175	40.2818

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Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2023	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	2,261.2643	540,221.5512	540,221.5512	0.0000	51,963.8534	0.0134	7,233.1728	15.9464
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Diesel	2,369.2057	311,937.4902	311,937.4902	0.0000	38,760.2054	0.0113	3,534.0148	7.7912
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.6555	36.0808	0.0000	36.0808	10.7240	0.0000	0.0000	0.0000
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	24.5580	3,199.9017	3,199.9017	0.0000	401.7687	0.0127	40.5065	0.0893
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Diesel	858.9323	34,988.2081	34,988.2081	0.0000	4,406.3228	0.0689	2,411.8025	5.3171
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.4922	14.1368	0.0000	14.1368	2.5251	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	207.7980	10,846.5357	10,846.5357	0.0000	1,066.0036	0.0130	140.4923	0.3097
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	435.0409	30,610.5673	30,610.5673	0.0000	4,098.0856	0.0085	261.1538	0.5757
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.3495	13.2794	0.0000	13.2794	3.2921	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	34.5232	2,513.5771	2,513.5771	0.0000	325.2090	0.0131	32.8278	0.0724
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	821.0765	48,991.2069	48,991.2069	0.0000	7,734.5406	0.0163	796.1966	1.7553
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	46.1125	2,942.1845	2,942.1845	0.0000	434.3798	0.0128	37.6387	0.0830
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	2,389.0869	138,901.8726	138,901.8726	0.0000	22,505.1988	0.0121	1,678.5297	3.7005
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	2.5669	84.3955	0.0000	84.3955	24.1798	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	154.8862	9,522.7145	9,522.7145	0.0000	1,459.0277	0.0130	124.0219	0.2734
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	543.4324	35,276.1098	35,276.1098	0.0000	2,499.7890	0.0035	121.7617	0.2684
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.9331	25.2402	0.0000	25.2402	4.2921	0.0000	0.0000	0.0000
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	1,802.7548	116,639.5274	116,639.5274	0.0000	8,292.6723	0.0593	6,921.6670	15.2597
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	4,976.6800	405,658.6311	405,658.6311	0.0000	72,311.1602	0.0146	5,931.4899	13.0767
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	3.8621	165.0427	0.0000	165.0427	56.1160	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	124.5442	10,352.7543	10,352.7543	0.0000	1,809.6266	0.0127	131.5481	0.2900
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Diesel	138.4752	6,416.1458	6,416.1458	0.0000	1,772.4830	0.0096	61.7786	0.1362
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0431	1.2294	0.0000	1.2294	0.5522	0.0000	0.0000	0.0000
San Bernardino	2023	T7IS	Aggregate	Aggregate	Gasoline	10.8459	421.7604	421.7604	0.0000	217.0056	2.5230	1,064.1022	2.3459
San Bernardino	2023	UBUS	Aggregate	Aggregate	Gasoline	109.6721	10,497.6138	10,497.6138	0.0000	438.6885	0.0121	126.7272	0.2794
San Bernardino	2023	UBUS	Aggregate	Aggregate	Diesel	7.1155	702.2238	702.2238	0.0000	28.4621	0.0516	36.2537	0.0799
San Bernardino	2023	UBUS	Aggregate	Aggregate	Electricity	0.6298	63.8689	0.0000	63.8689	2.5194	0.0000	0.0000	0.0000
San Bernardino	2023	UBUS	Aggregate	Aggregate	Natural Gas	353.3970	47,999.7196	47,999.7196	0.0000	1,413.5878	0.0353	1,694.5889	3.7359
						Total VMT	69,831,034.1699				Total	1,429,964.5917	3,152.5323

Grams/Mile	Pounds/Mile
0.0205	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Diesel	2.2857	27,322.1113	60.2349	0.3674	4,391.3830	9.6813	0.0100	119.3593	0.2631
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Natural Gas	0.1314	253.2706	0.5584	2.3543	4,536.1058	10.0004	0.0000	0.0000	0.0000
San Bernardino	2023	LDA	Aggregate	Aggregate	Gasoline	0.0456	1,507,541.2336	3,323.5595	0.8042	26,596,328.7786	58,634.8681	0.0029	94,498.8793	208.3344
San Bernardino	2023	LDA	Aggregate	Aggregate	Diesel	0.2405	18,609.6319	41.0272	0.3448	26,674.9200	58.8081	0.0023	177.8037	0.3920
San Bernardino	2023	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDA	Aggregate	Aggregate	Plug-in Hybrid	0.0030	2,899.2443	6.3917	0.2231	212,493.6369	468.4683	0.0014	1,294.0261	2.8528
San Bernardino	2023	LDT1	Aggregate	Aggregate	Gasoline	0.2164	541,883.4687	1,194.6486	2.1782	5,453,928.2377	12,023.8536	0.0034	8,609.1618	18.9800
San Bernardino	2023	LDT1	Aggregate	Aggregate	Diesel	1.6749	710.4427	1.5663	1.9750	837.7317	1.8469	0.0040	1.7136	0.0038
San Bernardino	2023	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.0028	7.9285	0.0175	0.2034	584.1704	1.2879	0.0012	3.5443	0.0078
San Bernardino	2023	LDT2	Aggregate	Aggregate	Gasoline	0.0860	1,132,424.2745	2,496.5682	0.9756	12,839,136.2759	28,305.4503	0.0035	46,447.6415	102.3995
San Bernardino	2023	LDT2	Aggregate	Aggregate	Diesel	0.0621	2,457.3657	5.4176	0.1242	4,913.2628	10.8319	0.0030	119.1090	0.2626
San Bernardino	2023	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDT2	Aggregate	Aggregate	Plug-in Hybrid	0.0029	306.5670	0.6759	0.2112	22,551.9800	49.7186	0.0013	136.9777	0.3020
San Bernardino	2023	LHD1	Aggregate	Aggregate	Gasoline	0.2302	257,606.2099	567.9245	1.3721	1,535,629.4550	3,385.4834	0.0064	7,171.5348	15.8105
San Bernardino	2023	LHD1	Aggregate	Aggregate	Diesel	2.2251	1,888,502.2945	4,163.4349	0.4216	357,814.6172	788.8462	0.0047	3,973.0214	8.7590
San Bernardino	2023	LHD2	Aggregate	Aggregate	Gasoline	0.1816	30,491.5483	67.2224	0.8861	148,817.0590	328.0855	0.0071	1,199.5019	2.6444
San Bernardino	2023	LHD2	Aggregate	Aggregate	Diesel	1.6245	594,710.2027	1,311.1116	0.3017	110,431.9310	243.4607	0.0056	2,056.3764	4.5335
San Bernardino	2023	MCY	Aggregate	Aggregate	Gasoline	0.6279	143,809.0746	317.0447	14.5660	3,336,205.8108	7,355.0748	0.0019	432.3860	0.9532
San Bernardino	2023	MDV	Aggregate	Aggregate	Gasoline	0.1456	1,439,804.7845	3,174.2262	1.2794	12,655,982.5948	27,901.6655	0.0043	43,027.6890	94.8598
San Bernardino	2023	MDV	Aggregate	Aggregate	Diesel	0.1727	25,647.8806	56.5439	0.2623	38,960.2934	85.8927	0.0042	616.4836	1.3591
San Bernardino	2023	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	MDV	Aggregate	Aggregate	Plug-in Hybrid	0.0030	203.3848	0.4484	0.2194	14,927.4436	32.9094	0.0013	90.8151	0.2002
San Bernardino	2023	MH	Aggregate	Aggregate	Gasoline	0.4525	27,380.4080	60.3635	1.8348	111,032.5139	244.7848	0.0176	1,063.3325	2.3442
San Bernardino	2023	MH	Aggregate	Aggregate	Diesel	4.4683	104,637.7766	230.6868	0.3535	8,278.6979	18.2514	0.0093	217.7252	0.4800
San Bernardino	2023	Motor Coach	Aggregate	Aggregate	Diesel	1.6610	13,561.9012	29.8989	0.0918	749.1465	1.6516	0.0166	135.6147	0.2990
San Bernardino	2023	OBUS	Aggregate	Aggregate	Gasoline	0.5963	20,066.6200	44.2393	1.8152	61,081.3689	134.6614	0.0167	562.6970	1.2405
San Bernardino	2023	PTO	Aggregate	Aggregate	Diesel	2.9304	135,855.7373	299.5106	0.2547	11,809.1148	26.0346	0.0196	908.7724	2.0035
San Bernardino	2023	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Gasoline	0.5393	10,589.6904	23.3463	1.4896	29,250.3190	64.4859	0.0089	174.6555	0.3850
San Bernardino	2023	SBUS	Aggregate	Aggregate	Diesel	5.2274	118,564.7473	261.3905	0.2451	5,559.3623	12.2563	0.0119	270.2487	0.5958
San Bernardino	2023	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Natural Gas	0.6950	6,799.2235	14.9897	14.2490	139,394.7810	307.3129	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	0.4533	763.3350	1.6829	0.0409	68.8798	0.1519	0.0107	17.9463	0.0396
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	0.4007	925.6444	2.0407	0.0318	73.5772	0.1622	0.0106	24.5922	0.0542
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	0.3866	2,332.3011	5.1418	0.0357	215.1596	0.4743	0.0105	63.2388	0.1394
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	0.4318	16,345.7966	36.0363	0.0317	1,202.0154	2.6500	0.0099	374.7686	0.8262
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.1235	0.9846	0.0022	2.1484	17.1226	0.0377	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	1.1349	26,394.5988	58.1901	0.1227	2,853.5589	6.2910	0.0103	238.7715	0.5264
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.1089	7.6631	0.0169	2.1329	150.0451	0.3308	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	0.5281	14,339.1022	31.6123	0.0582	1,580.9001	3.4853	0.0104	283.5746	0.6252
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.1051	6.8311	0.0151	2.1103	137.1198	0.3023	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	0.6978	76,755.6851	169.2173	0.0693	7,622.4765	16.8047	0.0103	1,131.7489	2.4951
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	0.1160	34.4626	0.0760	2.1748	646.1937	1.4246	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	0.6279	20,087.2787	44.2849	0.0452	1,445.6214	3.1870	0.0102	325.3523	0.7173
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	0.1236	97.0764	0.2140	2.2250	1,747.3067	3.8522	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1.1945	72,594.5678	160.0436	0.1241	7,544.4323	16.6326	0.0104	630.4889	1.3900
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	0.1189	18.4652	0.0407	2.1772	338.0129	0.7452	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	0.5102	75,976.2161	167.4989	0.0462	6,878.2499	15.1639	0.0105	1,557.1066	3.4328
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	0.1179	39.4322	0.0869	2.1708	725.9745	1.6005	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	0.8196	104,790.5415	231.0236	0.0815	10,423.4377	22.9797	0.0104	1,323.5480	2.9179
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	0.1298	36.2820	0.0800	2.2451	627.4291	1.3832	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	0.6594	54,729.3353	120.6575	0.0463	3,845.4134	8.4777	0.0102	846.8035	1.8669
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	0.1102	237.7523	0.5242	2.1270	4,587.1043	10.1128	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	1.1585	1,759.7965	3.8797	0.1178	178.9965	0.3946	0.0103	15.6339	0.0345
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.1003	0.3770	0.0008	2.0612	7.7452	0.0171	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	0.6632	37,155.1858	81.9132	0.0463	2,593.3762	5.7174	0.0098	547.3696	1.2067
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	0.1256	165.9426	0.3658	2.2222	2,936.7705	6.4745	0.0000	0.0000	0.0000
San Bernardino	2023	T6 OOS Class 4	Aggregate	Aggregate	Diesel	0.5185	495.8799	1.0932	0.0480	45.8978	0.1012	0.0106	10.1825	0.0224
San Bernardino	2023	T6 OOS Class 5	Aggregate	Aggregate	Diesel	0.4147	544.0998	1.1995	0.0332	43.5792	0.0961	0.0106	13.9574	0.0308
San Bernardino	2023	T6 OOS Class 6	Aggregate	Aggregate	Diesel	0.4371	1,498.3811	3.3034	0.0409	140.3329	0.3094	0.0105	35.8905	0.0791
San Bernardino	2023	T6 OOS Class 7	Aggregate	Aggregate	Diesel	0.4352	10,849.2840	23.9186	0.0317	789.7251	1.7410	0.0098	245.5359	0.5413
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Diesel	5.2132	23,230.1838	51.2138	0.1167	520.1716	1.1468	0.0103	45.8240	0.1010
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.0766	21.9847	0.0485	1.7614	505.3028	1.1140	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Diesel	2.1477	17,380.1938	38.3168	0.0659	533.2008	1.1755	0.0104	84.0849	0.1854
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	0.1115	149.1481	0.3288	2.0442	2,733.4769	6.0263	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Diesel	4.9023	31,224.4925	68.8382	0.1251	796.5123	1.7560	0.0104	66.0005	0.1455
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	0.0857	54.8319	0.1209	1.8514	1,184.3102	2.6110	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Diesel	5.0113	88,307.0057	194.6836	0.1331	2,345.2870	5.1705	0.0104	183.6460	0.4049
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	0.0595	96.6375	0.2130	1.6432	2,669.4345	5.8851	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Diesel	0.4539	3,671.1889	8.0936	0.0320	259.0745	0.5712	0.0100	80.8802	0.1783
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.1143	4.5969	0.0101	2.1027	84.5614	0.1864	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Diesel	0.4617	702.3345	1.5484	0.0319	48.4858	0.1069	0.0100	15.1421	0.0334
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.1345	1.9802	0.0044	2.2506	33.1256	0.0730	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Diesel	0.3760	794.4557	1.7515	0.0291	61.4548	0.1355	0.0100	21.1492	0.0466
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.1348	2.9940	0.0066	2.2523	50.0364	0.1103	0.0000	0.0000	0.0000
San Bernardino	2023	T6TS	Aggregate	Aggregate	Gasoline	0.5105	73,133.5184	161.2318	1.6890	241,941.4108	533.3895	0.0164	2,343.8681	5.1673
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1.5560	1,952,315.0711	4,304.1180	0.0528	66,308.5030	146.1852	0.0147	18,391.9832	40.5474
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	0.3055	516.3836	1.1384	5.6174	9,495.6031	20.9342	0.0000	0.0000	0.0000
San Bernardino	2023	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1.4547	2,163,473.2562	4,769.6421	0.0442	65,692.0105	144.8261	0.0146	21,745.4222	47.9404

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2023	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1.5844	855,938.9313	1,887.0223	0.0534	28,822.2710	63.5422	0.0146	7,890.9215	17.3965
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Diesel	1.6156	503,972.5021	1,111.0692	0.0757	23,627.7709	52.0903	0.0154	4,811.8982	10.6084
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.3810	1,219.2853	2.6881	7.2438	23,179.5886	51.1022	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Diesel	9.7421	340,858.7620	751.4649	0.2742	9,594.8131	21.1529	0.0158	554.4072	1.2223
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	0.2748	2,980.6952	6.5713	5.1880	56,271.9071	124.0583	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	0.9013	27,588.6186	60.8225	0.0428	1,310.1464	2.8884	0.0155	475.1057	1.0474
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	0.2975	747.8978	1.6488	5.3262	13,387.8770	29.5152	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	1.4984	73,408.5549	161.8382	0.0807	3,954.7903	8.7188	0.0155	757.5414	1.6701
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	0.3682	1,083.2809	2.3882	6.9625	20,484.9920	45.1617	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	1.1517	159,977.1032	352.6891	0.0605	8,410.1946	18.5413	0.0153	2,122.5906	4.6795
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	0.2847	2,710.9917	5.9767	5.4518	51,915.6138	114.4543	0.0000	0.0000	0.0000
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	13.3708	471,671.2666	1,039.8571	0.0113	399.0074	0.8797	0.0347	1,222.6563	2.6955
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	1.4961	174,508.1414	384.7246	10.9238	1,274,149.0269	2,809.0178	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	1.5629	633,990.8169	1,397.7105	0.0662	26,850.5158	59.1953	0.0147	5,967.6682	13.1565
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	0.3035	3,142.1983	6.9274	5.6428	58,418.3900	128.7905	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Diesel	1.0099	6,479.9088	14.2858	0.0557	357.3150	0.7877	0.0153	98.1296	0.2163
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7IS	Aggregate	Aggregate	Gasoline	10.9387	4,613.4974	10.1710	152.9307	64,500.1139	142.1984	0.0235	9.8917	0.0218
San Bernardino	2023	UBUS	Aggregate	Aggregate	Gasoline	0.1523	1,599.0650	3.5253	0.4304	4,517.9675	9.9604	0.0147	154.2365	0.3400
San Bernardino	2023	UBUS	Aggregate	Aggregate	Diesel	0.3059	214.8254	0.4736	0.0534	37.5216	0.0827	0.0103	7.2141	0.0159
San Bernardino	2023	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	UBUS	Aggregate	Aggregate	Natural Gas	0.4800	23,040.3774	50.7953	30.3534	1,456,952.3014	3,212.0300	0.0000	0.0000	0.0000
					Total		16,216,456.2994	35,751.1664	Total	67,314,171.5321	148,402.3453	Total	288,045.8418	635.0324
							Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile
							0.2322	0.0005		0.9640	0.0021		0.0041	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Diesel	0.0743	888.5371	1.9589	0.0711	850.0994	1.8741	1,054.4741
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Natural Gas	0.0007	1.4397	0.0032	0.0007	1.3238	0.0029	864.0077
San Bernardino	2023	LDA	Aggregate	Aggregate	Gasoline	0.0013	43,705.1338	96.3533	0.0012	40,185.6642	88.5942	289.0187
San Bernardino	2023	LDA	Aggregate	Aggregate	Diesel	0.0198	1,528.2908	3.3693	0.0189	1,462.1776	3.2235	242.5421
San Bernardino	2023	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDA	Aggregate	Aggregate	Plug-in Hybrid	0.0007	669.0267	1.4750	0.0006	615.1454	1.3562	137.4369
San Bernardino	2023	LDT1	Aggregate	Aggregate	Gasoline	0.0024	6,055.3318	13.3497	0.0022	5,567.9692	12.2753	347.7934
San Bernardino	2023	LDT1	Aggregate	Aggregate	Diesel	0.2515	106.6969	0.2352	0.2407	102.0812	0.2251	426.3599
San Bernardino	2023	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.0004	1.1970	0.0026	0.0004	1.1006	0.0024	124.8481
San Bernardino	2023	LDT2	Aggregate	Aggregate	Gasoline	0.0014	17,818.5052	39.2831	0.0012	16,383.6115	36.1197	357.0092
San Bernardino	2023	LDT2	Aggregate	Aggregate	Diesel	0.0065	259.0425	0.5711	0.0063	247.8364	0.5464	317.6535
San Bernardino	2023	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDT2	Aggregate	Aggregate	Plug-in Hybrid	0.0005	56.4574	0.1245	0.0005	51.9105	0.1144	129.7452
San Bernardino	2023	LHD1	Aggregate	Aggregate	Gasoline	0.0013	1,438.1270	3.1705	0.0012	1,322.3047	2.9152	648.1821
San Bernardino	2023	LHD1	Aggregate	Aggregate	Diesel	0.0309	26,216.7842	57.7981	0.0296	25,082.6578	55.2978	494.0298
San Bernardino	2023	LHD2	Aggregate	Aggregate	Gasoline	0.0011	177.1793	0.3906	0.0010	162.9099	0.3592	722.4390
San Bernardino	2023	LHD2	Aggregate	Aggregate	Diesel	0.0270	9,899.6820	21.8251	0.0259	9,471.4261	20.8809	592.8221
San Bernardino	2023	MCY	Aggregate	Aggregate	Gasoline	0.0019	424.9740	0.9369	0.0017	398.1000	0.8777	190.9575
San Bernardino	2023	MDV	Aggregate	Aggregate	Gasoline	0.0014	14,263.9884	31.4467	0.0013	13,116.5974	28.9171	439.9953
San Bernardino	2023	MDV	Aggregate	Aggregate	Diesel	0.0096	1,432.9559	3.1591	0.0092	1,370.9669	3.0225	437.9874
San Bernardino	2023	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	MDV	Aggregate	Aggregate	Plug-in Hybrid	0.0007	48.3719	0.1066	0.0007	44.4762	0.0981	135.0181
San Bernardino	2023	MH	Aggregate	Aggregate	Gasoline	0.0013	78.7786	0.1737	0.0012	72.4341	0.1597	1,777.3879
San Bernardino	2023	MH	Aggregate	Aggregate	Diesel	0.1588	3,718.9033	8.1988	0.1519	3,558.0252	7.8441	981.2054
San Bernardino	2023	Motor Coach	Aggregate	Aggregate	Diesel	0.0234	190.8968	0.4209	0.0224	182.6387	0.4026	1,754.0444
San Bernardino	2023	OBUS	Aggregate	Aggregate	Gasoline	0.0009	28.6175	0.0631	0.0008	26.3127	0.0580	1,691.5106
San Bernardino	2023	PTO	Aggregate	Aggregate	Diesel	0.0049	228.3653	0.5035	0.0047	218.4863	0.4817	2,070.0550
San Bernardino	2023	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Gasoline	0.0012	23.9937	0.0529	0.0011	22.0613	0.0486	899.6886
San Bernardino	2023	SBUS	Aggregate	Aggregate	Diesel	0.0316	717.7816	1.5824	0.0303	686.7307	1.5140	1,258.2619
San Bernardino	2023	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Natural Gas	0.0045	43.8548	0.0967	0.0041	40.3229	0.0889	1,670.9777
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	0.0090	15.1523	0.0334	0.0086	14.4968	0.0320	1,125.4299
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	0.0070	16.2303	0.0358	0.0067	15.5282	0.0342	1,124.0842
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	0.0078	47.1487	0.1039	0.0075	45.1090	0.0994	1,106.9079
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	0.0071	267.7902	0.5904	0.0068	256.2057	0.5648	1,045.3627
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0006	0.0045	0.0000	0.0005	0.0042	0.0000	770.1704
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	0.0209	486.0687	1.0716	0.0200	465.0416	1.0252	1,084.1653
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.0008	0.0528	0.0001	0.0007	0.0486	0.0001	814.9921
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	0.0090	245.6477	0.5416	0.0087	235.0211	0.5181	1,102.8490
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.0008	0.0504	0.0001	0.0007	0.0463	0.0001	803.5865
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	0.0111	1,224.2659	2.6990	0.0106	1,171.3047	2.5823	1,086.4845
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	0.0007	0.2097	0.0005	0.0006	0.1928	0.0004	805.5817
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	0.0065	209.3466	0.4615	0.0063	200.2903	0.4416	1,074.0275
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	0.0007	0.5335	0.0012	0.0006	0.4905	0.0011	819.3730
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	0.0229	1,391.7639	3.0683	0.0219	1,331.5568	2.9356	1,095.5526
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	0.0007	0.1045	0.0002	0.0006	0.0961	0.0002	827.4758
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	0.0074	1,096.4206	2.4172	0.0070	1,048.9900	2.3126	1,104.1403
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	0.0007	0.2274	0.0005	0.0006	0.2091	0.0005	810.4729
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	0.0143	1,834.4306	4.0442	0.0137	1,755.0740	3.8693	1,093.1848
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	0.0006	0.1686	0.0004	0.0006	0.1550	0.0003	813.5947
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	0.0076	626.6783	1.3816	0.0072	599.5685	1.3218	1,077.4827
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	0.0008	1.6228	0.0036	0.0007	1.4921	0.0033	821.1327
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	0.0238	36.1327	0.0797	0.0228	34.5696	0.0762	1,086.8865
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.0008	0.0030	0.0000	0.0007	0.0027	0.0000	815.0846
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	0.0072	403.5907	0.8898	0.0069	386.1315	0.8513	1,031.7578
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	0.0007	0.8614	0.0019	0.0006	0.7920	0.0017	814.6674
San Bernardino	2023	T6 OOS Class 4	Aggregate	Aggregate	Diesel	0.0105	10.0656	0.0222	0.0101	9.6302	0.0212	1,124.3375
San Bernardino	2023	T6 OOS Class 5	Aggregate	Aggregate	Diesel	0.0073	9.5467	0.0210	0.0070	9.1337	0.0201	1,123.4353
San Bernardino	2023	T6 OOS Class 6	Aggregate	Aggregate	Diesel	0.0089	30.6509	0.0676	0.0086	29.3250	0.0647	1,105.5515
San Bernardino	2023	T6 OOS Class 7	Aggregate	Aggregate	Diesel	0.0070	175.4293	0.3868	0.0067	167.8403	0.3700	1,040.1729
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Diesel	0.0264	117.5378	0.2591	0.0252	112.4532	0.2479	1,085.9889
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.0009	0.2528	0.0006	0.0008	0.2324	0.0005	771.2198
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Diesel	0.0137	110.4777	0.2436	0.0131	105.6985	0.2330	1,097.2585
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	0.0007	0.9329	0.0021	0.0006	0.8577	0.0019	786.0553
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Diesel	0.0304	193.8704	0.4274	0.0291	185.4836	0.4089	1,094.2796
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	0.0009	0.5481	0.0012	0.0008	0.5040	0.0011	785.2675
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Diesel	0.0347	611.1182	1.3473	0.0332	584.6815	1.2890	1,100.5586
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	0.0010	1.6277	0.0036	0.0009	1.4966	0.0033	781.2098
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Diesel	0.0053	42.8607	0.0945	0.0051	41.0065	0.0904	1,056.0852
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.0007	0.0264	0.0001	0.0006	0.0243	0.0001	792.3720
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Diesel	0.0051	7.7161	0.0170	0.0049	7.3823	0.0163	1,051.1251
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0005	0.0077	0.0000	0.0005	0.0071	0.0000	789.6384
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Diesel	0.0045	9.5312	0.0210	0.0043	9.1189	0.0201	1,057.0553
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0005	0.0116	0.0000	0.0005	0.0107	0.0000	788.1147
San Bernardino	2023	T6TS	Aggregate	Aggregate	Gasoline	0.0010	143.0636	0.3154	0.0009	131.5417	0.2900	1,655.0844
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	0.0348	43,723.7400	96.3943	0.0333	41,832.2704	92.2244	1,547.9861
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	0.0015	2.5858	0.0057	0.0014	2.3775	0.0052	1,133.4011
San Bernardino	2023	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	0.0327	48,602.2517	107.1496	0.0313	46,499.7398	102.5144	1,544.0214

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
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Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2023	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	0.0355	19,169.2956	42.2611	0.0339	18,340.0403	40.4329	1,542.5287
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Diesel	0.0279	8,688.6496	19.1552	0.0266	8,312.7825	18.3265	1,629.0196
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.0014	4.3553	0.0096	0.0013	4.0045	0.0088	1,231.4376
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Diesel	0.0596	2,084.3064	4.5951	0.0570	1,994.1403	4.3963	1,673.3416
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	0.0016	17.7660	0.0392	0.0015	16.3352	0.0360	1,156.2169
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	0.0168	513.6333	1.1324	0.0161	491.4138	1.0834	1,639.0655
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	0.0016	4.1095	0.0091	0.0015	3.7785	0.0083	1,160.2867
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	0.0208	1,019.0343	2.2466	0.0199	974.9513	2.1494	1,632.9229
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	0.0014	4.1796	0.0092	0.0013	3.8430	0.0085	1,226.2630
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	0.0180	2,494.7356	5.5000	0.0172	2,386.8145	5.2620	1,613.7475
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	0.0016	15.4849	0.0341	0.0015	14.2378	0.0314	1,174.4986
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	0.0129	456.3205	1.0060	0.0124	436.5802	0.9625	3,660.1690
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	0.0023	265.6362	0.5856	0.0021	244.2426	0.5385	1,162.6781
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	0.0266	10,790.7607	23.7896	0.0254	10,323.9572	22.7604	1,553.5363
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	0.0015	16.0286	0.0353	0.0014	14.7377	0.0325	1,176.8744
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Diesel	0.0138	88.4702	0.1950	0.0132	84.6430	0.1866	1,615.1146
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7IS	Aggregate	Aggregate	Gasoline	0.0051	2.1386	0.0047	0.0047	1.9663	0.0043	2,372.3833
San Bernardino	2023	UBUS	Aggregate	Aggregate	Gasoline	0.0015	15.7875	0.0348	0.0014	14.5160	0.0320	1,486.1925
San Bernardino	2023	UBUS	Aggregate	Aggregate	Diesel	0.0037	2.5857	0.0057	0.0035	2.4738	0.0055	1,084.1797
San Bernardino	2023	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	UBUS	Aggregate	Aggregate	Natural Gas	0.0013	61.5152	0.1356	0.0012	58.8541	0.1298	1,876.5001
						Total	277,436.0654	611.6418	Total	262,262.9164	578.1908	Total
							Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile	
							0.0040	0.0000		0.0038	0.0000	

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Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Diesel	12,604,733.9113	27,788.6815	0.0057	68.4327	0.1509	0.1661	1,985.8810	4.3781
San Bernardino	2023	All Other Buses	Aggregate	Aggregate	Natural Gas	1,664,746.8831	3,670.1386	0.5013	965.9323	2.1295	0.1761	339.3695	0.7482
San Bernardino	2023	LDA	Aggregate	Aggregate	Gasoline	9,558,841,439.4948	21,073,638.0762	0.0026	86,586.3199	190.8902	0.0050	164,256.5454	362.1237
San Bernardino	2023	LDA	Aggregate	Aggregate	Diesel	18,764,552.9490	41,368.7579	0.0014	108.4695	0.2391	0.0382	2,956.3630	6.5177
San Bernardino	2023	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDA	Aggregate	Aggregate	Plug-in Hybrid	130,894,570.1733	288,573.1305	0.0004	401.1720	0.8844	0.0006	549.2416	1.2109
San Bernardino	2023	LDT1	Aggregate	Aggregate	Gasoline	870,842,209.0484	1,919,878.4341	0.0103	25,782.6987	56.8411	0.0144	36,174.4577	79.7510
San Bernardino	2023	LDT1	Aggregate	Aggregate	Diesel	180,843.8149	398.6924	0.0143	6.0640	0.0134	0.0672	28.4920	0.0628
San Bernardino	2023	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDT1	Aggregate	Aggregate	Plug-in Hybrid	358,517.4494	790.3957	0.0004	1.0849	0.0024	0.0005	1.4779	0.0033
San Bernardino	2023	LDT2	Aggregate	Aggregate	Gasoline	4,698,316,468.3399	10,358,014.7707	0.0035	45,504.1484	100.3195	0.0069	90,991.3367	200.6016
San Bernardino	2023	LDT2	Aggregate	Aggregate	Diesel	12,570,195.7955	27,712.5380	0.0007	26.0923	0.0575	0.0500	1,980.4395	4.3661
San Bernardino	2023	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	LDT2	Aggregate	Aggregate	Plug-in Hybrid	13,855,695.1218	30,546.5789	0.0004	41.9999	0.0926	0.0005	57.2487	0.1262
San Bernardino	2023	LHD1	Aggregate	Aggregate	Gasoline	725,421,980.6595	1,599,281.7089	0.0072	8,002.1669	17.6418	0.0126	14,156.2808	31.2093
San Bernardino	2023	LHD1	Aggregate	Aggregate	Diesel	419,293,756.6714	924,384.5012	0.0056	4,718.0672	10.4016	0.0778	66,059.9021	145.6372
San Bernardino	2023	LHD2	Aggregate	Aggregate	Gasoline	121,333,173.5640	267,493.8592	0.0041	680.5646	1.5004	0.0111	1,864.5045	4.1105
San Bernardino	2023	LHD2	Aggregate	Aggregate	Diesel	217,020,167.7256	478,447.5712	0.0047	1,720.4773	3.7930	0.0934	34,191.6158	75.3796
San Bernardino	2023	MCY	Aggregate	Aggregate	Gasoline	43,737,127.2197	96,423.8601	0.1805	41,334.9715	91.1280	0.0420	9,616.1378	21.2000
San Bernardino	2023	MDV	Aggregate	Aggregate	Gasoline	4,352,378,143.6052	9,595,351.3142	0.0054	53,808.5067	118.6275	0.0102	100,513.9615	221.5954
San Bernardino	2023	MDV	Aggregate	Aggregate	Diesel	65,060,746.4494	143,434.3934	0.0008	117.7743	0.2596	0.0690	10,250.3471	22.5981
San Bernardino	2023	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	MDV	Aggregate	Aggregate	Plug-in Hybrid	9,186,219.6559	20,252.1477	0.0004	27.9649	0.0617	0.0006	38.1133	0.0840
San Bernardino	2023	MH	Aggregate	Aggregate	Gasoline	107,559,232.9413	237,127.5181	0.0135	817.6249	1.8026	0.0270	1,630.9609	3.5957
San Bernardino	2023	MH	Aggregate	Aggregate	Diesel	22,977,675.4340	50,657.1031	0.0038	88.2733	0.1946	0.1546	3,620.1421	7.9810
San Bernardino	2023	Motor Coach	Aggregate	Aggregate	Diesel	14,321,360.0104	31,573.1943	0.0007	5.3740	0.0118	0.2764	2,256.3361	4.9744
San Bernardino	2023	OBUS	Aggregate	Aggregate	Gasoline	56,918,469.8992	125,483.7463	0.0144	484.4199	1.0680	0.0274	921.8520	2.0323
San Bernardino	2023	PTO	Aggregate	Aggregate	Diesel	95,969,351.2092	211,576.2027	0.0011	49.4090	0.1089	0.3261	15,120.0104	33.3339
San Bernardino	2023	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Gasoline	17,666,919.2733	38,948.8899	0.0150	293.8600	0.6479	0.0286	562.1633	1.2394
San Bernardino	2023	SBUS	Aggregate	Aggregate	Diesel	28,539,149.8036	62,918.0553	0.0044	100.7782	0.2222	0.1982	4,496.3547	9.9128
San Bernardino	2023	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	SBUS	Aggregate	Aggregate	Natural Gas	16,346,755.4765	36,038.4269	4.2869	41,937.6236	92.4566	0.3406	3,332.3930	7.3467
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	1,895,188.7013	4,178.1759	0.0005	0.8198	0.0018	0.1773	298.5878	0.6583
San Bernardino	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	2,597,016.3698	5,725.4410	0.0003	0.7453	0.0016	0.1771	409.1610	0.9020
San Bernardino	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	6,678,225.0773	14,722.9661	0.0004	2.4142	0.0053	0.1744	1,052.1571	2.3196
San Bernardino	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	39,576,794.6584	87,251.8968	0.0003	10.9365	0.0241	0.1647	6,235.3401	13.7466
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	6,138.2037	13.5324	0.4143	3.3020	0.0073	0.1570	1.2513	0.0028
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	25,215,056.4110	55,589.6838	0.0016	37.1120	0.0818	0.1708	3,972.6424	8.7582
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	57,334.0033	126.3998	0.4704	33.0921	0.0730	0.1661	11.6879	0.0258
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	29,946,406.8761	66,020.5260	0.0006	16.0141	0.0353	0.1738	4,718.0686	10.4016
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	52,214.7451	115.1138	0.4748	30.8485	0.0680	0.1638	10.6443	0.0235
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	119,516,401.4795	263,488.5624	0.0008	83.5573	0.1842	0.1712	18,829.8577	41.5127
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	239,360.3564	527.6993	0.4623	137.3617	0.3028	0.1642	48.7952	0.1076
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	34,358,268.2982	75,747.0155	0.0003	10.5984	0.0234	0.1692	5,413.1592	11.9340
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	643,471.2027	1,418.6112	0.4570	358.8746	0.7912	0.1670	131.1758	0.2892
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	66,581,706.3406	146,787.5360	0.0017	102.7905	0.2266	0.1726	10,489.9749	23.1264
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	128,466.4169	283.2200	0.4531	70.3488	0.1551	0.1687	26.1887	0.0577
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	164,435,580.9135	362,518.4015	0.0004	64.0851	0.1413	0.1740	25,906.8927	57.1149
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	271,045.5097	597.5531	0.4543	151.9383	0.3350	0.1652	55.2544	0.1218
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	139,771,017.3978	308,142.3468	0.0010	125.1069	0.2758	0.1722	22,020.9807	48.5480
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	227,373.3770	501.2725	0.4405	123.1099	0.2714	0.1659	46.3516	0.1022
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	89,425,234.3879	197,148.8947	0.0004	33.8938	0.0747	0.1698	14,088.9821	31.0609
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	1,770,870.2092	3,904.1005	0.4667	1,006.5560	2.2191	0.1674	361.0035	0.7959
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	1,650,994.0041	3,639.8187	0.0016	2.4911	0.0055	0.1712	260.1148	0.5735
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	3,062.7123	6.7521	0.4747	1.7836	0.0039	0.1662	0.6244	0.0014
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	57,804,028.2660	127,436.0683	0.0004	21.4205	0.0472	0.1626	9,107.0482	20.0776
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	1,076,631.2513	2,373.5656	0.4487	592.9716	1.3073	0.1661	219.4783	0.4839
San Bernardino	2023	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1,075,309.6683	2,370.6520	0.0006	0.5857	0.0013	0.1771	169.4155	0.3735
San Bernardino	2023	T6 OOS Class 5	Aggregate	Aggregate	Diesel	1,473,947.8225	3,249.4987	0.0003	0.4558	0.0010	0.1770	232.2211	0.5120
San Bernardino	2023	T6 OOS Class 6	Aggregate	Aggregate	Diesel	3,790,157.0506	8,355.8660	0.0005	1.6868	0.0037	0.1742	597.1408	1.3165
San Bernardino	2023	T6 OOS Class 7	Aggregate	Aggregate	Diesel	25,929,399.1840	57,164.5400	0.0003	7.1094	0.0157	0.1639	4,085.1874	9.0063
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Diesel	4,839,168.5793	10,668.5405	0.0016	7.2682	0.0160	0.1711	762.4130	1.6808
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	221,246.5905	487.7652	0.4748	136.1963	0.3003	0.1572	45.1026	0.0994
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Diesel	8,879,643.5615	19,576.2631	0.0008	6.5143	0.0144	0.1729	1,398.9915	3.0842
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	1,051,094.2316	2,317.2661	0.4400	588.4239	1.2973	0.1602	214.2724	0.4724
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Diesel	6,969,865.6578	15,365.9235	0.0019	12.1233	0.0267	0.1724	1,098.1052	2.4209
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	502,321.5600	1,107.4295	0.4712	301.4180	0.6645	0.1601	102.4015	0.2258
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Diesel	19,393,624.9527	42,755.6243	0.0021	36.7069	0.0809	0.1734	3,055.4735	6.7362
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	1,269,066.3813	2,797.8125	0.4973	807.8696	1.7810	0.1593	258.7075	0.5704
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Diesel	8,541,214.8765	18,830.1555	0.0003	2.3287	0.0051	0.1664	1,345.6719	2.9667
San Bernardino	2023	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	31,865.1609	70.2507	0.4382	17.6207	0.0388	0.1615	6.4959	0.0143
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Diesel	1,599,052.6778	3,525.3077	0.0003	0.3877	0.0009	0.1656	251.9314	0.5554
San Bernardino	2023	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	11,622.5699	25.6234	0.4138	6.0911	0.0134	0.1610	2.3693	0.0052
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Diesel	2,233,429.5200	4,923.8692	0.0002	0.4359	0.0010	0.1665	351.8777	0.7758
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	17,508.6996	38.6001	0.4135	9.1873	0.0203	0.1607	3.5693	0.0079
San Bernardino	2023	T6TS	Aggregate	Aggregate	Gasoline	237,089,201.3249	522,692.2166	0.0135	1,933.4178	4.2625	0.0250	3,575.4478	7.8825
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1,942,253,918.9259	4,281,936.9270	0.0006	764.3165	1.6850	0.2439	306,002.8959	674.6209
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	1,915,906.6284	4,223.8511	0.8826	1,492.0045	3.2893	0.2311	390.5701	0.8611
San Bernardino	2023	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	2,296,388,107.9585	5,062,669.1713	0.0006	848.6647	1.8710	0.2433	361,796.8816	797.6256

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2023	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	833,307,266.0255	1,837,128.0496	0.0006	335.9621	0.7407	0.2430	131,287.8991	289.4403
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Diesel	508,152,273.1087	1,120,283.9966	0.0005	164.1458	0.3619	0.2567	80,059.5976	176.5012
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	3,940,479.2222	8,687.2696	0.8860	2,834.9970	6.2501	0.2510	803.2925	1.7710
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Diesel	58,547,222.8055	129,074.5318	0.0032	112.0220	0.2470	0.2636	9,224.1388	20.3357
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	12,540,947.4311	27,648.0564	0.9065	9,832.8696	21.6778	0.2357	2,556.5542	5.6362
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	50,172,724.4740	110,611.9234	0.0004	12.1299	0.0267	0.2582	7,904.7332	17.4270
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	2,916,470.1688	6,429.7161	0.9141	2,297.5755	5.0653	0.2365	594.5415	1.3107
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	79,998,863.2827	176,367.3037	0.0008	36.9813	0.0815	0.2573	12,603.8535	27.7867
San Bernardino	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	3,607,892.0479	7,954.0404	0.8953	2,634.2808	5.8076	0.2500	735.4924	1.6215
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	224,152,551.7924	494,171.7864	0.0006	77.9634	0.1719	0.2542	35,315.3258	77.8570
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	11,184,414.8018	24,657.4139	0.9115	8,680.1289	19.1364	0.2394	2,280.0161	5.0266
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	129,116,523.7393	284,653.2091	0.0002	5.6555	0.0125	0.5767	20,342.3609	44.8472
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	135,614,228.6843	298,978.1964	2.3161	270,143.3143	595.5641	0.2370	27,645.8477	60.9487
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	630,205,391.4818	1,389,365.0625	0.0007	275.5023	0.6074	0.2448	99,289.1161	218.8950
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	12,183,891.2351	26,860.8822	0.8893	9,206.8787	20.2977	0.2399	2,483.7659	5.4758
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Diesel	10,362,810.6290	22,846.0867	0.0004	2.8695	0.0063	0.2545	1,632.6650	3.5994
San Bernardino	2023	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	T7IS	Aggregate	Aggregate	Gasoline	1,000,577.3794	2,205.8955	0.3932	165.8502	0.3656	0.2661	112.2502	0.2475
San Bernardino	2023	UBUS	Aggregate	Aggregate	Gasoline	15,601,475.2792	34,395.3653	0.0037	38.9173	0.0858	0.0143	149.7757	0.3302
San Bernardino	2023	UBUS	Aggregate	Aggregate	Diesel	761,336.8501	1,678.4604	0.0024	1.6839	0.0037	0.1708	119.9489	0.2644
San Bernardino	2023	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2023	UBUS	Aggregate	Aggregate	Natural Gas	90,071,480.8272	198,573.6242	2.1333	102,399.3166	225.7518	0.3825	18,361.6606	40.4805
						29,795,467,584.5967	65,687,761.8656	Total	732,942.3012	1,615.8612	Total	1,830,917.3295	4,036.4818
						Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile
						426.6795	0.9407		0.0105	0.0000		0.0262	0.0001

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Diesel	262.6773	12,889.6399	12,889.6399	0.0000	2,337.8278	0.0207	266.4582	0.5874
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Natural Gas	53.4865	2,822.4542	2,822.4542	0.0000	476.0300	0.0086	24.2445	0.0534
San Bernardino	2045	LDA	Aggregate	Aggregate	Gasoline	774,390.6341	32,934,554.3382	32,934,554.3382	0.0000	3,598,342.6773	0.0028	93,337.6511	205.7743
San Bernardino	2045	LDA	Aggregate	Aggregate	Diesel	508.1491	19,638.0578	19,638.0578	0.0000	2,270.5627	0.0042	82.1762	0.1812
San Bernardino	2045	LDA	Aggregate	Aggregate	Electricity	104,834.4155	4,233,380.0363	0.0000	4,233,380.0363	493,445.4329	0.0000	0.0000	0.0000
San Bernardino	2045	LDA	Aggregate	Aggregate	Plug-in Hybrid	36,244.6270	1,549,510.0808	633,257.9240	916,252.1568	149,871.5325	0.0011	1,637.3296	3.6097
San Bernardino	2045	LDT1	Aggregate	Aggregate	Gasoline	55,458.2280	2,066,945.9678	2,066,945.9678	0.0000	249,599.3434	0.0033	6,774.9867	14.9363
San Bernardino	2045	LDT1	Aggregate	Aggregate	Diesel	0.6060	23.9486	23.9486	0.0000	2.8115	0.0109	0.2619	0.0006
San Bernardino	2045	LDT1	Aggregate	Aggregate	Electricity	1,539.7241	62,667.1426	0.0000	62,667.1426	7,268.4205	0.0000	0.0000	0.0000
San Bernardino	2045	LDT1	Aggregate	Aggregate	Plug-in Hybrid	1,182.5651	48,380.4243	19,700.8467	28,679.5776	4,889.9067	0.0011	50.8500	0.1121
San Bernardino	2045	LDT2	Aggregate	Aggregate	Gasoline	440,569.0817	17,337,493.6899	17,337,493.6899	0.0000	2,034,793.2759	0.0040	68,941.5221	151.9900
San Bernardino	2045	LDT2	Aggregate	Aggregate	Diesel	1,657.5949	65,985.8158	65,985.8158	0.0000	7,707.0298	0.0109	716.7782	1.5802
San Bernardino	2045	LDT2	Aggregate	Aggregate	Electricity	17,053.9805	481,276.1224	0.0000	481,276.1224	80,565.6878	0.0000	0.0000	0.0000
San Bernardino	2045	LDT2	Aggregate	Aggregate	Plug-in Hybrid	11,749.4679	472,895.4846	192,922.1169	279,973.3677	48,584.0500	0.0011	498.1563	1.0982
San Bernardino	2045	LHD1	Aggregate	Aggregate	Gasoline	19,241.0950	679,210.2627	679,210.2627	0.0000	286,663.6457	0.0017	1,173.0342	2.5861
San Bernardino	2045	LHD1	Aggregate	Aggregate	Diesel	13,652.6058	463,864.3887	463,864.3887	0.0000	171,732.6066	0.0390	18,090.3641	39.8824
San Bernardino	2045	LHD1	Aggregate	Aggregate	Electricity	20,064.3152	895,702.7977	0.0000	895,702.7977	280,942.0011	0.0000	0.0000	0.0000
San Bernardino	2045	LHD2	Aggregate	Aggregate	Gasoline	2,422.1802	82,071.1195	82,071.1195	0.0000	36,086.8763	0.0015	125.4682	0.2766
San Bernardino	2045	LHD2	Aggregate	Aggregate	Diesel	6,941.0207	222,842.5632	222,842.5632	0.0000	87,309.3086	0.0517	11,525.8699	25.4102
San Bernardino	2045	LHD2	Aggregate	Aggregate	Electricity	5,065.2848	218,685.3838	0.0000	218,685.3838	67,035.8698	0.0000	0.0000	0.0000
San Bernardino	2045	MCY	Aggregate	Aggregate	Gasoline	39,636.9403	220,192.3587	220,192.3587	0.0000	79,273.8806	0.7703	169,614.5752	373.9361
San Bernardino	2045	MDV	Aggregate	Aggregate	Gasoline	267,160.8123	10,377,562.6209	10,377,562.6209	0.0000	1,216,807.0007	0.0047	48,298.8047	106.4806
San Bernardino	2045	MDV	Aggregate	Aggregate	Diesel	2,959.5026	113,487.4911	113,487.4911	0.0000	13,407.5553	0.0044	500.0477	1.1024
San Bernardino	2045	MDV	Aggregate	Aggregate	Electricity	16,050.7183	446,512.8782	0.0000	446,512.8782	75,452.9168	0.0000	0.0000	0.0000
San Bernardino	2045	MDV	Aggregate	Aggregate	Plug-in Hybrid	7,625.7409	306,046.7846	124,977.4691	181,069.3155	31,532.4386	0.0011	323.0718	0.7123
San Bernardino	2045	MH	Aggregate	Aggregate	Gasoline	2,704.7059	28,325.0747	28,325.0747	0.0000	270.5788	0.0082	231.9509	0.5114
San Bernardino	2045	MH	Aggregate	Aggregate	Diesel	1,791.7930	16,325.7857	16,325.7857	0.0000	179.1793	0.0328	536.0939	1.1819
San Bernardino	2045	Motor Coach	Aggregate	Aggregate	Diesel	72.3599	9,189.7999	9,189.7999	0.0000	1,662.8307	0.0095	87.6575	0.1933
San Bernardino	2045	OBUS	Aggregate	Aggregate	Gasoline	303.4868	11,510.9593	11,510.9593	0.0000	6,072.1632	0.0161	185.7861	0.4096
San Bernardino	2045	OBUS	Aggregate	Aggregate	Electricity	174.1943	12,983.5890	0.0000	12,983.5890	3,485.2790	0.0000	0.0000	0.0000
San Bernardino	2045	PTO	Aggregate	Aggregate	Diesel	0.0000	38,133.7614	38,133.7614	0.0000	0.0000	0.0143	546.0502	1.2038
San Bernardino	2045	PTO	Aggregate	Aggregate	Electricity	0.0000	37,285.8762	0.0000	37,285.8762	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Gasoline	264.4049	14,020.5390	14,020.5390	0.0000	1,057.6194	0.0112	156.9334	0.3460
San Bernardino	2045	SBUS	Aggregate	Aggregate	Diesel	586.4956	11,668.3244	11,668.3244	0.0000	8,492.4562	0.0108	125.5418	0.2768
San Bernardino	2045	SBUS	Aggregate	Aggregate	Electricity	627.5904	19,105.0194	0.0000	19,105.0194	7,978.8048	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Natural Gas	388.6320	7,759.0888	7,759.0888	0.0000	5,627.3913	0.0485	376.0330	0.8290
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	16.7691	1,218.7842	1,218.7842	0.0000	385.3548	0.0050	6.0919	0.0134
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	22.2851	1,729.5123	0.0000	1,729.5123	512.1123	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	20.6195	1,674.6814	1,674.6814	0.0000	473.8371	0.0050	8.3855	0.0185
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	27.2987	2,369.8513	0.0000	2,369.8513	627.3235	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	93.4839	4,356.6833	4,356.6833	0.0000	2,148.2607	0.0050	21.7287	0.0479
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	125.1561	6,211.7963	0.0000	6,211.7963	2,876.0874	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	245.0063	50,262.2932	50,262.2932	0.0000	5,630.2453	0.0054	269.9145	0.5951
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	75.1028	16,021.1624	0.0000	16,021.1624	1,725.8627	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0360	7.3904	7.3904	0.0000	0.8282	0.0073	0.0541	0.0001
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	589.3031	19,349.5852	19,349.5852	0.0000	8,409.3553	0.0048	93.7606	0.2067
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	603.2458	21,348.0248	0.0000	21,348.0248	8,608.3183	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	3.9683	131.9884	131.9884	0.0000	56.6278	0.0078	1.0284	0.0023
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	685.9855	22,573.6346	22,573.6346	0.0000	9,789.0129	0.0048	108.5457	0.2393
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	702.3605	24,905.8016	0.0000	24,905.8016	10,022.6850	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	4.7203	157.4671	157.4671	0.0000	67.3580	0.0078	1.2279	0.0027
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	2,772.3126	91,481.3905	91,481.3905	0.0000	39,560.9001	0.0048	441.9438	0.9743
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	2,840.8392	100,950.2564	0.0000	100,950.2564	40,538.7752	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	18.8951	629.5187	629.5187	0.0000	269.6330	0.0078	4.9048	0.0108
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	694.8174	35,064.0198	35,064.0198	0.0000	9,915.0448	0.0060	209.6474	0.4622
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	401.6468	21,514.8023	0.0000	21,514.8023	5,731.5004	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	15.4398	777.2207	777.2207	0.0000	220.3258	0.0074	5.7513	0.0127
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1,262.5757	49,113.7476	49,113.7476	0.0000	14,595.3748	0.0049	239.8334	0.5287
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	1,292.8488	57,205.0058	0.0000	57,205.0058	14,945.3319	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	7.4912	296.6547	296.6547	0.0000	86.5979	0.0077	2.2882	0.0050
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	3,095.5101	120,339.4073	120,339.4073	0.0000	35,784.0966	0.0049	583.7038	1.2868
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	3,161.9077	140,096.1694	0.0000	140,096.1694	36,551.6525	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	19.6521	782.8989	782.8989	0.0000	227.1783	0.0077	6.0415	0.0133
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2,661.3587	103,402.7854	103,402.7854	0.0000	30,765.3060	0.0049	502.5305	1.1079
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	2,718.1258	120,206.7960	0.0000	120,206.7960	31,421.5337	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	16.8619	671.2371	671.2371	0.0000	194.9232	0.0077	5.1786	0.0114
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	2,102.1428	83,569.0859	83,569.0859	0.0000	24,300.7708	0.0060	501.8422	1.1064
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	1,156.7254	63,710.3403	0.0000	63,710.3403	13,371.7457	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	45.7381	1,754.0012	1,754.0012	0.0000	528.7322	0.0074	13.0592	0.0288
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	25.6228	1,199.7655	1,199.7655	0.0000	296.1994	0.0048	5.7402	0.0127
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	26.0146	1,457.3914	0.0000	1,457.3914	300.7286	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.1557	7.5148	7.5148	0.0000	1.7994	0.0077	0.0580	0.0001
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	1,373.0092	79,573.1381	79,573.1381	0.0000	15,871.9864	0.0058	459.8692	1.0138
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	271.9265	19,125.2715	0.0000	19,125.2715	3,143.4707	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	28.7099	1,652.1470	1,652.1470	0.0000	331.8863	0.0074	12.2765	0.0271
San Bernardino	2045	T6 OOS Class 4	Aggregate	Aggregate	Diesel	22.5160	1,673.3115	1,673.3115	0.0000	517.4185	0.0049	8.1781	0.0180
San Bernardino	2045	T6 OOS Class 5	Aggregate	Aggregate	Diesel	27.6872	2,295.4825	2,295.4825	0.0000	636.2519	0.0049	11.2575	0.0248
San Bernardino	2045	T6 OOS Class 6	Aggregate	Aggregate	Diesel	125.4743	5,998.1614	5,998.1614	0.0000	2,883.4005	0.0049	29.1914	0.0644
San Bernardino	2045	T6 OOS Class 7	Aggregate	Aggregate	Diesel	154.9678	43,614.0922	43,614.0922	0.0000	3,561.1601	0.0052	228.8225	0.5045
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Diesel	74.0982	2,523.7104	2,523.7104	0.0000	380.1239	0.0071	17.9214	0.0395
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Electricity	62.1902	2,461.7741	0.0000	2,461.7741	319.0359	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	11.1444	383.5865	383.5865	0.0000	57.1707	0.0073	2.8002	0.0062
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Diesel	144.6018	4,935.1062	4,935.1062	0.0000	741.8070	0.0060	29.5909	0.0652
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Electricity	123.3295	4,876.4205	0.0000	4,876.4205	632.6806	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	25.5142	863.0835	863.0835	0.0000	130.8878	0.0072	6.1913	0.0136
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Diesel	108.8058	3,703.5152	3,703.5152	0.0000	558.1740	0.0059	21.9895	0.0485
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Electricity	91.7088	3,615.5915	0.0000	3,615.5915	470.4659	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	18.1270	617.3255	617.3255	0.0000	92.9914	0.0073	4.5117	0.0099
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Diesel	270.0714	11,186.1995	11,186.1995	0.0000	1,385.4664	0.0053	59.1366	0.1304
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Electricity	180.8569	8,754.4996	0.0000	8,754.4996	927.7961	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	44.6438	1,853.2985	1,853.2985	0.0000	229.0229	0.0074	13.6417	0.0301
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Diesel	95.5351	3,785.6590	3,785.6590	0.0000	1,222.8497	0.0038	14.3261	0.0316
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Electricity	130.9594	5,396.6769	0.0000	5,396.6769	1,676.2803	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.4569	18.1035	18.1035	0.0000	5.8478	0.0075	0.1358	0.0003
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Diesel	18.0666	715.6879	715.6879	0.0000	231.2520	0.0038	2.7089	0.0060
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Electricity	24.7416	1,019.5864	0.0000	1,019.5864	316.6928	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0864	3.4225	3.4225	0.0000	1.1059	0.0075	0.0257	0.0001
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Diesel	20.0781	980.1383	980.1383	0.0000	256.9994	0.0037	3.6734	0.0081
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Electricity	27.5420	1,434.2793	0.0000	1,434.2793	352.5375	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0960	4.6872	4.6872	0.0000	1.2290	0.0075	0.0351	0.0001

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2045	T6TS	Aggregate	Aggregate	Gasoline	1,234.4553	72,220.6574	72,220.6574	0.0000	24,698.9818	0.0079	571.8855	1.2608
San Bernardino	2045	T6TS	Aggregate	Aggregate	Electricity	996.6385	81,479.2925	0.0000	81,479.2925	19,940.7439	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	8,803.6580	1,869,659.1488	1,869,659.1488	0.0000	202,308.0616	0.0110	20,588.4058	45.3897
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	2,474.2823	544,835.8247	0.0000	544,835.8247	56,859.0065	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	10.1642	2,158.1999	2,158.1999	0.0000	233.5729	0.0129	27.7577	0.0612
San Bernardino	2045	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	9,816.8938	2,857,441.4397	2,857,441.4397	0.0000	225,592.2203	0.0107	30,578.9410	67.4150
San Bernardino	2045	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	4,217.2728	1,037,904.2280	1,037,904.2280	0.0000	96,912.9284	0.0110	11,455.3285	25.2547
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Diesel	2,194.4611	411,227.7659	411,227.7659	0.0000	35,901.3830	0.0101	4,148.7048	9.1463
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Electricity	402.1187	74,489.6124	0.0000	74,489.6124	6,578.6617	0.0000	0.0000	0.0000
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	88.0013	16,487.6183	16,487.6183	0.0000	1,439.7017	0.0129	213.0803	0.4698
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Diesel	405.7213	15,684.5993	15,684.5993	0.0000	2,081.3500	0.0191	298.7975	0.6587
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Electricity	430.2307	20,405.9505	0.0000	20,405.9505	2,207.0836	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	384.2223	15,808.8672	15,808.8672	0.0000	1,971.0602	0.0130	205.8198	0.4538
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	228.1385	14,867.4759	14,867.4759	0.0000	2,149.0642	0.0080	118.2939	0.2608
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	292.7254	20,882.0953	0.0000	20,882.0953	2,757.4731	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	16.2440	1,062.5342	1,062.5342	0.0000	153.0188	0.0131	13.9646	0.0308
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	606.8346	29,304.2181	29,304.2181	0.0000	5,716.3818	0.0099	289.9151	0.6392
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	410.1218	26,384.7424	0.0000	26,384.7424	3,863.3471	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	41.2648	2,003.4389	2,003.4389	0.0000	388.7141	0.0131	26.1802	0.0577
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	3,150.5903	135,005.3468	135,005.3468	0.0000	29,678.5602	0.0088	1,194.0542	2.6324
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	2,575.2826	140,512.2875	0.0000	140,512.2875	24,259.1617	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	232.2207	9,806.2309	9,806.2309	0.0000	2,187.5191	0.0131	128.7339	0.2838
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	68.4785	4,443.7745	4,443.7745	0.0000	315.0011	0.0097	43.0839	0.0950
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	1,050.8270	67,871.5615	0.0000	67,871.5615	4,833.8044	0.0000	0.0000	0.0000
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	1,537.8193	99,676.7136	99,676.7136	0.0000	7,073.9687	0.0104	1,037.0066	2.2862
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	9,863.9871	652,707.5983	652,707.5983	0.0000	143,323.7320	0.0101	6,596.1347	14.5420
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	1,805.0956	132,801.5284	0.0000	132,801.5284	26,228.0385	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	213.9805	14,072.5881	14,072.5881	0.0000	3,109.1372	0.0129	181.7504	0.4007
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Diesel	101.0707	4,135.9151	4,135.9151	0.0000	1,293.7047	0.0085	35.3052	0.0778
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Electricity	65.4458	3,128.3414	0.0000	3,128.3414	837.7067	0.0000	0.0000	0.0000
San Bernardino	2045	T7IS	Aggregate	Aggregate	Gasoline	1.7007	247.5628	247.5628	0.0000	34.0278	0.2995	74.1449	0.1635
San Bernardino	2045	T7IS	Aggregate	Aggregate	Electricity	1.3235	261.1033	0.0000	261.1033	26.4803	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Gasoline	76.1001	7,413.6812	7,413.6812	0.0000	304.4004	0.0012	9.1790	0.0202
San Bernardino	2045	UBUS	Aggregate	Aggregate	Electricity	522.0418	72,172.2555	0.0000	72,172.2555	2,088.1672	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Natural Gas	90.4860	7,094.6022	7,094.6022	0.0000	361.9441	0.0457	323.8874	0.7140
					Total VMT		83,366,221.0928				Total	506,347.5961	1,116.3054

Grams/Mile	Pounds/Mile
0.0061	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Diesel	0.8230	10,608.5240	23.3878	0.0920	1,185.5493	2.6137	0.0091	116.7835	0.2575
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Natural Gas	0.0715	201.8826	0.4451	2.2797	6,434.3048	14.1852	0.0000	0.0000	0.0000
San Bernardino	2045	LDA	Aggregate	Aggregate	Gasoline	0.0193	635,208.1026	1,400.3942	0.4849	15,970,565.9296	35,209.0709	0.0023	74,170.4334	163.5178
San Bernardino	2045	LDA	Aggregate	Aggregate	Diesel	0.0183	359.0785	0.7916	0.1225	2,405.8727	5.3040	0.0018	34.4132	0.0759
San Bernardino	2045	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDA	Aggregate	Aggregate	Plug-in Hybrid	0.0025	3,816.5096	8.4140	0.1802	279,276.5698	615.6994	0.0011	1,699.6282	3.7470
San Bernardino	2045	LDT1	Aggregate	Aggregate	Gasoline	0.0220	45,398.8426	100.0873	0.5279	1,091,178.0331	2,405.6358	0.0026	5,402.5580	11.9106
San Bernardino	2045	LDT1	Aggregate	Aggregate	Diesel	0.0271	0.6487	0.0014	0.1162	2.7825	0.0061	0.0032	0.0777	0.0002
San Bernardino	2045	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.0025	118.6644	0.2616	0.1794	8,678.9602	19.1338	0.0011	52.8330	0.1165
San Bernardino	2045	LDT2	Aggregate	Aggregate	Gasoline	0.0227	393,381.7753	867.2584	0.5716	9,910,883.6862	21,849.7584	0.0027	46,758.2484	103.0843
San Bernardino	2045	LDT2	Aggregate	Aggregate	Diesel	0.0263	1,732.3427	3.8192	0.1141	7,530.2753	16.6014	0.0024	158.4544	0.3493
San Bernardino	2045	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDT2	Aggregate	Aggregate	Plug-in Hybrid	0.0025	1,162.1891	2.5622	0.1798	85,007.2167	187.4088	0.0011	517.4632	1.1408
San Bernardino	2045	LHD1	Aggregate	Aggregate	Gasoline	0.0222	15,087.5742	33.2624	0.6293	427,419.4788	942.2987	0.0049	3,296.1109	7.2667
San Bernardino	2045	LHD1	Aggregate	Aggregate	Diesel	0.2616	121,360.1597	267.5534	0.0821	38,094.3669	83.9837	0.0044	2,032.5661	4.4810
San Bernardino	2045	LHD1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LHD2	Aggregate	Aggregate	Gasoline	0.0268	2,199.6427	4.8494	0.6413	52,629.1106	116.0273	0.0055	448.0589	0.9878
San Bernardino	2045	LHD2	Aggregate	Aggregate	Diesel	0.4264	95,020.7191	209.4848	0.1173	26,141.5356	57.6322	0.0051	1,142.8189	2.5195
San Bernardino	2045	LHD2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	MCY	Aggregate	Aggregate	Gasoline	0.4623	101,796.9196	224.4238	9.4207	2,074,356.6515	4,573.1736	0.0018	399.9573	0.8818
San Bernardino	2045	MDV	Aggregate	Aggregate	Gasoline	0.0273	283,323.1701	624.6207	0.6091	6,320,594.9741	13,934.5267	0.0033	34,016.2552	74.9930
San Bernardino	2045	MDV	Aggregate	Aggregate	Diesel	0.0182	2,070.8130	4.5654	0.1314	14,911.7651	32.8748	0.0032	359.3563	0.7922
San Bernardino	2045	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	MDV	Aggregate	Aggregate	Plug-in Hybrid	0.0025	753.1613	1.6604	0.1800	55,099.1717	121.4729	0.0011	335.3790	0.7394
San Bernardino	2045	MH	Aggregate	Aggregate	Gasoline	0.1804	5,109.8374	11.2653	0.1368	3,873.7651	8.5402	0.0175	496.0394	1.0936
San Bernardino	2045	MH	Aggregate	Aggregate	Diesel	1.8907	30,866.6170	68.0492	0.1192	1,946.6567	4.2916	0.0094	153.1458	0.3376
San Bernardino	2045	Motor Coach	Aggregate	Aggregate	Diesel	0.9327	8,571.2936	18.8965	0.0543	498.7705	1.0996	0.0143	130.9599	0.2887
San Bernardino	2045	OBUS	Aggregate	Aggregate	Gasoline	0.2334	2,686.8379	5.9235	0.3487	4,013.9534	8.8493	0.0144	165.5833	0.3650
San Bernardino	2045	OBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	PTO	Aggregate	Aggregate	Diesel	2.4733	94,315.0973	207.9292	0.1773	6,761.4710	14.9065	0.0165	628.2234	1.3850
San Bernardino	2045	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Gasoline	0.1456	2,041.5784	4.5009	0.2095	2,937.3399	6.4757	0.0081	113.1675	0.2495
San Bernardino	2045	SBUS	Aggregate	Aggregate	Diesel	0.4883	5,697.8549	12.5616	0.0704	821.1571	1.8103	0.0109	127.4363	0.2809
San Bernardino	2045	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Natural Gas	0.3125	2,425.0040	5.3462	9.8845	76,694.4167	169.0822	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	0.1646	200.6356	0.4423	0.0263	32.0962	0.0708	0.0095	11.5478	0.0255
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	0.1657	277.5068	0.6118	0.0264	44.1633	0.0974	0.0095	15.8729	0.0350
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	0.1656	721.6447	1.5910	0.0263	114.5253	0.2525	0.0095	41.2409	0.0909
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	0.1807	9,084.7233	20.0284	0.0283	1,422.5453	3.1362	0.0084	420.3816	0.9268
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0444	0.3278	0.0007	1.5091	11.1531	0.0246	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	0.2026	3,920.1750	8.6425	0.0330	638.7414	1.4082	0.0093	180.8236	0.3986
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.0467	6.1613	0.0136	1.7704	233.6739	0.5152	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	0.1987	4,484.3558	9.8863	0.0331	746.9302	1.6467	0.0094	211.1585	0.4655
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.0463	7.2899	0.0161	1.7681	278.4246	0.6138	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	0.2038	18,642.5306	41.0997	0.0331	3,027.5442	6.6746	0.0093	854.8391	1.8846
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	0.0467	29.3861	0.0648	1.7704	1,114.5068	2.4571	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	0.3424	12,005.6112	26.4678	0.0402	1,409.0057	3.1063	0.0095	333.4154	0.7351
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	0.0721	56.0535	0.1236	1.9222	1,493.9871	3.2937	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	0.1941	9,531.8906	21.0142	0.0318	1,562.0696	3.4438	0.0093	458.8650	1.0116
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	0.0461	13.6687	0.0301	1.7258	511.9533	1.1287	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	0.1931	23,232.1008	51.2180	0.0321	3,865.5239	8.5220	0.0093	1,123.3023	2.4765
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	0.0459	35.9075	0.0792	1.7244	1,350.0651	2.9764	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	0.1967	20,335.7337	44.8326	0.0322	3,326.2697	7.3332	0.0093	964.6124	2.1266
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	0.0460	30.8572	0.0680	1.7251	1,157.9515	2.5528	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	0.3109	25,977.5329	57.2707	0.0377	3,154.1251	6.9537	0.0094	784.6983	1.7300
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	0.0633	111.1119	0.2450	1.8343	3,217.3325	7.0930	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	0.1951	234.1166	0.5161	0.0315	37.7508	0.0832	0.0093	11.1905	0.0247
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.0457	0.3436	0.0008	1.7235	12.9519	0.0286	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	0.2971	23,642.1955	52.1221	0.0371	2,949.6650	6.5029	0.0085	678.4411	1.4957
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	0.0641	105.8395	0.2333	1.8384	3,037.3823	6.6963	0.0000	0.0000	0.0000
San Bernardino	2045	T6 OOS Class 4	Aggregate	Aggregate	Diesel	0.2062	344.9829	0.7606	0.0258	43.1417	0.0951	0.0089	14.8707	0.0328
San Bernardino	2045	T6 OOS Class 5	Aggregate	Aggregate	Diesel	0.2080	477.5480	1.0528	0.0258	59.3281	0.1308	0.0089	20.4128	0.0450
San Bernardino	2045	T6 OOS Class 6	Aggregate	Aggregate	Diesel	0.2041	1,224.4725	2.6995	0.0257	154.1429	0.3398	0.0089	53.2147	0.1173
San Bernardino	2045	T6 OOS Class 7	Aggregate	Aggregate	Diesel	0.2158	9,412.2272	20.7504	0.0277	1,208.4558	2.6642	0.0080	348.7239	0.7688
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Diesel	0.4686	1,182.5915	2.6072	0.0356	89.8121	0.1980	0.0095	24.0292	0.0530
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.0465	17.8299	0.0393	1.5293	586.6039	1.2932	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Diesel	0.3431	1,693.0728	3.7326	0.0322	159.0919	0.3507	0.0096	47.2045	0.1041
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	0.0576	49.7226	0.1096	1.6345	1,410.7360	3.1101	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Diesel	0.3187	1,180.2661	2.6020	0.0319	118.0048	0.2602	0.0095	35.2680	0.0778
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	0.0492	30.3495	0.0669	1.5720	970.4062	2.1394	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Diesel	0.2786	3,116.2971	6.8703	0.0299	334.8086	0.7381	0.0094	105.1631	0.2318
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	0.0455	84.3538	0.1860	1.5441	2,861.7696	6.3091	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Diesel	0.1295	490.1392	1.0806	0.0237	89.7653	0.1979	0.0093	35.1848	0.0776
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.0440	0.7969	0.0018	1.5924	28.8285	0.0636	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Diesel	0.1266	90.6213	0.1998	0.0237	16.9733	0.0374	0.0093	6.6521	0.0147
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0440	0.1507	0.0003	1.5924	5.4501	0.0120	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Diesel	0.1234	120.9161	0.2666	0.0235	23.0173	0.0507	0.0093	9.1158	0.0201
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0440	0.2063	0.0005	1.5924	7.4640	0.0165	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2045	T6TS	Aggregate	Aggregate	Gasoline	0.0659	4,757.2288	10.4879	0.1561	11,273.1661	24.8531	0.0139	1,005.0767	2.2158
San Bernardino	2045	T6TS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1.1157	2,086,006.0235	4,598.8561	0.0300	56,066.9319	123.6064	0.0120	22,483.4927	49.5676
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	0.1507	325.2842	0.7171	2.7690	5,976.1181	13.1751	0.0000	0.0000	0.0000
San Bernardino	2045	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1.2346	3,527,873.0990	7,777.6288	0.0292	83,358.1169	183.7732	0.0115	32,879.7076	72.4873
San Bernardino	2045	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1.2696	1,317,727.3509	2,905.0915	0.0301	31,202.0673	68.7888	0.0115	11,936.8108	26.3162
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Diesel	1.1283	464,002.3568	1,022.9501	0.0356	14,636.1186	32.2671	0.0129	5,318.4293	11.7251
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.1526	2,515.6616	5.5461	2.8551	47,074.5363	103.7816	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Diesel	2.0983	32,910.4571	72.5551	0.0683	1,071.7461	2.3628	0.0144	225.3558	0.4968
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	0.1707	2,698.4070	5.9490	3.2701	51,696.7079	113.9717	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	0.6830	10,155.1050	22.3882	0.0284	422.8974	0.9323	0.0135	200.5239	0.4421
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	0.1525	162.0219	0.3572	3.0040	3,191.8793	7.0369	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	0.9597	28,122.4250	61.9993	0.0387	1,133.1304	2.4981	0.0139	406.4356	0.8960
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	0.1780	356.6949	0.7864	3.4626	6,937.1951	15.2939	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	0.8459	114,202.3230	251.7730	0.0333	4,491.8132	9.9028	0.0137	1,850.4448	4.0795
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	0.1614	1,583.1639	3.4903	3.1725	31,110.4556	68.5868	0.0000	0.0000	0.0000
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	7.7742	34,546.6850	76.1624	0.0134	59.4140	0.1310	0.0323	143.5309	0.3164
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	0.3035	30,252.3771	66.6951	6.0855	606,582.8290	1,337.2862	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	1.0912	712,221.4898	1,570.1796	0.0318	20,770.7588	45.7917	0.0121	7,880.7009	17.3740
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	0.1558	2,192.4638	4.8336	2.9055	40,887.3063	90.1411	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Diesel	0.7442	3,078.0596	6.7860	0.0345	142.8764	0.3150	0.0140	57.9735	0.1278
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7IS	Aggregate	Aggregate	Gasoline	2.0374	504.3838	1.1120	24.2252	5,997.2647	13.2217	0.0162	4.0042	0.0088
San Bernardino	2045	T7IS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Gasoline	0.0189	140.1907	0.3091	0.5469	4,054.2639	8.9381	0.0053	39.5937	0.0873
San Bernardino	2045	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Natural Gas	0.1311	929.7905	2.0498	0.0697	494.3828	1.0899	0.0000	0.0000	0.0000
					Total		10,414,782.1274	22,960.6643	Total	37,541,493.8791	82,764.8267	Total	263,978.2606	581.9724
							Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile
							0.1249	0.0003		0.4503	0.0010		0.0032	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Diesel	0.0127	163.2683	0.3599	0.0121	156.2054	0.3444	956.7933
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Natural Gas	0.0012	3.4190	0.0075	0.0011	3.1436	0.0069	770.2509
San Bernardino	2045	LDA	Aggregate	Aggregate	Gasoline	0.0005	16,239.5615	35.8021	0.0005	14,931.6774	32.9187	227.8020
San Bernardino	2045	LDA	Aggregate	Aggregate	Diesel	0.0012	23.7351	0.0523	0.0012	22.7083	0.0501	184.9372
San Bernardino	2045	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDA	Aggregate	Aggregate	Plug-in Hybrid	0.0002	313.1686	0.6904	0.0002	287.9469	0.6348	110.9528
San Bernardino	2045	LDT1	Aggregate	Aggregate	Gasoline	0.0006	1,142.1646	2.5180	0.0005	1,050.1782	2.3152	264.3924
San Bernardino	2045	LDT1	Aggregate	Aggregate	Diesel	0.0040	0.0963	0.0002	0.0038	0.0921	0.0002	342.2165
San Bernardino	2045	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.0002	9.3874	0.0207	0.0002	8.6314	0.0190	110.4623
San Bernardino	2045	LDT2	Aggregate	Aggregate	Gasoline	0.0005	8,814.9697	19.4337	0.0005	8,105.0393	17.8686	272.8039
San Bernardino	2045	LDT2	Aggregate	Aggregate	Diesel	0.0040	261.1181	0.5757	0.0038	249.8223	0.5508	253.4260
San Bernardino	2045	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDT2	Aggregate	Aggregate	Plug-in Hybrid	0.0002	93.5118	0.2062	0.0002	85.9806	0.1896	110.6861
San Bernardino	2045	LHD1	Aggregate	Aggregate	Gasoline	0.0011	777.6972	1.7145	0.0011	715.0638	1.5764	490.8810
San Bernardino	2045	LHD1	Aggregate	Aggregate	Diesel	0.0119	5,522.9492	12.1760	0.0114	5,284.0288	11.6493	462.4355
San Bernardino	2045	LHD1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LHD2	Aggregate	Aggregate	Gasoline	0.0011	92.7691	0.2045	0.0010	85.2977	0.1880	552.2343
San Bernardino	2045	LHD2	Aggregate	Aggregate	Diesel	0.0157	3,503.9258	7.7248	0.0150	3,352.3475	7.3907	541.2237
San Bernardino	2045	LHD2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	MCY	Aggregate	Aggregate	Gasoline	0.0021	460.4949	1.0152	0.0019	429.3437	0.9465	183.7342
San Bernardino	2045	MDV	Aggregate	Aggregate	Gasoline	0.0005	5,483.0606	12.0881	0.0005	5,041.4719	11.1145	331.5658
San Bernardino	2045	MDV	Aggregate	Aggregate	Diesel	0.0012	140.0935	0.3089	0.0012	134.0331	0.2955	334.1756
San Bernardino	2045	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	MDV	Aggregate	Aggregate	Plug-in Hybrid	0.0002	61.7904	0.1362	0.0002	56.8140	0.1253	110.8477
San Bernardino	2045	MH	Aggregate	Aggregate	Gasoline	0.0010	29.1879	0.0643	0.0009	26.8372	0.0592	1,771.4290
San Bernardino	2045	MH	Aggregate	Aggregate	Diesel	0.0382	622.8898	1.3732	0.0365	595.9438	1.3138	989.9849
San Bernardino	2045	Motor Coach	Aggregate	Aggregate	Diesel	0.0169	155.2283	0.3422	0.0162	148.5132	0.3274	1,504.9073
San Bernardino	2045	OBUS	Aggregate	Aggregate	Gasoline	0.0010	11.6166	0.0256	0.0009	10.6810	0.0235	1,455.0693
San Bernardino	2045	OBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	PTO	Aggregate	Aggregate	Diesel	0.0039	150.3919	0.3316	0.0038	143.8860	0.3172	1,739.7303
San Bernardino	2045	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Gasoline	0.0016	22.8442	0.0504	0.0015	21.0044	0.0463	816.4614
San Bernardino	2045	SBUS	Aggregate	Aggregate	Diesel	0.0037	43.0368	0.0949	0.0035	41.1750	0.0908	1,153.3530
San Bernardino	2045	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Natural Gas	0.0045	34.7830	0.0767	0.0041	31.9817	0.0705	1,490.3974
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	0.0052	6.3223	0.0139	0.0050	6.0488	0.0133	1,000.5774
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	0.0052	8.7028	0.0192	0.0050	8.3263	0.0184	1,000.9220
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	0.0052	22.6935	0.0500	0.0050	21.7118	0.0479	999.6548
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	0.0055	277.1470	0.6110	0.0053	265.1577	0.5846	883.2402
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0011	0.0081	0.0000	0.0010	0.0074	0.0000	723.9379
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	0.0041	80.1872	0.1768	0.0040	76.7183	0.1691	986.8720
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.0012	0.1537	0.0003	0.0011	0.1413	0.0003	771.8419
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	0.0041	91.7096	0.2022	0.0039	87.7423	0.1934	987.8351
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.0012	0.1837	0.0004	0.0011	0.1689	0.0004	770.9617
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	0.0041	377.0152	0.8312	0.0039	360.7057	0.7952	986.7998
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	0.0012	0.7329	0.0016	0.0011	0.6739	0.0015	770.9582
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	0.0052	181.3015	0.3997	0.0049	173.4585	0.3824	1,004.1566
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	0.0010	0.7849	0.0017	0.0009	0.7217	0.0016	788.5235
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	0.0044	213.9214	0.4716	0.0042	204.6672	0.4512	986.6413
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	0.0012	0.3417	0.0008	0.0011	0.3142	0.0007	767.3888
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	0.0042	510.1103	1.1246	0.0041	488.0431	1.0760	985.7488
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	0.0012	0.9030	0.0020	0.0011	0.8302	0.0018	766.4344
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	0.0043	441.3688	0.9731	0.0041	422.2753	0.9310	985.1402
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	0.0012	0.7737	0.0017	0.0011	0.7114	0.0016	766.3268
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	0.0052	435.4619	0.9600	0.0050	416.6240	0.9185	991.5954
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	0.0010	1.8374	0.0041	0.0010	1.6894	0.0037	781.3797
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	0.0043	5.1362	0.0113	0.0041	4.9140	0.0108	984.9900
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.0012	0.0087	0.0000	0.0011	0.0080	0.0000	766.7826
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	0.0050	399.8522	0.8815	0.0048	382.5548	0.8434	900.3744
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	0.0010	1.7208	0.0038	0.0010	1.5822	0.0035	761.7463
San Bernardino	2045	T6 OOS Class 4	Aggregate	Aggregate	Diesel	0.0053	8.9449	0.0197	0.0051	8.5579	0.0189	938.4924
San Bernardino	2045	T6 OOS Class 5	Aggregate	Aggregate	Diesel	0.0054	12.3072	0.0271	0.0051	11.7748	0.0260	939.0870
San Bernardino	2045	T6 OOS Class 6	Aggregate	Aggregate	Diesel	0.0053	31.9490	0.0704	0.0051	30.5669	0.0674	936.8945
San Bernardino	2045	T6 OOS Class 7	Aggregate	Aggregate	Diesel	0.0056	246.0032	0.5423	0.0054	235.3612	0.5189	844.3691
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Diesel	0.0062	15.6058	0.0344	0.0059	14.9307	0.0329	1,005.4888
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.0011	0.4142	0.0009	0.0010	0.3808	0.0008	747.5418
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Diesel	0.0054	26.5249	0.0585	0.0051	25.3774	0.0559	1,010.1010
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	0.0010	0.8842	0.0019	0.0009	0.8130	0.0018	755.4014
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Diesel	0.0052	19.3066	0.0426	0.0050	18.4714	0.0407	1,005.6447
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	0.0011	0.6634	0.0015	0.0010	0.6099	0.0013	752.7951
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Diesel	0.0049	54.5915	0.1204	0.0047	52.2299	0.1151	992.7921
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	0.0011	2.0287	0.0045	0.0010	1.8653	0.0041	751.9901
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Diesel	0.0038	14.2982	0.0315	0.0036	13.6797	0.0302	981.5003
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.0011	0.0204	0.0000	0.0010	0.0187	0.0000	752.5603
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Diesel	0.0037	2.6830	0.0059	0.0036	2.5669	0.0057	981.5478
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0011	0.0038	0.0000	0.0010	0.0035	0.0000	752.5719
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Diesel	0.0037	3.6542	0.0081	0.0036	3.4961	0.0077	982.1692
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0011	0.0053	0.0000	0.0010	0.0048	0.0000	752.5747

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Region Type: County
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Calendar Year: 2045
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Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2045	T6TS	Aggregate	Aggregate	Gasoline	0.0011	75.9244	0.1674	0.0010	69.8097	0.1539	1,407.7202
San Bernardino	2045	T6TS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	0.0306	57,268.9785	126.2565	0.0293	54,791.5478	120.7947	1,269.9271
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	0.0019	4.0328	0.0089	0.0017	3.7080	0.0082	1,008.4983
San Bernardino	2045	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	0.0302	86,354.4643	190.3790	0.0289	82,618.8084	182.1433	1,215.1449
San Bernardino	2045	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	0.0320	33,196.9602	73.1868	0.0306	31,760.8744	70.0207	1,214.5306
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Diesel	0.0258	10,597.5561	23.3636	0.0247	10,139.1105	22.3529	1,365.7726
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.0019	30.8681	0.0681	0.0017	28.3820	0.0626	1,014.3367
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Diesel	0.0213	333.8362	0.7360	0.0204	319.3946	0.7041	1,517.3044
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	0.0019	29.3045	0.0646	0.0017	26.9444	0.0594	1,062.9484
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	0.0153	227.1284	0.5007	0.0146	217.3029	0.4791	1,424.3159
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	0.0019	2.0256	0.0045	0.0018	1.8625	0.0041	1,049.0944
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	0.0198	579.3879	1.2773	0.0189	554.3238	1.2221	1,464.6675
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	0.0018	3.6937	0.0081	0.0017	3.3962	0.0075	1,072.2336
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	0.0182	2,450.5422	5.4025	0.0174	2,344.5328	5.1688	1,447.4468
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	0.0019	18.4989	0.0408	0.0017	17.0091	0.0375	1,059.2746
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	0.0226	100.4461	0.2214	0.0216	96.1008	0.2119	3,410.9136
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	0.0009	87.2884	0.1924	0.0008	80.2585	0.1769	934.2440
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	0.0255	16,660.0143	36.7290	0.0244	15,939.3094	35.1402	1,275.0394
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	0.0019	26.2779	0.0579	0.0017	24.1615	0.0533	1,019.5211
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Diesel	0.0149	61.6251	0.1359	0.0143	58.9593	0.1300	1,480.2515
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7IS	Aggregate	Aggregate	Gasoline	0.0010	0.2577	0.0006	0.0010	0.2369	0.0005	1,636.0763
San Bernardino	2045	T7IS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Gasoline	0.0011	8.2501	0.0182	0.0010	7.5856	0.0167	540.2200
San Bernardino	2045	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Natural Gas	0.0098	69.3732	0.1529	0.0094	66.3721	0.1463	551.4261
					Total		255,862.1603	564.0795	Total	243,536.3453	536.9057	Total
						Grams/Mile	Pounds/Mile			Grams/Mile	Pounds/Mile	
						0.0031	0.0000			0.0029	0.0000	

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Diesel	12,332,721.2134	27,188.9962	0.0010	12.3763	0.0273	0.1507	1,943.0252	4.2836
San Bernardino	2045	All Other Buses	Aggregate	Aggregate	Natural Gas	2,173,997.8520	4,792.8448	0.6012	1,696.8389	3.7409	0.1570	443.1837	0.9771
San Bernardino	2045	LDA	Aggregate	Aggregate	Gasoline	7,502,558,946.1073	16,540,311.1743	0.0010	32,583.8789	71.8352	0.0032	105,483.0660	232.5504
San Bernardino	2045	LDA	Aggregate	Aggregate	Diesel	3,631,806.8451	8,006.7635	0.0002	3.8169	0.0084	0.0291	572.1926	1.2615
San Bernardino	2045	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDA	Aggregate	Aggregate	Plug-in Hybrid	171,922,421.6029	379,024.0599	0.0003	506.6914	1.1171	0.0004	663.3531	1.4624
San Bernardino	2045	LDT1	Aggregate	Aggregate	Gasoline	546,484,738.2157	1,204,792.6164	0.0011	2,272.6477	5.0103	0.0034	7,016.8369	15.4695
San Bernardino	2045	LDT1	Aggregate	Aggregate	Diesel	8,195.6055	18.0682	0.0005	0.0122	0.0000	0.0539	1.2912	0.0028
San Bernardino	2045	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDT1	Aggregate	Aggregate	Plug-in Hybrid	5,344,214.9985	11,781.9773	0.0003	15.6182	0.0344	0.0004	20.3274	0.0448
San Bernardino	2045	LDT2	Aggregate	Aggregate	Gasoline	4,729,735,269.1254	10,427,281.3697	0.0013	22,840.1903	50.3540	0.0034	59,649.6876	131.5051
San Bernardino	2045	LDT2	Aggregate	Aggregate	Diesel	16,722,520.9931	36,866.8481	0.0005	33.2930	0.0734	0.0399	2,634.6400	5.8084
San Bernardino	2045	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LDT2	Aggregate	Aggregate	Plug-in Hybrid	52,342,935.7929	115,396.4203	0.0003	152.7379	0.3367	0.0004	198.3937	0.4374
San Bernardino	2045	LHD1	Aggregate	Aggregate	Gasoline	333,411,380.7303	735,046.2723	0.0005	350.2352	0.7721	0.0020	1,370.5912	3.0216
San Bernardino	2045	LHD1	Aggregate	Aggregate	Diesel	214,507,348.5228	472,907.7531	0.0018	840.2628	1.8525	0.0729	33,795.7201	74.5068
San Bernardino	2045	LHD1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	LHD2	Aggregate	Aggregate	Gasoline	45,322,484.6324	99,918.9749	0.0005	38.3008	0.0844	0.0027	218.5564	0.4818
San Bernardino	2045	LHD2	Aggregate	Aggregate	Diesel	120,607,667.2025	265,894.3915	0.0024	535.3546	1.1803	0.0853	19,001.7871	41.8918
San Bernardino	2045	LHD2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	MCY	Aggregate	Aggregate	Gasoline	40,456,866.7370	89,192.1236	0.1296	28,526.7092	62.8906	0.0350	7,699.7746	16.9751
San Bernardino	2045	MDV	Aggregate	Aggregate	Gasoline	3,440,844,927.3828	7,585,764.5652	0.0015	15,280.3124	33.6873	0.0037	38,704.3549	85.3285
San Bernardino	2045	MDV	Aggregate	Aggregate	Diesel	37,924,747.5478	83,609.7564	0.0002	23.2263	0.0512	0.0526	5,975.0594	13.1728
San Bernardino	2045	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	MDV	Aggregate	Aggregate	Plug-in Hybrid	33,924,577.9792	74,790.8920	0.0003	99.0788	0.2184	0.0004	128.6034	0.2835
San Bernardino	2045	MH	Aggregate	Aggregate	Gasoline	50,175,857.3865	110,618.8303	0.0030	85.1246	0.1877	0.0171	484.1833	1.0674
San Bernardino	2045	MH	Aggregate	Aggregate	Diesel	16,162,281.6910	35,631.7318	0.0015	24.9005	0.0549	0.1560	2,546.3741	5.6138
San Bernardino	2045	Motor Coach	Aggregate	Aggregate	Diesel	13,829,797.1454	30,489.4836	0.0004	4.0715	0.0090	0.2371	2,178.8902	4.8036
San Bernardino	2045	OBUS	Aggregate	Aggregate	Gasoline	16,749,243.0006	36,925.7600	0.0038	43.6756	0.0963	0.0148	170.8196	0.3766
San Bernardino	2045	OBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	PTO	Aggregate	Aggregate	Diesel	66,342,460.5045	146,260.0892	0.0007	25.3626	0.0559	0.2741	10,452.2817	23.0433
San Bernardino	2045	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Gasoline	11,447,229.5550	25,236.8212	0.0027	37.2413	0.0821	0.0133	186.7973	0.4118
San Bernardino	2045	SBUS	Aggregate	Aggregate	Diesel	13,457,696.8249	29,669.1429	0.0005	5.8311	0.0129	0.1817	2,120.2656	4.6744
San Bernardino	2045	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	SBUS	Aggregate	Aggregate	Natural Gas	11,564,125.5061	25,494.5327	3.3919	26,318.0505	58.0214	0.3038	2,357.4226	5.1972
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	1,219,487.9241	2,688.5107	0.0002	0.2830	0.0006	0.1576	192.1308	0.4236
San Bernardino	2045	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	1,676,225.4194	3,695.4445	0.0002	0.3895	0.0009	0.1577	264.0900	0.5822
San Bernardino	2045	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	4,355,179.5747	9,601.5274	0.0002	1.0092	0.0022	0.1575	686.1603	1.5127
San Bernardino	2045	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	44,393,677.7258	97,871.3062	0.0002	12.5368	0.0276	0.1392	6,994.2420	15.4197
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	5,350.1572	11.7951	0.5123	3.7858	0.0083	0.1476	1.0907	0.0024
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	19,095,564.6249	42,098.5137	0.0002	4.3549	0.0096	0.1555	3,008.5140	6.6326
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	101,874.1952	224.5942	0.5453	71.9739	0.1587	0.1573	20.7677	0.0458
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	22,299,027.8158	49,160.9412	0.0002	5.0417	0.0111	0.1556	3,513.2209	7.7453
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2045	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	121,401.1360	267.6437	0.5457	85.9363	0.1895	0.1572	24.7484	0.0546
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	90,273,821.7059	199,019.7095	0.0002	20.5271	0.0453	0.1555	14,222.6774	31.3556
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	485,332.6311	1,069.9753	0.5453	343.2798	0.7568	0.1572	98.9382	0.2181
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	35,209,767.0400	77,624.2489	0.0003	9.7376	0.0215	0.1582	5,547.3131	12.2297
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	612,856.8097	1,351.1180	0.5179	402.5263	0.8874	0.1607	124.9349	0.2754
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	48,457,650.4087	106,830.8323	0.0002	11.1396	0.0246	0.1554	7,634.5226	16.8312
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	227,649.4658	501.8812	0.5398	160.1476	0.3531	0.1564	46.4078	0.1023
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	118,624,420.4941	261,522.0809	0.0002	27.1115	0.0598	0.1553	18,689.3258	41.2029
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	600,040.6014	1,322.8631	0.5401	422.8339	0.9322	0.1562	122.3222	0.2697
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	101,866,238.8123	224,576.6145	0.0002	23.3412	0.0515	0.1552	16,049.0674	35.3821
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	514,386.9535	1,134.0291	0.5400	362.4453	0.7991	0.1562	104.8611	0.2312
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	82,866,720.5642	182,689.8468	0.0003	23.3093	0.0514	0.1562	13,055.6856	28.7829
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	1,370,540.8238	3,021.5253	0.5211	913.9968	2.0150	0.1593	279.3937	0.6160
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	1,181,757.0344	2,605.3283	0.0002	0.2666	0.0006	0.1552	186.1863	0.4105
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	5,762.1825	12.7034	0.5403	4.0599	0.0090	0.1563	1.1747	0.0026
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	71,645,614.0135	157,951.5414	0.0003	21.3597	0.0471	0.1419	11,287.7957	24.8853
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	1,258,516.8401	2,774.5547	0.5201	859.2172	1.8942	0.1553	256.5569	0.5656
San Bernardino	2045	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1,570,390.1421	3,462.1176	0.0002	0.3799	0.0008	0.1479	247.4156	0.5455
San Bernardino	2045	T6 OOS Class 5	Aggregate	Aggregate	Diesel	2,155,657.6551	4,752.4116	0.0002	0.5229	0.0012	0.1480	339.6247	0.7487
San Bernardino	2045	T6 OOS Class 6	Aggregate	Aggregate	Diesel	5,619,644.1536	12,389.1946	0.0002	1.3559	0.0030	0.1476	885.3772	1.9519
San Bernardino	2045	T6 OOS Class 7	Aggregate	Aggregate	Diesel	36,826,393.0970	81,188.2993	0.0002	10.6282	0.0234	0.1330	5,802.0132	12.7912
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Diesel	2,537,562.4388	5,594.3676	0.0003	0.8324	0.0018	0.1584	399.7940	0.8814
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	286,746.9671	632.1689	0.5109	195.9827	0.4321	0.1524	58.4552	0.1289
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Diesel	4,984,955.6942	10,989.9461	0.0003	1.3744	0.0030	0.1591	785.3818	1.7315
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	651,974.4228	1,437.3576	0.5021	433.3199	0.9553	0.1540	132.9093	0.2930
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Diesel	3,724,420.2435	8,210.9411	0.0003	1.0214	0.0023	0.1584	586.7839	1.2936
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	464,719.6478	1,024.5314	0.5115	315.7662	0.6961	0.1535	94.7361	0.2089
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Diesel	11,105,570.0152	24,483.5909	0.0002	2.7467	0.0061	0.1564	1,749.6871	3.8574
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	1,393,662.1233	3,072.4990	0.5152	954.7629	2.1049	0.1533	284.1071	0.6263
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Diesel	3,715,625.6280	8,191.5523	0.0002	0.6654	0.0015	0.1546	585.3983	1.2906
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	13,623.9986	30.0358	0.5248	9.5011	0.0209	0.1534	2.7773	0.0061
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Diesel	702,481.8997	1,548.7075	0.0002	0.1258	0.0003	0.1546	110.6763	0.2440
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	2,575.6893	5.6784	0.5248	1.7962	0.0040	0.1534	0.5251	0.0012
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Diesel	962,661.6863	2,122.3057	0.0002	0.1706	0.0004	0.1547	151.6677	0.3344
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	3,527.4434	7.7767	0.5248	2.4599	0.0054	0.1534	0.7191	0.0016

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2045	T6TS	Aggregate	Aggregate	Gasoline	101,666,481.4155	224,136.2248	0.0022	159.8093	0.3523	0.0069	496.5563	1.0947
San Bernardino	2045	T6TS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	2,374,330,782.5073	5,234,503.3549	0.0005	956.2781	2.1082	0.2001	374,076.7817	824.6981
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	2,176,540.9283	4,798.4514	0.9002	1,942.7246	4.2830	0.2056	443.7021	0.9782
San Bernardino	2045	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	3,472,205,277.1502	7,654,902.3017	0.0005	1,420.3126	3.1313	0.1914	547,047.3554	1,206.0330
San Bernardino	2045	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1,260,566,487.0181	2,779,073.3936	0.0005	532.0703	1.1730	0.1913	198,602.7634	437.8441
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Diesel	561,643,633.2106	1,238,212.2592	0.0005	192.6966	0.4248	0.2152	88,487.1831	195.0808
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	16,723,996.5042	36,870.1010	0.9045	14,913.2066	32.8780	0.2068	3,409.2961	7.5162
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Diesel	23,798,311.0500	52,466.2949	0.0009	13.8784	0.0306	0.2391	3,749.4336	8.2661
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	16,804,010.4805	37,046.5016	0.9112	14,405.0573	31.7577	0.2167	3,425.6075	7.5522
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	21,175,982.8761	46,685.0509	0.0004	5.4944	0.0121	0.2244	3,336.2847	7.3552
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	1,114,698.7070	2,457.4900	0.9198	977.3627	2.1547	0.2139	227.2386	0.5010
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	42,920,935.9361	94,624.4663	0.0005	13.4658	0.0297	0.2308	6,762.2109	14.9081
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	2,148,154.5391	4,735.8701	0.9146	1,832.3140	4.0396	0.2186	437.9154	0.9654
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	195,413,056.4999	430,812.0450	0.0004	55.4607	0.1223	0.2280	30,787.4066	67.8746
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	10,387,490.8099	22,900.4972	0.9188	9,009.9159	19.8635	0.2159	2,117.5580	4.6684
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	15,157,330.8260	33,416.1944	0.0005	2.0011	0.0044	0.5374	2,388.0436	5.2647
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	93,122,368.4632	205,299.6801	0.4737	47,214.6444	104.0905	0.1905	18,983.6040	41.8517
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	832,227,933.9851	1,834,748.5298	0.0005	306.3734	0.6754	0.2009	131,117.8499	289.0654
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	14,347,301.1210	31,630.3846	0.9039	12,720.4715	28.0438	0.2078	2,924.7912	6.4481
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Diesel	6,122,194.5942	13,497.1287	0.0004	1.6398	0.0036	0.2332	964.5543	2.1265
San Bernardino	2045	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	T7IS	Aggregate	Aggregate	Gasoline	405,031.6846	892.9420	0.0682	16.8841	0.0372	0.0967	23.9434	0.0528
San Bernardino	2045	T7IS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Gasoline	4,005,018.5317	8,829.5545	0.0005	3.7473	0.0083	0.0033	24.7444	0.0546
San Bernardino	2045	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2045	UBUS	Aggregate	Aggregate	Natural Gas	3,912,148.5390	8,624.8112	0.0021	15.0439	0.0332	0.1124	797.5171	1.7582
						27,307,552,685.9783	60,202,848.3988	Total	244,790.7158	539.6711	Total	1,841,279.9977	4,059.3275
						Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile
						327.5614	0.7221		0.0029	0.0000		0.0221	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Diesel	264.3694	12,991.4765	12,991.4765	0.0000	2,352.8875	0.0111	143.7763	0.3170
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Natural Gas	56.2481	2,946.5309	2,946.5309	0.0000	500.6083	0.0087	25.4997	0.0562
San Bernardino	2050	LDA	Aggregate	Aggregate	Gasoline	790,117.3756	33,374,295.8018	33,374,295.8018	0.0000	3,672,850.7563	0.0028	92,507.5540	203.9442
San Bernardino	2050	LDA	Aggregate	Aggregate	Diesel	489.9676	19,382.5307	19,382.5307	0.0000	2,213.3004	0.0036	68.9853	0.1521
San Bernardino	2050	LDA	Aggregate	Aggregate	Electricity	109,554.7103	4,337,554.4858	0.0000	4,337,554.4858	513,261.1554	0.0000	0.0000	0.0000
San Bernardino	2050	LDA	Aggregate	Aggregate	Plug-in Hybrid	37,233.9388	1,570,691.0420	639,835.8786	930,855.1634	153,962.3370	0.0011	1,654.2516	3.6470
San Bernardino	2050	LDT1	Aggregate	Aggregate	Gasoline	55,976.6293	2,083,364.2395	2,083,364.2395	0.0000	252,763.0395	0.0030	6,269.8550	13.8227
San Bernardino	2050	LDT1	Aggregate	Aggregate	Diesel	0.6488	24.9367	24.9367	0.0000	2.9815	0.0109	0.2726	0.0006
San Bernardino	2050	LDT1	Aggregate	Aggregate	Electricity	1,740.5123	67,365.9133	0.0000	67,365.9133	8,092.0135	0.0000	0.0000	0.0000
San Bernardino	2050	LDT1	Aggregate	Aggregate	Plug-in Hybrid	1,327.0993	52,088.3015	21,193.7868	30,894.5147	5,487.5554	0.0011	54.7114	0.1206
San Bernardino	2050	LDT2	Aggregate	Aggregate	Gasoline	451,922.3620	17,620,058.1903	17,620,058.1903	0.0000	2,086,017.9402	0.0039	68,038.6381	149.9995
San Bernardino	2050	LDT2	Aggregate	Aggregate	Diesel	1,723.7129	67,467.8441	67,467.8441	0.0000	7,975.8002	0.0109	733.2658	1.6166
San Bernardino	2050	LDT2	Aggregate	Aggregate	Electricity	18,429.8028	503,067.7563	0.0000	503,067.7563	86,249.9748	0.0000	0.0000	0.0000
San Bernardino	2050	LDT2	Aggregate	Aggregate	Plug-in Hybrid	12,511.1958	491,155.4789	200,016.9498	291,138.5291	51,733.7946	0.0011	516.4880	1.1387
San Bernardino	2050	LHD1	Aggregate	Aggregate	Gasoline	17,142.6888	621,587.2565	621,587.2565	0.0000	255,400.5198	0.0015	932.4406	2.0557
San Bernardino	2050	LHD1	Aggregate	Aggregate	Diesel	12,099.0672	419,930.8347	419,930.8347	0.0000	152,191.0441	0.0343	14,417.1305	31.7843
San Bernardino	2050	LHD1	Aggregate	Aggregate	Electricity	24,374.2272	1,018,325.8584	0.0000	1,018,325.8584	341,070.3667	0.0000	0.0000	0.0000
San Bernardino	2050	LHD2	Aggregate	Aggregate	Gasoline	2,139.9547	74,251.1168	74,251.1168	0.0000	31,882.1358	0.0014	100.8263	0.2223
San Bernardino	2050	LHD2	Aggregate	Aggregate	Diesel	6,215.3957	201,854.9213	201,854.9213	0.0000	78,181.8596	0.0445	8,980.3083	19.7982
San Bernardino	2050	LHD2	Aggregate	Aggregate	Electricity	6,190.8395	250,313.6325	0.0000	250,313.6325	81,905.4694	0.0000	0.0000	0.0000
San Bernardino	2050	MCY	Aggregate	Aggregate	Gasoline	39,097.2670	220,664.7812	220,664.7812	0.0000	78,194.5340	0.7379	162,825.6927	358.9692
San Bernardino	2050	MDV	Aggregate	Aggregate	Gasoline	269,753.1270	10,472,837.6832	10,472,837.6832	0.0000	1,234,198.1612	0.0040	41,977.1671	92.5438
San Bernardino	2050	MDV	Aggregate	Aggregate	Diesel	2,988.2652	113,982.3290	113,982.3290	0.0000	13,540.3130	0.0039	449.7210	0.9915
San Bernardino	2050	MDV	Aggregate	Aggregate	Electricity	17,347.6113	466,205.5943	0.0000	466,205.5943	80,742.0072	0.0000	0.0000	0.0000
San Bernardino	2050	MDV	Aggregate	Aggregate	Plug-in Hybrid	8,169.6172	319,056.5412	129,974.8585	189,081.6827	33,781.3671	0.0011	335.9539	0.7407
San Bernardino	2050	MH	Aggregate	Aggregate	Gasoline	2,578.0824	27,667.2261	27,667.2261	0.0000	257.9114	0.0057	157.8433	0.3480
San Bernardino	2050	MH	Aggregate	Aggregate	Diesel	1,667.4707	15,690.7192	15,690.7192	0.0000	166.7471	0.0279	437.6228	0.9648
San Bernardino	2050	Motor Coach	Aggregate	Aggregate	Diesel	74.9772	9,443.9136	9,443.9136	0.0000	1,722.9754	0.0095	90.0884	0.1986
San Bernardino	2050	OBUS	Aggregate	Aggregate	Gasoline	248.9996	10,321.2126	10,321.2126	0.0000	4,981.9832	0.0049	50.2237	0.1107
San Bernardino	2050	OBUS	Aggregate	Aggregate	Electricity	202.5210	14,135.0050	0.0000	14,135.0050	4,052.0412	0.0000	0.0000	0.0000
San Bernardino	2050	PTO	Aggregate	Aggregate	Diesel	0.0000	39,827.3471	39,827.3471	0.0000	0.0000	0.0136	542.2059	1.1954
San Bernardino	2050	PTO	Aggregate	Aggregate	Electricity	0.0000	46,224.6660	0.0000	46,224.6660	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Gasoline	158.7000	8,760.6546	8,760.6546	0.0000	634.7999	0.0103	90.1729	0.1988
San Bernardino	2050	SBUS	Aggregate	Aggregate	Diesel	430.7805	9,012.0265	9,012.0265	0.0000	6,237.7013	0.0096	86.2956	0.1902
San Bernardino	2050	SBUS	Aggregate	Aggregate	Electricity	861.8762	25,414.3792	0.0000	25,414.3792	11,015.5526	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Natural Gas	288.3957	5,995.0080	5,995.0080	0.0000	4,175.9694	0.0447	268.1030	0.5911
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	18.0781	1,335.7711	1,335.7711	0.0000	415.4352	0.0049	6.5891	0.0145
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	26.9401	2,058.8479	0.0000	2,058.8479	619.0842	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	22.1793	1,833.3105	1,833.3105	0.0000	509.6811	0.0049	9.0481	0.0199
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	33.0149	2,823.4963	0.0000	2,823.4963	758.6822	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	101.2239	4,785.3552	4,785.3552	0.0000	2,326.1247	0.0049	23.5947	0.0520
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	151.1730	7,383.0142	0.0000	7,383.0142	3,473.9548	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	280.1877	57,477.4226	57,477.4226	0.0000	6,438.7133	0.0054	307.8068	0.6786
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	89.0339	18,840.3033	0.0000	18,840.3033	2,045.9988	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0411	8.4378	8.4378	0.0000	0.9453	0.0073	0.0618	0.0001
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	601.1913	20,028.9205	20,028.9205	0.0000	8,579.0003	0.0047	95.0213	0.2095
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	773.5801	26,840.2090	0.0000	26,840.2090	11,038.9886	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	4.2104	141.3827	141.3827	0.0000	60.0825	0.0078	1.1043	0.0024
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	699.1163	23,344.7971	23,344.7971	0.0000	9,976.3891	0.0047	110.1363	0.2428
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	901.4064	31,332.9268	0.0000	31,332.9268	12,863.0687	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	5.0748	170.6045	170.6045	0.0000	72.4175	0.0078	1.3328	0.0029
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	2,827.1518	94,664.6452	94,664.6452	0.0000	40,343.4559	0.0047	448.0444	0.9878
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	3,643.6950	126,943.2989	0.0000	126,943.2989	51,995.5270	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	20.2267	679.4308	679.4308	0.0000	288.6351	0.0078	5.3067	0.0117
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	714.3242	36,304.5666	36,304.5666	0.0000	10,193.4067	0.0057	207.5553	0.4576
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	550.0609	28,950.0195	0.0000	28,950.0195	7,849.3683	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	15.4266	784.1957	784.1957	0.0000	220.1373	0.0076	5.9373	0.0131
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1,289.7436	51,399.6899	51,399.6899	0.0000	14,909.4356	0.0048	246.1921	0.5428
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	1,656.2442	71,037.7142	0.0000	71,037.7142	19,146.1831	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	7.9302	317.7815	317.7815	0.0000	91.6735	0.0077	2.4559	0.0054
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	3,156.0295	125,822.7528	125,822.7528	0.0000	36,483.7014	0.0048	597.8393	1.3180
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	4,056.0811	174,095.0365	0.0000	174,095.0365	46,888.2976	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	21.0256	844.7647	844.7647	0.0000	243.0559	0.0077	6.5294	0.0144
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2,714.0643	108,121.8107	108,121.8107	0.0000	31,374.5832	0.0048	514.3222	1.1339
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	3,485.8058	149,387.1826	0.0000	149,387.1826	40,295.9151	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	18.0375	724.1643	724.1643	0.0000	208.5131	0.0077	5.5969	0.0123
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	2,140.9794	88,348.1427	88,348.1427	0.0000	24,749.7219	0.0056	495.5935	1.0926
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	1,598.9688	81,450.4704	0.0000	81,450.4704	18,484.0794	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	44.5882	1,795.9655	1,795.9655	0.0000	515.4393	0.0076	13.5901	0.0300
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	26.0760	1,271.6562	1,271.6562	0.0000	301.4391	0.0047	5.9782	0.0132
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	33.3955	1,788.2285	0.0000	1,788.2285	386.0524	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.1647	8.1733	8.1733	0.0000	1.9045	0.0077	0.0632	0.0001
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	1,531.1544	89,537.9709	89,537.9709	0.0000	17,700.1450	0.0055	490.8920	1.0822
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	363.2647	24,177.0733	0.0000	24,177.0733	4,199.3401	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	31.2800	1,826.8968	1,826.8968	0.0000	361.5968	0.0076	13.8320	0.0305
San Bernardino	2050	T6 OOS Class 4	Aggregate	Aggregate	Diesel	25.9467	1,926.6227	1,926.6227	0.0000	596.2558	0.0049	9.3946	0.0207
San Bernardino	2050	T6 OOS Class 5	Aggregate	Aggregate	Diesel	31.8531	2,642.9799	2,642.9799	0.0000	731.9839	0.0049	12.9094	0.0285
San Bernardino	2050	T6 OOS Class 6	Aggregate	Aggregate	Diesel	145.0810	6,906.1821	6,906.1821	0.0000	3,333.9625	0.0049	33.6121	0.0741
San Bernardino	2050	T6 OOS Class 7	Aggregate	Aggregate	Diesel	178.6297	50,216.5313	50,216.5313	0.0000	4,104.9098	0.0052	263.2269	0.5803
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Diesel	64.6950	2,242.3689	2,242.3689	0.0000	331.8854	0.0050	11.1793	0.0246
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Electricity	74.6868	2,850.3036	0.0000	2,850.3036	383.1431	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	10.1751	353.5967	353.5967	0.0000	52.1982	0.0073	2.5880	0.0057
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Diesel	128.0918	4,428.9341	4,428.9341	0.0000	657.1110	0.0049	21.6542	0.0477
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Electricity	147.8385	5,632.8184	0.0000	5,632.8184	758.4117	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	22.3268	766.3406	766.3406	0.0000	114.5365	0.0073	5.5613	0.0123
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Diesel	95.8166	3,310.0565	3,310.0565	0.0000	491.5394	0.0048	15.8177	0.0349
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Electricity	110.0057	4,183.5648	0.0000	4,183.5648	564.3291	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	16.1446	556.9233	556.9233	0.0000	82.8220	0.0073	4.0881	0.0090
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Diesel	244.2611	10,302.3223	10,302.3223	0.0000	1,253.0596	0.0045	46.5910	0.1027
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Electricity	216.3767	10,078.6774	0.0000	10,078.6774	1,110.0126	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	40.9069	1,726.3586	1,726.3586	0.0000	209.8522	0.0074	12.7290	0.0281
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Diesel	90.7247	3,641.3173	3,641.3173	0.0000	1,161.2767	0.0037	13.6545	0.0301
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Electricity	139.0790	5,673.9956	0.0000	5,673.9956	1,780.2107	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.4339	17.4133	17.4133	0.0000	5.5534	0.0075	0.1306	0.0003
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Diesel	17.1450	688.1430	688.1430	0.0000	219.4557	0.0037	2.5804	0.0057
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Electricity	26.2821	1,072.2625	0.0000	1,072.2625	336.4112	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0820	3.2908	3.2908	0.0000	1.0495	0.0075	0.0247	0.0001
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Diesel	19.0737	947.6951	947.6951	0.0000	244.1428	0.0037	3.5202	0.0078
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Electricity	29.2430	1,501.6604	0.0000	1,501.6604	374.3100	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0912	4.5320	4.5320	0.0000	1.1675	0.0075	0.0340	0.0001

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day 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.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	ROG_Grams	ROG_Pounds
San Bernardino	2050	T6TS	Aggregate	Aggregate	Gasoline	1,098.9533	66,196.2279	66,196.2279	0.0000	21,987.8569	0.0074	491.4564	1.0835
San Bernardino	2050	T6TS	Aggregate	Aggregate	Electricity	1,181.7504	89,911.2611	0.0000	89,911.2611	23,644.4625	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	10,409.3396	2,203,610.3184	2,203,610.3184	0.0000	239,206.6238	0.0110	24,271.8772	53.5103
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	2,947.8148	645,331.7729	0.0000	645,331.7729	67,740.7847	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	12.0154	2,543.2384	2,543.2384	0.0000	276.1139	0.0129	32.7109	0.0721
San Bernardino	2050	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	11,610.6212	3,371,585.3127	3,371,585.3127	0.0000	266,812.0755	0.0107	36,096.7253	79.5797
San Bernardino	2050	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	4,995.0382	1,224,655.9465	1,224,655.9465	0.0000	114,785.9775	0.0110	13,527.5154	29.8231
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Diesel	2,197.5563	404,481.1992	404,481.1992	0.0000	35,952.0211	0.0100	4,061.7366	8.9546
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Electricity	443.9691	80,926.7436	0.0000	80,926.7436	7,263.3337	0.0000	0.0000	0.0000
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	91.2584	16,797.0538	16,797.0538	0.0000	1,492.9867	0.0129	217.1342	0.4787
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Diesel	321.0113	12,533.7070	12,533.7070	0.0000	1,646.7880	0.0136	170.6890	0.3763
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Electricity	531.5271	24,158.9507	0.0000	24,158.9507	2,726.7342	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	382.4683	15,952.9850	15,952.9850	0.0000	1,962.0625	0.0130	207.9050	0.4584
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	219.1751	14,648.9811	14,648.9811	0.0000	2,064.6295	0.0079	115.8107	0.2553
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	314.8788	21,977.3663	0.0000	21,977.3663	2,966.1586	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	15.5732	1,045.8357	1,045.8357	0.0000	146.6994	0.0131	13.7461	0.0303
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	538.2215	27,020.6551	27,020.6551	0.0000	5,070.0464	0.0092	249.0359	0.5490
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	503.3611	30,160.2725	0.0000	30,160.2725	4,741.6618	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	36.9496	1,859.3964	1,859.3964	0.0000	348.0651	0.0131	24.3561	0.0537
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	3,250.0670	145,427.5321	145,427.5321	0.0000	30,615.6313	0.0086	1,243.6407	2.7418
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	3,506.8094	180,659.0186	0.0000	180,659.0186	33,034.1446	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	240.1602	10,576.0803	10,576.0803	0.0000	2,262.3095	0.0131	138.9808	0.3064
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	35.3275	2,117.6718	2,117.6718	0.0000	162.5064	0.0177	37.4510	0.0826
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	1,249.5754	80,771.3718	0.0000	80,771.3718	5,748.0467	0.0000	0.0000	0.0000
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	1,410.4156	91,575.9604	91,575.9604	0.0000	6,487.9116	0.0050	459.7104	1.0135
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	11,402.4194	759,841.2273	759,841.2273	0.0000	165,677.1542	0.0100	7,606.1076	16.7686
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	2,325.4889	167,359.1155	0.0000	167,359.1155	33,789.3542	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	244.8378	16,251.3509	16,251.3509	0.0000	3,557.4926	0.0129	210.0006	0.4630
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Diesel	92.9317	3,836.5291	3,836.5291	0.0000	1,189.5257	0.0084	32.3076	0.0712
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Electricity	77.0037	3,532.1751	0.0000	3,532.1751	985.6478	0.0000	0.0000	0.0000
San Bernardino	2050	T7IS	Aggregate	Aggregate	Gasoline	1.5429	230.6102	230.6102	0.0000	30.8700	0.2869	66.1688	0.1459
San Bernardino	2050	T7IS	Aggregate	Aggregate	Electricity	1.6089	288.2943	0.0000	288.2943	32.1919	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Gasoline	87.5040	8,524.6480	8,524.6480	0.0000	350.0159	0.0012	10.3396	0.0228
San Bernardino	2050	UBUS	Aggregate	Aggregate	Electricity	600.2717	82,987.5286	0.0000	82,987.5286	2,401.0866	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Natural Gas	104.0457	8,157.7540	8,157.7540	0.0000	416.1827	0.0429	349.9556	0.7715
					Total VMT		85,991,852.6492				Total	495,464.1745	1,092.3115

Grams/Mile	Pounds/Mile
0.0058	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Diesel	0.5879	7,638.1619	16.8393	0.0620	805.7212	1.7763	0.0090	116.8493	0.2576
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Natural Gas	0.0667	196.4760	0.4332	2.2655	6,675.3962	14.7167	0.0000	0.0000	0.0000
San Bernardino	2050	LDA	Aggregate	Aggregate	Gasoline	0.0190	634,453.4177	1,398.7304	0.4821	16,089,132.6176	35,470.4657	0.0022	74,843.6185	165.0019
San Bernardino	2050	LDA	Aggregate	Aggregate	Diesel	0.0092	178.2075	0.3929	0.1140	2,208.9257	4.8698	0.0017	33.5547	0.0740
San Bernardino	2050	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDA	Aggregate	Aggregate	Plug-in Hybrid	0.0025	3,856.0867	8.5012	0.1796	282,168.2783	622.0746	0.0011	1,717.2410	3.7859
San Bernardino	2050	LDT1	Aggregate	Aggregate	Gasoline	0.0204	42,478.3095	93.6486	0.5139	1,070,650.1427	2,360.3795	0.0026	5,375.2471	11.8504
San Bernardino	2050	LDT1	Aggregate	Aggregate	Diesel	0.0258	0.6426	0.0014	0.1172	2.9223	0.0064	0.0032	0.0806	0.0002
San Bernardino	2050	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.0025	127.6630	0.2814	0.1792	9,334.2562	20.5785	0.0011	56.8342	0.1253
San Bernardino	2050	LDT2	Aggregate	Aggregate	Gasoline	0.0215	378,546.6398	834.5525	0.5666	9,983,409.0078	22,009.6493	0.0027	47,177.0372	104.0076
San Bernardino	2050	LDT2	Aggregate	Aggregate	Diesel	0.0259	1,750.1713	3.8585	0.1146	7,733.4019	17.0492	0.0024	161.3066	0.3556
San Bernardino	2050	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDT2	Aggregate	Aggregate	Plug-in Hybrid	0.0025	1,204.9384	2.6564	0.1794	88,121.8287	194.2754	0.0011	536.4738	1.1827
San Bernardino	2050	LHD1	Aggregate	Aggregate	Gasoline	0.0165	10,273.8904	22.6501	0.6347	394,509.8700	869.7454	0.0048	2,959.3314	6.5242
San Bernardino	2050	LHD1	Aggregate	Aggregate	Diesel	0.1633	68,587.1282	151.2087	0.0645	27,082.3279	59.7063	0.0043	1,826.6338	4.0270
San Bernardino	2050	LHD1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LHD2	Aggregate	Aggregate	Gasoline	0.0227	1,681.9759	3.7081	0.6431	47,751.5548	105.2742	0.0054	398.4446	0.8784
San Bernardino	2050	LHD2	Aggregate	Aggregate	Diesel	0.2519	50,857.2960	112.1211	0.0851	17,183.1508	37.8824	0.0051	1,027.8009	2.2659
San Bernardino	2050	LHD2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	MCY	Aggregate	Aggregate	Gasoline	0.4499	99,283.6008	218.8829	9.0443	1,995,764.4613	4,399.9075	0.0018	399.6529	0.8811
San Bernardino	2050	MDV	Aggregate	Aggregate	Gasoline	0.0223	233,759.6898	515.3519	0.5857	6,134,411.8673	13,524.0632	0.0032	33,914.6585	74.7690
San Bernardino	2050	MDV	Aggregate	Aggregate	Diesel	0.0117	1,334.0399	2.9411	0.1257	14,325.9071	31.5832	0.0031	356.5940	0.7862
San Bernardino	2050	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	MDV	Aggregate	Aggregate	Plug-in Hybrid	0.0025	783.2492	1.7268	0.1796	57,289.9563	126.3027	0.0011	348.7551	0.7689
San Bernardino	2050	MH	Aggregate	Aggregate	Gasoline	0.2014	5,571.8702	12.2839	0.1236	3,419.5221	7.5388	0.0175	484.4885	1.0681
San Bernardino	2050	MH	Aggregate	Aggregate	Diesel	1.6678	26,168.9825	57.6927	0.0844	1,324.3761	2.9197	0.0094	147.3950	0.3250
San Bernardino	2050	Motor Coach	Aggregate	Aggregate	Diesel	0.9138	8,629.8406	19.0255	0.0541	510.5879	1.1257	0.0142	133.8450	0.2951
San Bernardino	2050	OBUS	Aggregate	Aggregate	Gasoline	0.2457	2,536.1929	5.5913	0.1373	1,417.3851	3.1248	0.0141	145.8383	0.3215
San Bernardino	2050	OBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	PTO	Aggregate	Aggregate	Diesel	2.3675	94,290.0324	207.8739	0.1698	6,762.2599	14.9082	0.0162	646.0898	1.4244
San Bernardino	2050	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Gasoline	0.0983	860.8831	1.8979	0.1943	1,702.2651	3.7529	0.0077	67.2340	0.1482
San Bernardino	2050	SBUS	Aggregate	Aggregate	Diesel	0.3824	3,445.8659	7.5968	0.0638	574.5616	1.2667	0.0106	95.2245	0.2099
San Bernardino	2050	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Natural Gas	0.2006	1,202.5831	2.6512	8.6071	51,599.6507	113.7578	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	0.1608	214.8465	0.4737	0.0260	34.7260	0.0766	0.0094	12.6035	0.0278
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	0.1612	295.4508	0.6514	0.0260	47.6799	0.1051	0.0094	17.2997	0.0381
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	0.1631	780.5566	1.7208	0.0260	124.3627	0.2742	0.0094	45.1381	0.0995
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	0.1788	10,278.6067	22.6604	0.0282	1,622.3488	3.5767	0.0083	479.5251	1.0572
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0438	0.3694	0.0008	1.5046	12.6952	0.0280	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	0.1879	3,763.4262	8.2969	0.0323	647.0296	1.4265	0.0092	184.8896	0.4076
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.0455	6.4328	0.0142	1.7635	249.3237	0.5497	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	0.1872	4,369.6921	9.6335	0.0325	757.7772	1.6706	0.0092	215.4178	0.4749
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.0454	7.7434	0.0171	1.7628	300.7434	0.6630	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	0.1904	18,023.4745	39.7350	0.0324	3,067.2906	6.7622	0.0092	873.5037	1.9257
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	0.0455	30.9113	0.0681	1.7634	1,198.1398	2.6414	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	0.2890	10,491.6155	23.1301	0.0387	1,406.3141	3.1004	0.0093	338.0545	0.7453
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	0.0610	47.8614	0.1055	1.8561	1,455.5747	3.2090	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	0.1825	9,380.9417	20.6814	0.0311	1,600.9791	3.5296	0.0092	475.3426	1.0480
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	0.0452	14.3530	0.0316	1.7201	546.6186	1.2051	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	0.1830	23,024.8589	50.7611	0.0315	3,961.4455	8.7335	0.0092	1,161.9212	2.5616
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	0.0451	38.1034	0.0840	1.7197	1,452.7667	3.2028	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	0.1861	20,116.7989	44.3499	0.0315	3,406.2104	7.5094	0.0092	998.2836	2.2008
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	0.0451	32.6849	0.0721	1.7199	1,245.4986	2.7459	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	0.2631	23,243.1087	51.2423	0.0361	3,191.2702	7.0355	0.0093	817.3587	1.8020
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	0.0556	99.7676	0.2199	1.7854	3,206.4273	7.0690	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	0.1831	232.7804	0.5132	0.0308	39.2305	0.0865	0.0092	11.7541	0.0259
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.0451	0.3683	0.0008	1.7195	14.0538	0.0310	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	0.2511	22,484.8186	49.5705	0.0359	3,210.8198	7.0786	0.0083	746.3976	1.6455
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	0.0551	100.7471	0.2221	1.7826	3,256.6887	7.1798	0.0000	0.0000	0.0000
San Bernardino	2050	T6 OOS Class 4	Aggregate	Aggregate	Diesel	0.2044	393.7653	0.8681	0.0257	49.5880	0.1093	0.0089	17.0799	0.0377
San Bernardino	2050	T6 OOS Class 5	Aggregate	Aggregate	Diesel	0.2053	542.5967	1.1962	0.0258	68.1072	0.1502	0.0089	23.4379	0.0517
San Bernardino	2050	T6 OOS Class 6	Aggregate	Aggregate	Diesel	0.2034	1,404.8468	3.0972	0.0257	177.5005	0.3913	0.0089	61.1734	0.1349
San Bernardino	2050	T6 OOS Class 7	Aggregate	Aggregate	Diesel	0.2150	10,796.1203	23.8014	0.0277	1,390.1673	3.0648	0.0080	400.5588	0.8831
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Diesel	0.2141	480.0198	1.0583	0.0282	63.2216	0.1394	0.0094	21.0821	0.0465
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.0453	16.0074	0.0353	1.5197	537.3436	1.1846	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Diesel	0.2179	965.1767	2.1279	0.0284	125.7065	0.2771	0.0094	41.7722	0.0921
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	0.0522	39.9790	0.0881	1.5933	1,221.0118	2.6919	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Diesel	0.1923	636.5433	1.4033	0.0278	92.0846	0.2030	0.0094	31.1302	0.0686
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	0.0469	26.1169	0.0576	1.5540	865.4784	1.9081	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Diesel	0.1891	1,948.2052	4.2951	0.0272	280.0123	0.6173	0.0093	95.5990	0.2108
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	0.0447	77.2198	0.1702	1.5384	2,655.8889	5.8552	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Diesel	0.1274	463.8098	1.0225	0.0235	85.5569	0.1886	0.0093	33.7349	0.0744
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.0440	0.7665	0.0017	1.5924	27.7293	0.0611	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Diesel	0.1250	86.0432	0.1897	0.0235	16.1685	0.0356	0.0093	6.3753	0.0141
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0440	0.1449	0.0003	1.5924	5.2403	0.0116	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Diesel	0.1216	115.2728	0.2541	0.0233	22.0573	0.0486	0.0093	8.7885	0.0194
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0440	0.1995	0.0004	1.5924	7.2169	0.0159	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	NOx_RUNEX	NOx_Grams	NOx_Pounds	CO_RUNEX	CO_Grams	CO_Pounds	SOx_RUNEX	SOx_Grams	SOx_Pounds
San Bernardino	2050	T6TS	Aggregate	Aggregate	Gasoline	0.0596	3,946.0032	8.6994	0.1339	8,864.3049	19.5424	0.0138	911.5766	2.0097
San Bernardino	2050	T6TS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1.1158	2,458,807.5940	5,420.7428	0.0300	66,065.3598	145.6492	0.0120	26,470.6165	58.3577
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	0.1506	382.9102	0.8442	2.7662	7,035.1104	15.5098	0.0000	0.0000	0.0000
San Bernardino	2050	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1.2353	4,164,924.9459	9,182.0878	0.0292	98,306.7295	216.7292	0.0115	38,750.7669	85.4308
San Bernardino	2050	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1.2708	1,556,351.2740	3,431.1672	0.0301	36,831.2657	81.1990	0.0115	14,072.4912	31.0245
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Diesel	1.1058	447,283.0388	986.0903	0.0340	13,745.3484	30.3033	0.0128	5,163.8274	11.3843
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.1508	2,532.8083	5.5839	2.8203	47,372.6953	104.4389	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Diesel	1.1434	14,330.9710	31.5944	0.0459	575.8579	1.2695	0.0141	176.5784	0.3893
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	0.1654	2,638.9345	5.8179	3.1795	50,721.8369	111.8225	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	0.6742	9,875.8478	21.7725	0.0282	413.5833	0.9118	0.0134	196.9325	0.4342
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	0.1520	158.9315	0.3504	2.9963	3,133.6837	6.9086	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	0.8825	23,846.2299	52.5719	0.0344	930.0713	2.0505	0.0137	369.0131	0.8135
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	0.1651	307.0373	0.6769	3.2263	5,998.9301	13.2254	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	0.8005	116,414.9370	256.6510	0.0314	4,567.0291	10.0686	0.0135	1,970.0010	4.3431
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	0.1561	1,651.2479	3.6404	3.0766	32,538.5196	71.7352	0.0000	0.0000	0.0000
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	1.8074	3,827.4799	8.4381	0.0176	37.2131	0.0820	0.0293	62.1257	0.1370
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	0.1672	15,311.0175	33.7550	5.7908	530,294.8690	1,169.1001	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	1.0743	816,261.7025	1,799.5490	0.0311	23,669.0416	52.1813	0.0119	9,077.2898	20.0120
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	0.1524	2,477.3481	5.4616	2.8457	46,247.2597	101.9578	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Diesel	0.7221	2,770.4060	6.1077	0.0332	127.3465	0.2808	0.0139	53.2056	0.1173
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7IS	Aggregate	Aggregate	Gasoline	2.2856	527.0858	1.1620	23.1009	5,327.3064	11.7447	0.0160	3.6960	0.0081
San Bernardino	2050	T7IS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Gasoline	0.0185	157.9656	0.3483	0.5400	4,602.9384	10.1477	0.0053	45.5260	0.1004
San Bernardino	2050	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Natural Gas	0.1150	937.7588	2.0674	0.0533	434.6445	0.9582	0.0000	0.0000	0.0000
					Total		11,490,494.4637	25,332.2040	Total	37,327,459.2427	82,292.9611	Total	277,412.0980	611.5890
							Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile
							0.1336	0.0003		0.4341	0.0010		0.0032	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Diesel	0.0076	98.7747	0.2178	0.0073	94.5018	0.2083	949.8285
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Natural Gas	0.0012	3.6557	0.0081	0.0011	3.3613	0.0074	763.6771
San Bernardino	2050	LDA	Aggregate	Aggregate	Gasoline	0.0005	15,731.8910	34.6829	0.0004	14,464.8931	31.8896	226.8408
San Bernardino	2050	LDA	Aggregate	Aggregate	Diesel	0.0008	15.9206	0.0351	0.0008	15.2319	0.0336	182.7007
San Bernardino	2050	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDA	Aggregate	Aggregate	Plug-in Hybrid	0.0002	302.1127	0.6660	0.0002	277.7815	0.6124	110.5908
San Bernardino	2050	LDT1	Aggregate	Aggregate	Gasoline	0.0005	1,043.7643	2.3011	0.0005	959.7027	2.1158	260.9828
San Bernardino	2050	LDT1	Aggregate	Aggregate	Diesel	0.0040	0.1005	0.0002	0.0039	0.0962	0.0002	341.0546
San Bernardino	2050	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDT1	Aggregate	Aggregate	Plug-in Hybrid	0.0002	9.9173	0.0219	0.0002	9.1186	0.0201	110.3693
San Bernardino	2050	LDT2	Aggregate	Aggregate	Gasoline	0.0005	8,481.8444	18.6993	0.0004	7,798.7428	17.1933	270.8332
San Bernardino	2050	LDT2	Aggregate	Aggregate	Diesel	0.0040	267.6033	0.5900	0.0038	256.0269	0.5644	252.3207
San Bernardino	2050	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDT2	Aggregate	Aggregate	Plug-in Hybrid	0.0002	94.2017	0.2077	0.0002	86.6150	0.1910	110.4862
San Bernardino	2050	LHD1	Aggregate	Aggregate	Gasoline	0.0012	715.8529	1.5782	0.0011	658.2003	1.4511	481.5818
San Bernardino	2050	LHD1	Aggregate	Aggregate	Diesel	0.0104	4,375.3022	9.6459	0.0100	4,186.0285	9.2286	459.0619
San Bernardino	2050	LHD1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LHD2	Aggregate	Aggregate	Gasoline	0.0012	85.5795	0.1887	0.0011	78.6872	0.1735	542.8046
San Bernardino	2050	LHD2	Aggregate	Aggregate	Diesel	0.0137	2,772.5884	6.1125	0.0131	2,652.6475	5.8481	537.3622
San Bernardino	2050	LHD2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	MCY	Aggregate	Aggregate	Gasoline	0.0021	465.8182	1.0270	0.0020	434.2356	0.9573	183.2013
San Bernardino	2050	MDV	Aggregate	Aggregate	Gasoline	0.0005	5,088.4700	11.2182	0.0004	4,678.6603	10.3147	327.5682
San Bernardino	2050	MDV	Aggregate	Aggregate	Diesel	0.0009	106.6513	0.2351	0.0009	102.0376	0.2250	330.1672
San Bernardino	2050	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	MDV	Aggregate	Aggregate	Plug-in Hybrid	0.0002	61.7629	0.1362	0.0002	56.7888	0.1252	110.5685
San Bernardino	2050	MH	Aggregate	Aggregate	Gasoline	0.0011	29.0837	0.0641	0.0010	26.7414	0.0590	1,771.3176
San Bernardino	2050	MH	Aggregate	Aggregate	Diesel	0.0182	286.3332	0.6313	0.0175	273.9466	0.6039	991.3740
San Bernardino	2050	Motor Coach	Aggregate	Aggregate	Diesel	0.0168	158.4593	0.3493	0.0161	151.6045	0.3342	1,496.6758
San Bernardino	2050	OBUS	Aggregate	Aggregate	Gasoline	0.0010	10.5758	0.0233	0.0009	9.7240	0.0214	1,429.2870
San Bernardino	2050	OBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	PTO	Aggregate	Aggregate	Diesel	0.0038	149.9516	0.3306	0.0036	143.4648	0.3163	1,713.1247
San Bernardino	2050	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Gasoline	0.0017	14.8854	0.0328	0.0016	13.6866	0.0302	776.3023
San Bernardino	2050	SBUS	Aggregate	Aggregate	Diesel	0.0033	29.7343	0.0656	0.0032	28.4480	0.0627	1,115.8444
San Bernardino	2050	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Natural Gas	0.0045	26.8749	0.0592	0.0041	24.7104	0.0545	1,432.1987
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	0.0051	6.8330	0.0151	0.0049	6.5374	0.0144	996.4040
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	0.0051	9.3831	0.0207	0.0049	8.9772	0.0198	996.5087
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	0.0052	24.6624	0.0544	0.0049	23.5955	0.0520	996.1073
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	0.0055	315.2905	0.6951	0.0052	301.6511	0.6650	881.0317
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	0.0011	0.0093	0.0000	0.0010	0.0085	0.0000	723.4576
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	0.0040	80.5173	0.1775	0.0038	77.0341	0.1698	974.8377
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	0.0012	0.1657	0.0004	0.0011	0.1523	0.0003	770.5277
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	0.0040	92.3211	0.2035	0.0038	88.3274	0.1947	974.4711
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	0.0012	0.2000	0.0004	0.0011	0.1839	0.0004	770.2284
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	0.0040	379.9327	0.8376	0.0038	363.4970	0.8014	974.4384
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	0.0012	0.7962	0.0018	0.0011	0.7320	0.0016	770.2152
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	0.0049	176.5870	0.3893	0.0047	168.9479	0.3725	983.3383
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	0.0011	0.8450	0.0019	0.0010	0.7769	0.0017	781.1148
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	0.0042	217.9474	0.4805	0.0041	208.5191	0.4597	976.6157
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	0.0012	0.3679	0.0008	0.0011	0.3383	0.0007	766.0608
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	0.0041	519.7306	1.1458	0.0040	497.2472	1.0962	975.2028
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	0.0012	0.9785	0.0022	0.0011	0.8996	0.0020	765.7317
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	0.0042	450.4075	0.9930	0.0040	430.9231	0.9500	975.0302
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	0.0012	0.8386	0.0018	0.0011	0.7711	0.0017	765.6892
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	0.0049	430.1824	0.9484	0.0047	411.5729	0.9074	976.9958
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	0.0011	1.9666	0.0043	0.0010	1.8082	0.0040	774.9091
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	0.0042	5.3162	0.0117	0.0040	5.0862	0.0112	976.1045
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.0012	0.0095	0.0000	0.0011	0.0087	0.0000	765.8503
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	0.0047	424.0325	0.9348	0.0045	405.6891	0.8944	880.3197
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	0.0011	2.0033	0.0044	0.0010	1.8419	0.0041	754.0464
San Bernardino	2050	T6 OOS Class 4	Aggregate	Aggregate	Diesel	0.0053	10.2750	0.0227	0.0051	9.8305	0.0217	936.1949
San Bernardino	2050	T6 OOS Class 5	Aggregate	Aggregate	Diesel	0.0053	14.1159	0.0311	0.0051	13.5053	0.0298	936.4897
San Bernardino	2050	T6 OOS Class 6	Aggregate	Aggregate	Diesel	0.0053	36.7719	0.0811	0.0051	35.1812	0.0776	935.4095
San Bernardino	2050	T6 OOS Class 7	Aggregate	Aggregate	Diesel	0.0056	282.9250	0.6237	0.0054	270.6858	0.5968	842.3586
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Diesel	0.0046	10.3233	0.0228	0.0044	9.8767	0.0218	992.8533
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	0.0011	0.3845	0.0008	0.0010	0.3535	0.0008	746.0369
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Diesel	0.0045	20.1128	0.0443	0.0043	19.2428	0.0424	996.0142
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	0.0011	0.8092	0.0018	0.0010	0.7441	0.0016	751.7956
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Diesel	0.0044	14.4072	0.0318	0.0042	13.7840	0.0304	993.1718
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	0.0011	0.6055	0.0013	0.0010	0.5567	0.0012	750.0737
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Diesel	0.0043	44.2003	0.0974	0.0041	42.2883	0.0932	979.9312
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	0.0011	1.8980	0.0042	0.0010	1.7451	0.0038	749.6039
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Diesel	0.0037	13.6472	0.0301	0.0036	13.0569	0.0288	978.3591
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	0.0011	0.0196	0.0000	0.0010	0.0180	0.0000	752.5099
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Diesel	0.0037	2.5664	0.0057	0.0036	2.4554	0.0054	978.3602
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.0011	0.0037	0.0000	0.0010	0.0034	0.0000	752.5099
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Diesel	0.0037	3.5153	0.0077	0.0035	3.3633	0.0074	979.3202
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.0011	0.0051	0.0000	0.0010	0.0047	0.0000	752.5099

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	PM10_RUNEX	PM10_Grams	PM10_Pounds	PM2.5_RUNEX	PM2.5_Grams	PM2.5_Pounds	CO2_RUNEX
San Bernardino	2050	T6TS	Aggregate	Aggregate	Gasoline	0.0011	69.9981	0.1543	0.0010	64.3607	0.1419	1,392.9596
San Bernardino	2050	T6TS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	0.0306	67,489.3534	148.7886	0.0293	64,569.7939	142.3520	1,268.5474
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	0.0019	4.7532	0.0105	0.0017	4.3704	0.0096	1,008.2427
San Bernardino	2050	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	0.0303	102,021.2858	224.9184	0.0290	97,607.8902	215.1886	1,213.7342
San Bernardino	2050	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	0.0320	39,232.0348	86.4918	0.0306	37,534.8743	82.7502	1,213.4848
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Diesel	0.0255	10,313.4602	22.7373	0.0244	9,867.3045	21.7537	1,348.1891
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	0.0019	31.5173	0.0695	0.0017	28.9790	0.0639	1,011.9165
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Diesel	0.0176	220.4061	0.4859	0.0168	210.8714	0.4649	1,487.7693
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	0.0019	29.7646	0.0656	0.0017	27.3675	0.0603	1,057.2444
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	0.0150	220.1443	0.4853	0.0144	210.6210	0.4643	1,419.6699
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	0.0019	1.9949	0.0044	0.0018	1.8342	0.0040	1,048.5363
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	0.0189	511.2421	1.1271	0.0181	489.1260	1.0783	1,442.1929
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	0.0019	3.4849	0.0077	0.0017	3.2043	0.0071	1,060.6709
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	0.0174	2,536.6514	5.5924	0.0167	2,426.9170	5.3504	1,430.5309
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	0.0019	20.0838	0.0443	0.0017	18.4663	0.0407	1,053.6332
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	0.0343	72.5804	0.1600	0.0328	69.4406	0.1531	3,098.0629
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	0.0006	57.9282	0.1277	0.0006	53.2628	0.1174	914.2186
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	0.0252	19,178.4862	42.2813	0.0241	18,348.8334	40.4523	1,261.5684
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	0.0019	30.4652	0.0672	0.0017	28.0116	0.0618	1,013.9413
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Diesel	0.0150	57.4311	0.1266	0.0143	54.9466	0.1211	1,464.5237
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7IS	Aggregate	Aggregate	Gasoline	0.0010	0.2403	0.0005	0.0010	0.2209	0.0005	1,621.1829
San Bernardino	2050	T7IS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Gasoline	0.0011	9.4864	0.0209	0.0010	8.7224	0.0192	540.2089
San Bernardino	2050	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Natural Gas	0.0073	59.8667	0.1320	0.0070	57.2769	0.1263	551.4261
					Total		286,198.2796	630.9592	Total	272,614.2021	601.0114	Total
							Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile	
							0.0033	0.0000		0.0032	0.0000	

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Diesel	12,339,674.8042	27,204.3262	0.0005	6.6780	0.0147	0.1496	1,944.1208	4.2861
San Bernardino	2050	All Other Buses	Aggregate	Aggregate	Natural Gas	2,250,198.1331	4,960.8377	0.6057	1,784.6926	3.9346	0.1557	458.7176	1.0113
San Bernardino	2050	LDA	Aggregate	Aggregate	Gasoline	7,570,653,618.9984	16,690,434.2306	0.0010	32,507.9495	71.6678	0.0032	106,141.0971	234.0011
San Bernardino	2050	LDA	Aggregate	Aggregate	Diesel	3,541,201.7707	7,807.0135	0.0002	3.2042	0.0071	0.0288	557.9178	1.2300
San Bernardino	2050	LDA	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDA	Aggregate	Aggregate	Plug-in Hybrid	173,704,006.8812	382,951.7831	0.0003	511.1659	1.1269	0.0004	668.3151	1.4734
San Bernardino	2050	LDT1	Aggregate	Aggregate	Gasoline	543,722,156.5435	1,198,702.1663	0.0010	2,156.2423	4.7537	0.0033	6,830.3018	15.0582
San Bernardino	2050	LDT1	Aggregate	Aggregate	Diesel	8,504.7848	18.7498	0.0005	0.0127	0.0000	0.0537	1.3399	0.0030
San Bernardino	2050	LDT1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDT1	Aggregate	Aggregate	Plug-in Hybrid	5,748,950.9095	12,674.2672	0.0003	16.7288	0.0369	0.0004	21.6761	0.0478
San Bernardino	2050	LDT2	Aggregate	Aggregate	Gasoline	4,772,096,994.8000	10,520,672.9884	0.0013	22,761.1595	50.1798	0.0034	59,288.7964	130.7094
San Bernardino	2050	LDT2	Aggregate	Aggregate	Diesel	17,023,533.6926	37,530.4675	0.0005	34.0588	0.0751	0.0398	2,682.0647	5.9129
San Bernardino	2050	LDT2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LDT2	Aggregate	Aggregate	Plug-in Hybrid	54,265,910.8283	119,635.8546	0.0003	157.9163	0.3481	0.0004	204.5660	0.4510
San Bernardino	2050	LHD1	Aggregate	Aggregate	Gasoline	299,345,135.7900	659,943.0581	0.0005	289.1795	0.6375	0.0017	1,052.2703	2.3199
San Bernardino	2050	LHD1	Aggregate	Aggregate	Diesel	192,774,229.8505	424,994.4280	0.0016	669.6482	1.4763	0.0723	30,371.6584	66.9580
San Bernardino	2050	LHD1	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	LHD2	Aggregate	Aggregate	Gasoline	40,303,850.6634	88,854.7809	0.0004	31.7866	0.0701	0.0024	181.4002	0.3999
San Bernardino	2050	LHD2	Aggregate	Aggregate	Diesel	108,469,207.0393	239,133.6676	0.0021	417.1182	0.9196	0.0847	17,089.3677	37.6756
San Bernardino	2050	LHD2	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	MCY	Aggregate	Aggregate	Gasoline	40,426,073.5732	89,124.2363	0.1261	27,819.4374	61.3314	0.0345	7,613.0419	16.7839
San Bernardino	2050	MDV	Aggregate	Aggregate	Gasoline	3,430,568,127.5820	7,563,108.0999	0.0013	13,985.1885	30.8321	0.0034	36,119.1624	79.6291
San Bernardino	2050	MDV	Aggregate	Aggregate	Diesel	37,633,230.8822	82,967.0721	0.0002	20.8887	0.0461	0.0520	5,929.1309	13.0715
San Bernardino	2050	MDV	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	MDV	Aggregate	Aggregate	Plug-in Hybrid	35,277,607.4753	77,773.8115	0.0003	102.7112	0.2264	0.0004	132.9336	0.2931
San Bernardino	2050	MH	Aggregate	Aggregate	Gasoline	49,007,443.7744	108,042.9192	0.0021	58.4002	0.1288	0.0170	468.9823	1.0339
San Bernardino	2050	MH	Aggregate	Aggregate	Diesel	15,555,371.3942	34,293.7237	0.0013	20.3267	0.0448	0.1562	2,450.7551	5.4030
San Bernardino	2050	Motor Coach	Aggregate	Aggregate	Diesel	14,134,476.9379	31,161.1876	0.0004	4.1844	0.0092	0.2358	2,226.8926	4.9095
San Bernardino	2050	OBUS	Aggregate	Aggregate	Gasoline	14,751,974.4696	32,522.5366	0.0014	14.1216	0.0311	0.0146	151.1487	0.3332
San Bernardino	2050	OBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	PTO	Aggregate	Aggregate	Diesel	68,229,211.9962	150,419.6642	0.0006	25.1841	0.0555	0.2699	10,749.5401	23.6987
San Bernardino	2050	PTO	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Gasoline	6,800,916.4997	14,993.4544	0.0025	21.4945	0.0474	0.0093	81.2818	0.1792
San Bernardino	2050	SBUS	Aggregate	Aggregate	Diesel	10,056,019.2776	22,169.7276	0.0004	4.0082	0.0088	0.1758	1,584.3299	3.4928
San Bernardino	2050	SBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	SBUS	Aggregate	Aggregate	Natural Gas	8,586,042.8940	18,928.9844	3.1300	18,764.1696	41.3679	0.2920	1,750.3210	3.8588
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	1,330,967.6871	2,934.2815	0.0002	0.3060	0.0007	0.1570	209.6945	0.4623
San Bernardino	2050	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	1,826,909.9243	4,027.6469	0.0002	0.4203	0.0009	0.1570	287.8304	0.6346
San Bernardino	2050	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	4,766,727.3471	10,508.8349	0.0002	1.0959	0.0024	0.1569	750.9998	1.6557
San Bernardino	2050	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	50,639,428.4902	111,640.8296	0.0002	14.2968	0.0315	0.1388	7,978.2626	17.5891
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 CAIRP Class 7	Aggregate	Aggregate	Natural Gas	6,104.3681	13.4578	0.5130	4.3282	0.0095	0.1475	1.2444	0.0027
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	19,524,947.4937	43,045.1409	0.0002	4.4135	0.0097	0.1536	3,076.1634	6.7818
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	108,939.2739	240.1700	0.5466	77.2856	0.1704	0.1571	22.2080	0.0490
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	22,748,830.4679	50,152.5863	0.0002	5.1155	0.0113	0.1535	3,584.0875	7.9016
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2050	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	131,404.4003	289.6971	0.5468	93.2810	0.2056	0.1570	26.7876	0.0591
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	92,244,866.9888	203,365.1205	0.0002	20.8105	0.0459	0.1535	14,533.2164	32.0403
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	523,307.9195	1,153.6965	0.5466	371.4076	0.8188	0.1570	106.6797	0.2352
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	35,699,669.0464	78,704.2980	0.0003	9.6404	0.0213	0.1549	5,624.4974	12.3999
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	612,546.8827	1,350.4347	0.5299	415.5449	0.9161	0.1592	124.8717	0.2753
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	50,197,744.5066	110,667.0831	0.0002	11.4350	0.0252	0.1539	7,908.6751	17.4356
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	243,439.9203	536.6932	0.5409	171.8842	0.3789	0.1562	49.6268	0.1094
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	122,702,701.7683	270,513.1521	0.0002	27.7681	0.0612	0.1536	19,331.8606	42.6195
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	646,863.1302	1,426.0891	0.5410	456.9822	1.0075	0.1561	131.8673	0.2907
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	105,422,029.6163	232,415.7913	0.0002	23.8889	0.0527	0.1536	16,609.2837	36.6172
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	554,484.7377	1,222.4296	0.5409	391.7180	0.8636	0.1561	113.0353	0.2492
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	86,315,763.8049	190,293.6855	0.0003	23.0190	0.0507	0.1539	13,599.0837	29.9808
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	1,391,709.9695	3,068.1953	0.5296	951.1515	2.0969	0.1580	283.7092	0.6255
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	1,241,269.3876	2,736.5306	0.0002	0.2777	0.0006	0.1538	195.5625	0.4311
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	6,259.5481	13.7999	0.5410	4.4218	0.0097	0.1561	1.2760	0.0028
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	78,822,038.2869	173,772.8487	0.0003	22.8007	0.0503	0.1387	12,418.4442	27.3780
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	1,377,565.0539	3,037.0111	0.5299	968.0818	2.1343	0.1537	280.8256	0.6191
San Bernardino	2050	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1,803,694.2713	3,976.4652	0.0002	0.4364	0.0010	0.1475	284.1728	0.6265
San Bernardino	2050	T6 OOS Class 5	Aggregate	Aggregate	Diesel	2,475,123.4921	5,456.7132	0.0002	0.5996	0.0013	0.1475	389.9567	0.8597
San Bernardino	2050	T6 OOS Class 6	Aggregate	Aggregate	Diesel	6,460,108.3985	14,242.1011	0.0002	1.5612	0.0034	0.1474	1,017.7927	2.2438
San Bernardino	2050	T6 OOS Class 7	Aggregate	Aggregate	Diesel	42,300,327.2874	93,256.2584	0.0002	12.2262	0.0270	0.1327	6,664.4338	14.6926
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Diesel	2,226,343.4346	4,908.2471	0.0002	0.5192	0.0011	0.1564	350.7613	0.7733
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	263,796.1553	581.5710	0.5123	181.1326	0.3993	0.1521	53.7766	0.1186
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Diesel	4,411,281.4105	9,725.2108	0.0002	1.0058	0.0022	0.1569	694.9992	1.5322
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	576,131.4498	1,270.1524	0.5079	389.2289	0.8581	0.1533	117.4482	0.2589
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Diesel	3,287,454.7208	7,247.5970	0.0002	0.7347	0.0016	0.1565	517.9398	1.1419
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	417,733.5337	920.9448	0.5138	286.1240	0.6308	0.1529	85.1577	0.1877
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Diesel	10,095,566.8875	22,256.9151	0.0002	2.1640	0.0048	0.1544	1,590.5607	3.5066
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	1,294,085.1495	2,852.9694	0.5160	890.8872	1.9641	0.1528	263.8077	0.5816
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Diesel	3,562,515.7572	7,854.0028	0.0002	0.6342	0.0014	0.1541	561.2758	1.2374
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	13,103.6568	28.8886	0.5248	9.1389	0.0201	0.1534	2.6713	0.0059
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Diesel	673,251.7706	1,484.2661	0.0002	0.1199	0.0003	0.1541	106.0711	0.2338
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	2,476.3538	5.4594	0.5248	1.7271	0.0038	0.1534	0.5048	0.0011
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Diesel	928,096.9435	2,046.1035	0.0002	0.1635	0.0004	0.1543	146.2221	0.3224
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	3,410.3869	7.5186	0.5248	2.3785	0.0052	0.1534	0.6952	0.0015

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: San Bernardino
Calendar Year: 2050
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK a

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	CO2_Grams	CO2_Pounds	CH4_RUNEX	CH4_Grams	CH4_Pounds	N2O_RUNEX	N2O_Grams	N2O_Pounds
San Bernardino	2050	T6TS	Aggregate	Aggregate	Gasoline	92,208,672.0207	203,285.3243	0.0021	135.9218	0.2997	0.0065	431.0724	0.9504
San Bernardino	2050	T6TS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	2,795,384,169.5581	6,162,767.1770	0.0005	1,127.3658	2.4854	0.1999	440,413.9143	970.9465
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	2,564,201.5626	5,653.0968	0.9002	2,289.3919	5.0472	0.2055	522.7293	1.1524
San Bernardino	2050	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	4,092,208,449.5152	9,021,775.3211	0.0005	1,676.5994	3.6963	0.1912	644,729.1077	1,421.3844
San Bernardino	2050	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	1,486,101,359.4892	3,276,292.6755	0.0005	628.3181	1.3852	0.1912	234,135.8744	516.1812
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Diesel	545,317,162.4847	1,202,218.5525	0.0005	188.6571	0.4159	0.2124	85,914.9410	189.4100
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 POLA Class 8	Aggregate	Aggregate	Natural Gas	16,997,215.3291	37,472.4454	0.9047	15,196.9369	33.5035	0.2063	3,464.9935	7.6390
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Diesel	18,647,263.8826	41,110.1798	0.0006	7.9281	0.0175	0.2344	2,937.8840	6.4769
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	16,866,203.5080	37,183.6138	0.9121	14,550.9928	32.0794	0.2155	3,438.2859	7.5801
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Diesel	20,796,717.5980	45,848.9141	0.0004	5.3791	0.0119	0.2237	3,276.5313	7.2235
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Concrete/Transit Mix Class 8	Aggregate	Aggregate	Natural Gas	1,096,596.7354	2,417.5820	0.9199	962.0690	2.1210	0.2138	223.5484	0.4928
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	38,968,997.7045	85,911.9339	0.0004	11.5671	0.0255	0.2272	6,139.5815	13.5355
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	1,972,207.5892	4,347.9735	0.9168	1,704.6524	3.7581	0.2162	402.0474	0.8864
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	208,038,581.5742	458,646.5632	0.0004	57.7639	0.1273	0.2254	32,776.5632	72.2600
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	11,143,309.4910	24,566.7922	0.9197	9,727.0826	21.4445	0.2148	2,271.6365	5.0081
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	6,560,680.4589	14,463.8246	0.0008	1.7395	0.0038	0.4881	1,033.6379	2.2788
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	83,720,442.0878	184,571.9805	0.3427	31,383.4743	69.1887	0.1864	17,066.9598	37.6262
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	958,591,656.6783	2,113,332.8514	0.0005	353.2840	0.7789	0.1988	151,026.5059	332.9565
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	16,477,916.1786	36,327.5868	0.9044	14,697.6625	32.4028	0.2067	3,359.1310	7.4056
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Diesel	5,618,687.9108	12,387.0865	0.0004	1.5006	0.0033	0.2307	885.2266	1.9516
San Bernardino	2050	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	T7IS	Aggregate	Aggregate	Gasoline	373,861.2974	824.2231	0.0653	15.0524	0.0332	0.0981	22.6185	0.0499
San Bernardino	2050	T7IS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Gasoline	4,605,090.6806	10,152.4871	0.0005	4.2309	0.0093	0.0033	28.0398	0.0618
San Bernardino	2050	UBUS	Aggregate	Aggregate	Electricity	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
San Bernardino	2050	UBUS	Aggregate	Aggregate	Natural Gas	4,498,398.1205	9,917.2703	0.0020	16.2548	0.0358	0.1124	917.0279	2.0217
						28,715,912,534.7808	63,307,750.3812	Total	222,783.6378	491.1538	Total	2,052,267.0294	4,524.4743
						Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile		Grams/Mile	Pounds/Mile
						333.9376	0.7362		0.0026	0.0000		0.0239	0.0001

ATTACHMENT 2

CalEEMod Output – Existing Land Uses

Foothill Central Specific Plan - Existing Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Foothill Central Specific Plan - Existing
Operational Year	2023
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	34.106761880467005, -117.37099373430223
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5337
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	6,728	Dwelling Unit	187	6,458,880	1,626,449	0.00	25,009	—

Single Family Housing	748	Dwelling Unit	256	1,458,600	8,761,217	0.00	2,781	—
Strip Mall	1,733	1000sqft	42.0	1,732,653	365,515	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	58.3	278	32.3	510	0.20	2.57	0.00	2.57	2.48	0.00	2.48	5,272	89,215	94,488	537	2.74	67.5	108,804
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.19	226	27.4	12.8	0.17	2.20	0.00	2.20	2.20	0.00	2.20	5,272	87,771	93,044	537	2.73	67.5	107,355
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	41.0	262	30.8	353	0.19	2.45	0.00	2.45	2.39	0.00	2.39	5,272	88,760	94,033	537	2.74	67.5	108,348
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.48	47.8	5.61	64.5	0.03	0.45	0.00	0.45	0.44	0.00	0.44	873	14,695	15,568	89.0	0.45	11.2	17,938

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	55.2	276	4.91	497	0.02	0.37	—	0.37	0.28	—	0.28	0.00	1,444	1,444	0.06	0.01	—	1,449
Energy	3.19	1.59	27.4	12.8	0.17	2.20	—	2.20	2.20	—	2.20	—	83,848	83,848	7.72	0.63	—	84,229
Water	—	—	—	—	—	—	—	—	—	—	—	843	3,924	4,767	86.8	2.10	—	7,563
Waste	—	—	—	—	—	—	—	—	—	—	—	4,429	0.00	4,429	443	0.00	—	15,496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.5	67.5
Total	58.3	278	32.3	510	0.20	2.57	0.00	2.57	2.48	0.00	2.48	5,272	89,215	94,488	537	2.74	67.5	108,804
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	224	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	3.19	1.59	27.4	12.8	0.17	2.20	—	2.20	2.20	—	2.20	—	83,848	83,848	7.72	0.63	—	84,229
Water	—	—	—	—	—	—	—	—	—	—	—	843	3,924	4,767	86.8	2.10	—	7,563
Waste	—	—	—	—	—	—	—	—	—	—	—	4,429	0.00	4,429	443	0.00	—	15,496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.5	67.5
Total	3.19	226	27.4	12.8	0.17	2.20	0.00	2.20	2.20	0.00	2.20	5,272	87,771	93,044	537	2.73	67.5	107,355
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	37.8	260	3.36	340	0.02	0.25	—	0.25	0.19	—	0.19	0.00	989	989	0.04	0.01	—	992
Energy	3.19	1.59	27.4	12.8	0.17	2.20	—	2.20	2.20	—	2.20	—	83,848	83,848	7.72	0.63	—	84,229
Water	—	—	—	—	—	—	—	—	—	—	—	843	3,924	4,767	86.8	2.10	—	7,563
Waste	—	—	—	—	—	—	—	—	—	—	—	4,429	0.00	4,429	443	0.00	—	15,496
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.5	67.5

Total	41.0	262	30.8	353	0.19	2.45	0.00	2.45	2.39	0.00	2.39	5,272	88,760	94,033	537	2.74	67.5	108,348
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	6.89	47.5	0.61	62.1	< 0.005	0.05	—	0.05	0.03	—	0.03	0.00	164	164	0.01	< 0.005	—	164
Energy	0.58	0.29	5.00	2.34	0.03	0.40	—	0.40	0.40	—	0.40	—	13,882	13,882	1.28	0.10	—	13,945
Water	—	—	—	—	—	—	—	—	—	—	—	140	650	789	14.4	0.35	—	1,252
Waste	—	—	—	—	—	—	—	—	—	—	—	733	0.00	733	73.3	0.00	—	2,566
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2
Total	7.48	47.8	5.61	64.5	0.03	0.45	0.00	0.45	0.44	0.00	0.44	873	14,695	15,568	89.0	0.45	11.2	17,938

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	27,737	27,737	2.63	0.32	—	27,898

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	5,437	5,437	0.51	0.06	—	5,468
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	16,100	16,100	1.52	0.18	—	16,193
Total	—	—	—	—	—	—	—	—	—	—	—	—	49,274	49,274	4.66	0.57	—	49,559
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	27,737	27,737	2.63	0.32	—	27,898
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	5,437	5,437	0.51	0.06	—	5,468
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	16,100	16,100	1.52	0.18	—	16,193
Total	—	—	—	—	—	—	—	—	—	—	—	—	49,274	49,274	4.66	0.57	—	49,559
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	4,592	4,592	0.43	0.05	—	4,619
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	900	900	0.09	0.01	—	905
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	2,666	2,666	0.25	0.03	—	2,681
Total	—	—	—	—	—	—	—	—	—	—	—	—	8,158	8,158	0.77	0.09	—	8,205

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	2.19	1.10	18.7	7.98	0.12	1.52	—	1.52	1.52	—	1.52	—	23,799	23,799	2.11	0.04	—	23,865
Single Family Housing	0.69	0.35	5.91	2.51	0.04	0.48	—	0.48	0.48	—	0.48	—	7,501	7,501	0.66	0.01	—	7,522
Strip Mall	0.30	0.15	2.74	2.30	0.02	0.21	—	0.21	0.21	—	0.21	—	3,274	3,274	0.29	0.01	—	3,283
Total	3.19	1.59	27.4	12.8	0.17	2.20	—	2.20	2.20	—	2.20	—	34,573	34,573	3.06	0.07	—	34,669
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	2.19	1.10	18.7	7.98	0.12	1.52	—	1.52	1.52	—	1.52	—	23,799	23,799	2.11	0.04	—	23,865
Single Family Housing	0.69	0.35	5.91	2.51	0.04	0.48	—	0.48	0.48	—	0.48	—	7,501	7,501	0.66	0.01	—	7,522
Strip Mall	0.30	0.15	2.74	2.30	0.02	0.21	—	0.21	0.21	—	0.21	—	3,274	3,274	0.29	0.01	—	3,283
Total	3.19	1.59	27.4	12.8	0.17	2.20	—	2.20	2.20	—	2.20	—	34,573	34,573	3.06	0.07	—	34,669
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.40	0.20	3.42	1.46	0.02	0.28	—	0.28	0.28	—	0.28	—	3,940	3,940	0.35	0.01	—	3,951
Single Family Housing	0.13	0.06	1.08	0.46	0.01	0.09	—	0.09	0.09	—	0.09	—	1,242	1,242	0.11	< 0.005	—	1,245
Strip Mall	0.06	0.03	0.50	0.42	< 0.005	0.04	—	0.04	0.04	—	0.04	—	542	542	0.05	< 0.005	—	544
Total	0.58	0.29	5.00	2.34	0.03	0.40	—	0.40	0.40	—	0.40	—	5,724	5,724	0.51	0.01	—	5,740

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	207	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	18.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	55.2	52.0	4.91	497	0.02	0.37	—	0.37	0.28	—	0.28	—	1,444	1,444	0.06	0.01	—	1,449
Total	55.2	276	4.91	497	0.02	0.37	—	0.37	0.28	—	0.28	0.00	1,444	1,444	0.06	0.01	—	1,449
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	207	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	18.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	224	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	37.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	3.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	6.89	6.50	0.61	62.1	< 0.005	0.05	—	0.05	0.03	—	0.03	—	164	164	0.01	< 0.005	—	164
Total	6.89	47.5	0.61	62.1	< 0.005	0.05	—	0.05	0.03	—	0.03	0.00	164	164	0.01	< 0.005	—	164

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	537	1,985	2,523	55.3	1.33	—	4,302
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	59.7	1,074	1,134	6.23	0.16	—	1,337
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	246	864	1,110	25.3	0.61	—	1,924
Total	—	—	—	—	—	—	—	—	—	—	—	843	3,924	4,767	86.8	2.10	—	7,563
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	537	1,985	2,523	55.3	1.33	—	4,302

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	59.7	1,074	1,134	6.23	0.16	—	1,337
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	246	864	1,110	25.3	0.61	—	1,924
Total	—	—	—	—	—	—	—	—	—	—	—	843	3,924	4,767	86.8	2.10	—	7,563
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	89.0	329	418	9.15	0.22	—	712
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	9.89	178	188	1.03	0.03	—	221
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	40.7	143	184	4.19	0.10	—	319
Total	—	—	—	—	—	—	—	—	—	—	—	140	650	789	14.4	0.35	—	1,252

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3,011	0.00	3,011	301	0.00	—	10,535
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	438	0.00	438	43.7	0.00	—	1,531
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	980	0.00	980	98.0	0.00	—	3,430
Total	—	—	—	—	—	—	—	—	—	—	—	4,429	0.00	4,429	443	0.00	—	15,496

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3,011	0.00	3,011	301	0.00	—	10,535
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	438	0.00	438	43.7	0.00	—	1,531
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	980	0.00	980	98.0	0.00	—	3,430
Total	—	—	—	—	—	—	—	—	—	—	—	4,429	0.00	4,429	443	0.00	—	15,496
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	499	0.00	499	49.8	0.00	—	1,744
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	72.5	0.00	72.5	7.24	0.00	—	253
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	162	0.00	162	16.2	0.00	—	568
Total	—	—	—	—	—	—	—	—	—	—	—	733	0.00	733	73.3	0.00	—	2,566

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.3	46.3

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.4	10.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.8	10.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.5	67.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.3	46.3
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.4	10.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.8	10.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.5	67.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.66	7.66
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.73	1.73
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.79	1.79
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	6728
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	748

Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
16032897	5,344,299	2,598,980	866,327	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	29,039,140	349	0.0330	0.0040	74,258,144
Single Family Housing	5,691,997	349	0.0330	0.0040	23,404,707
Strip Mall	16,855,827	349	0.0330	0.0040	10,214,839

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	280,430,945	31,923,646
Single Family Housing	31,177,519	171,963,568
Strip Mall	128,341,977	5,869,847

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	5,587	—
Single Family Housing	812	—
Strip Mall	1,819	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.1	annual days of extreme heat
Extreme Precipitation	4.85	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	77.8
AQ-DPM	67.0
Drinking Water	88.0
Lead Risk Housing	88.3
Pesticides	0.00
Toxic Releases	71.1
Traffic	47.7
Effect Indicators	—
CleanUp Sites	78.0
Groundwater	0.00
Haz Waste Facilities/Generators	74.7
Impaired Water Bodies	0.00
Solid Waste	0.00

Sensitive Population	—
Asthma	84.2
Cardio-vascular	95.4
Low Birth Weights	87.4
Socioeconomic Factor Indicators	—
Education	87.7
Housing	97.0
Linguistic	75.5
Poverty	98.4
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	1.62966765
Employed	3.503143847
Median HI	4.350057744
Education	—
Bachelor's or higher	10.07314256
High school enrollment	100
Preschool enrollment	54.67727448
Transportation	—
Auto Access	14.48736045
Active commuting	43.19260875
Social	—
2-parent households	33.38893879

Voting	12.4085718
Neighborhood	—
Alcohol availability	14.80816117
Park access	42.38419094
Retail density	69.9088926
Supermarket access	94.25125112
Tree canopy	28.82073656
Housing	—
Homeownership	13.20415758
Housing habitability	7.596561016
Low-inc homeowner severe housing cost burden	3.823944566
Low-inc renter severe housing cost burden	34.2871808
Uncrowded housing	13.01167715
Health Outcomes	—
Insured adults	14.98780957
Arthritis	9.2
Asthma ER Admissions	12.6
High Blood Pressure	12.9
Cancer (excluding skin)	55.0
Asthma	3.1
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	3.4
Diagnosed Diabetes	3.0
Life Expectancy at Birth	6.1
Cognitively Disabled	4.4
Physically Disabled	17.3
Heart Attack ER Admissions	1.6

Mental Health Not Good	6.5
Chronic Kidney Disease	5.2
Obesity	5.7
Pedestrian Injuries	85.9
Physical Health Not Good	4.0
Stroke	3.8
Health Risk Behaviors	—
Binge Drinking	89.1
Current Smoker	10.2
No Leisure Time for Physical Activity	7.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	12.4
Elderly	81.9
English Speaking	35.3
Foreign-born	60.1
Outdoor Workers	30.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.4
Traffic Density	21.6
Traffic Access	23.0
Other Indices	—
Hardship	97.5
Other Decision Support	—
2016 Voting	17.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	97.0
Healthy Places Index Score for Project Location (b)	4.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Existing land uses 7,476 dwelling units (90% multi-family, 10% single family) 1,732,653 sf retail/office 484.7 acres 27,790 population
Operations: Vehicle Data	Vehicle emissions modeled separately
Operations: Hearths	No fireplaces or wood stoves modeled

ATTACHMENT 3

CalEEMod Output – Buildout of Adopted Land Uses

Foothill Central Specific Plan - Adopted 2045 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Foothill Central Specific Plan - Adopted 2045
Operational Year	2045
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	34.106761880467005, -117.37099373430223
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5337
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	8,227	Dwelling Unit	169	7,897,920	1,467,913	0.00	31,756	—

Single Family Housing	914	Dwelling Unit	231	1,782,300	10,705,551	0.00	3,528	—
Strip Mall	4,768	1000sqft	85.2	4,767,915	742,432	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	88.9	419	44.2	748	0.27	3.61	0.00	3.61	3.47	0.00	3.47	8,484	117,517	126,001	864	4.58	99.0	149,075
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.36	340	37.7	19.2	0.24	3.01	0.00	3.01	3.01	0.00	3.01	8,484	115,278	123,762	864	4.56	99.0	146,828
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	62.2	394	42.2	518	0.26	3.42	0.00	3.42	3.32	0.00	3.32	8,484	116,812	125,295	864	4.57	99.0	148,367
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.4	72.0	7.70	94.6	0.05	0.62	0.00	0.62	0.61	0.00	0.61	1,405	19,340	20,744	143	0.76	16.4	24,564

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	84.5	417	6.53	729	0.03	0.60	—	0.60	0.45	—	0.45	0.00	2,239	2,239	0.09	0.02	—	2,247
Energy	4.36	2.18	37.7	19.2	0.24	3.01	—	3.01	3.01	—	3.01	—	110,756	110,756	12.2	1.06	—	111,378
Water	—	—	—	—	—	—	—	—	—	—	—	1,407	4,522	5,929	145	3.50	—	10,592
Waste	—	—	—	—	—	—	—	—	—	—	—	7,077	0.00	7,077	707	0.00	—	24,759
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99.0	99.0
Total	88.9	419	44.2	748	0.27	3.61	0.00	3.61	3.47	0.00	3.47	8,484	117,517	126,001	864	4.58	99.0	149,075
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	338	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	4.36	2.18	37.7	19.2	0.24	3.01	—	3.01	3.01	—	3.01	—	110,756	110,756	12.2	1.06	—	111,378
Water	—	—	—	—	—	—	—	—	—	—	—	1,407	4,522	5,929	145	3.50	—	10,592
Waste	—	—	—	—	—	—	—	—	—	—	—	7,077	0.00	7,077	707	0.00	—	24,759
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99.0	99.0
Total	4.36	340	37.7	19.2	0.24	3.01	0.00	3.01	3.01	0.00	3.01	8,484	115,278	123,762	864	4.56	99.0	146,828
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	57.9	392	4.47	499	0.02	0.41	—	0.41	0.31	—	0.31	0.00	1,534	1,534	0.06	0.01	—	1,539
Energy	4.36	2.18	37.7	19.2	0.24	3.01	—	3.01	3.01	—	3.01	—	110,756	110,756	12.2	1.06	—	111,378
Water	—	—	—	—	—	—	—	—	—	—	—	1,407	4,522	5,929	145	3.50	—	10,592
Waste	—	—	—	—	—	—	—	—	—	—	—	7,077	0.00	7,077	707	0.00	—	24,759
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99.0	99.0

Total	62.2	394	42.2	518	0.26	3.42	0.00	3.42	3.32	0.00	3.32	8,484	116,812	125,295	864	4.57	99.0	148,367
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	10.6	71.6	0.82	91.1	< 0.005	0.08	—	0.08	0.06	—	0.06	0.00	254	254	0.01	< 0.005	—	255
Energy	0.80	0.40	6.88	3.50	0.04	0.55	—	0.55	0.55	—	0.55	—	18,337	18,337	2.02	0.18	—	18,440
Water	—	—	—	—	—	—	—	—	—	—	—	233	749	982	24.0	0.58	—	1,754
Waste	—	—	—	—	—	—	—	—	—	—	—	1,172	0.00	1,172	117	0.00	—	4,099
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.4	16.4
Total	11.4	72.0	7.70	94.6	0.05	0.62	0.00	0.62	0.61	0.00	0.61	1,405	19,340	20,744	143	0.76	16.4	24,564

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	25,371	25,371	3.21	0.39	—	25,567

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	4,969	4,969	0.63	0.08	—	5,008
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33,141	33,141	4.19	0.51	—	33,397
Total	—	—	—	—	—	—	—	—	—	—	—	—	63,481	63,481	8.03	0.97	—	63,972
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	25,371	25,371	3.21	0.39	—	25,567
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	4,969	4,969	0.63	0.08	—	5,008
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	33,141	33,141	4.19	0.51	—	33,397
Total	—	—	—	—	—	—	—	—	—	—	—	—	63,481	63,481	8.03	0.97	—	63,972
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	4,200	4,200	0.53	0.06	—	4,233
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	823	823	0.10	0.01	—	829
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	5,487	5,487	0.69	0.08	—	5,529
Total	—	—	—	—	—	—	—	—	—	—	—	—	10,510	10,510	1.33	0.16	—	10,591

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	2.68	1.34	22.9	9.76	0.15	1.85	—	1.85	1.85	—	1.85	—	29,101	29,101	2.58	0.05	—	29,182
Single Family Housing	0.84	0.42	7.22	3.07	0.05	0.58	—	0.58	0.58	—	0.58	—	9,165	9,165	0.81	0.02	—	9,191
Strip Mall	0.83	0.42	7.55	6.34	0.05	0.57	—	0.57	0.57	—	0.57	—	9,009	9,009	0.80	0.02	—	9,034
Total	4.36	2.18	37.7	19.2	0.24	3.01	—	3.01	3.01	—	3.01	—	47,275	47,275	4.18	0.09	—	47,406
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Mid Rise	2.68	1.34	22.9	9.76	0.15	1.85	—	1.85	1.85	—	1.85	—	29,101	29,101	2.58	0.05	—	29,182
Single Family Housing	0.84	0.42	7.22	3.07	0.05	0.58	—	0.58	0.58	—	0.58	—	9,165	9,165	0.81	0.02	—	9,191
Strip Mall	0.83	0.42	7.55	6.34	0.05	0.57	—	0.57	0.57	—	0.57	—	9,009	9,009	0.80	0.02	—	9,034
Total	4.36	2.18	37.7	19.2	0.24	3.01	—	3.01	3.01	—	3.01	—	47,275	47,275	4.18	0.09	—	47,406
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Mid Rise	0.49	0.24	4.18	1.78	0.03	0.34	—	0.34	0.34	—	0.34	—	4,818	4,818	0.43	0.01	—	4,831
Single Family Housing	0.15	0.08	1.32	0.56	0.01	0.11	—	0.11	0.11	—	0.11	—	1,517	1,517	0.13	< 0.005	—	1,522
Strip Mall	0.15	0.08	1.38	1.16	0.01	0.10	—	0.10	0.10	—	0.10	—	1,491	1,491	0.13	< 0.005	—	1,496
Total	0.80	0.40	6.88	3.50	0.04	0.55	—	0.55	0.55	—	0.55	—	7,827	7,827	0.69	0.01	—	7,849

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	309	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	28.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	84.5	79.1	6.53	729	0.03	0.60	—	0.60	0.45	—	0.45	—	2,239	2,239	0.09	0.02	—	2,247
Total	84.5	417	6.53	729	0.03	0.60	—	0.60	0.45	—	0.45	0.00	2,239	2,239	0.09	0.02	—	2,247
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	309	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	28.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	338	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	56.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	5.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	10.6	9.89	0.82	91.1	< 0.005	0.08	—	0.08	0.06	—	0.06	—	254	254	0.01	< 0.005	—	255
Total	10.6	71.6	0.82	91.1	< 0.005	0.08	—	0.08	0.06	—	0.06	0.00	254	254	0.01	< 0.005	—	255

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	657	1,777	2,434	67.6	1.63	—	4,609
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.0	982	1,055	7.61	0.19	—	1,303
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	677	1,763	2,440	69.6	1.68	—	4,680
Total	—	—	—	—	—	—	—	—	—	—	—	1,407	4,522	5,929	145	3.50	—	10,592
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	657	1,777	2,434	67.6	1.63	—	4,609

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	73.0	982	1,055	7.61	0.19	—	1,303
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	677	1,763	2,440	69.6	1.68	—	4,680
Total	—	—	—	—	—	—	—	—	—	—	—	1,407	4,522	5,929	145	3.50	—	10,592
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	109	294	403	11.2	0.27	—	763
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	12.1	163	175	1.26	0.03	—	216
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	112	292	404	11.5	0.28	—	775
Total	—	—	—	—	—	—	—	—	—	—	—	233	749	982	24.0	0.58	—	1,754

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3,823	0.00	3,823	382	0.00	—	13,377
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	555	0.00	555	55.5	0.00	—	1,942
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2,698	0.00	2,698	270	0.00	—	9,440
Total	—	—	—	—	—	—	—	—	—	—	—	7,077	0.00	7,077	707	0.00	—	24,759

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3,823	0.00	3,823	382	0.00	—	13,377
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	555	0.00	555	55.5	0.00	—	1,942
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2,698	0.00	2,698	270	0.00	—	9,440
Total	—	—	—	—	—	—	—	—	—	—	—	7,077	0.00	7,077	707	0.00	—	24,759
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	633	0.00	633	63.3	0.00	—	2,215
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	91.9	0.00	91.9	9.19	0.00	—	322
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	447	0.00	447	44.6	0.00	—	1,563
Total	—	—	—	—	—	—	—	—	—	—	—	1,172	0.00	1,172	117	0.00	—	4,099

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56.6	56.6

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.7	29.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99.0	99.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56.6	56.6
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29.7	29.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99.0	99.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.36	9.36
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.11	2.11
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.92	4.92
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16.4	16.4

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	8227
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	914

Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
19602445.5	6,534,149	7,151,873	2,383,958	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	35,509,068	261	0.0330	0.0040	90,802,876
Single Family Housing	6,955,194	261	0.0330	0.0040	28,598,800
Strip Mall	46,383,869	261	0.0330	0.0040	28,109,196

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	342,911,027	28,811,919
Single Family Housing	38,096,594	210,126,601
Strip Mall	353,171,486	11,922,799

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	7,094	—
Single Family Housing	1,030	—
Strip Mall	5,006	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.1	annual days of extreme heat
Extreme Precipitation	4.85	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	77.8
AQ-DPM	67.0
Drinking Water	88.0
Lead Risk Housing	88.3
Pesticides	0.00
Toxic Releases	71.1
Traffic	47.7
Effect Indicators	—
CleanUp Sites	78.0
Groundwater	0.00
Haz Waste Facilities/Generators	74.7
Impaired Water Bodies	0.00
Solid Waste	0.00

Sensitive Population	—
Asthma	84.2
Cardio-vascular	95.4
Low Birth Weights	87.4
Socioeconomic Factor Indicators	—
Education	87.7
Housing	97.0
Linguistic	75.5
Poverty	98.4
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	1.62966765
Employed	3.503143847
Median HI	4.350057744
Education	—
Bachelor's or higher	10.07314256
High school enrollment	100
Preschool enrollment	54.67727448
Transportation	—
Auto Access	14.48736045
Active commuting	43.19260875
Social	—
2-parent households	33.38893879

Voting	12.4085718
Neighborhood	—
Alcohol availability	14.80816117
Park access	42.38419094
Retail density	69.9088926
Supermarket access	94.25125112
Tree canopy	28.82073656
Housing	—
Homeownership	13.20415758
Housing habitability	7.596561016
Low-inc homeowner severe housing cost burden	3.823944566
Low-inc renter severe housing cost burden	34.2871808
Uncrowded housing	13.01167715
Health Outcomes	—
Insured adults	14.98780957
Arthritis	9.2
Asthma ER Admissions	12.6
High Blood Pressure	12.9
Cancer (excluding skin)	55.0
Asthma	3.1
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	3.4
Diagnosed Diabetes	3.0
Life Expectancy at Birth	6.1
Cognitively Disabled	4.4
Physically Disabled	17.3
Heart Attack ER Admissions	1.6

Mental Health Not Good	6.5
Chronic Kidney Disease	5.2
Obesity	5.7
Pedestrian Injuries	85.9
Physical Health Not Good	4.0
Stroke	3.8
Health Risk Behaviors	—
Binge Drinking	89.1
Current Smoker	10.2
No Leisure Time for Physical Activity	7.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	12.4
Elderly	81.9
English Speaking	35.3
Foreign-born	60.1
Outdoor Workers	30.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.4
Traffic Density	21.6
Traffic Access	23.0
Other Indices	—
Hardship	97.5
Other Decision Support	—
2016 Voting	17.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	97.0
Healthy Places Index Score for Project Location (b)	4.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Adopted buildout land uses 9141 dwelling units (90% multi-family, 10% single family) 4,767,915 sf retail/office 484.7 acres 35,284 population
Operations: Vehicle Data	Vehicle emissions modeled separately
Operations: Hearths	No fireplaces or wood stoves modeled

ATTACHMENT 4

CalEEMod Output – Buildout of Proposed Project

Foothill Central Specific Plan - Proposed 2045 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Foothill Central Specific Plan - Proposed 2045
Operational Year	2045
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	34.106761880467005, -117.37099373430223
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5337
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	9,050	Dwelling Unit	169	8,688,000	1,473,123	0.00	34,933	—

Single Family Housing	1,006	Dwelling Unit	232	1,961,700	11,783,134	0.00	3,883	—
Strip Mall	5,139	1000sqft	83.8	5,138,749	729,757	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	96.9	458	48.5	818	0.30	3.95	0.00	3.95	3.79	0.00	3.79	9,257	128,272	137,529	943	4.99	108	162,705
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.78	372	41.3	20.9	0.26	3.30	0.00	3.30	3.30	0.00	3.30	9,257	125,827	135,085	943	4.97	108	160,252
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	67.9	431	46.2	567	0.29	3.75	0.00	3.75	3.64	0.00	3.64	9,257	127,501	136,759	943	4.98	108	161,933
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.4	78.6	8.43	103	0.05	0.68	0.00	0.68	0.66	0.00	0.66	1,533	21,109	22,642	156	0.82	17.9	26,810

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	92.1	455	7.15	797	0.04	0.65	—	0.65	0.49	—	0.49	0.00	2,444	2,444	0.10	0.02	—	2,453
Energy	4.78	2.39	41.3	20.9	0.26	3.30	—	3.30	3.30	—	3.30	—	120,906	120,906	13.3	1.16	—	121,584
Water	—	—	—	—	—	—	—	—	—	—	—	1,533	4,921	6,454	158	3.81	—	11,533
Waste	—	—	—	—	—	—	—	—	—	—	—	7,725	0.00	7,725	772	0.00	—	27,027
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108	108
Total	96.9	458	48.5	818	0.30	3.95	0.00	3.95	3.79	0.00	3.79	9,257	128,272	137,529	943	4.99	108	162,705
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	369	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	4.78	2.39	41.3	20.9	0.26	3.30	—	3.30	3.30	—	3.30	—	120,906	120,906	13.3	1.16	—	121,584
Water	—	—	—	—	—	—	—	—	—	—	—	1,533	4,921	6,454	158	3.81	—	11,533
Waste	—	—	—	—	—	—	—	—	—	—	—	7,725	0.00	7,725	772	0.00	—	27,027
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108	108
Total	4.78	372	41.3	20.9	0.26	3.30	0.00	3.30	3.30	0.00	3.30	9,257	125,827	135,085	943	4.97	108	160,252
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	63.1	428	4.90	546	0.03	0.45	—	0.45	0.34	—	0.34	0.00	1,674	1,674	0.07	0.01	—	1,680
Energy	4.78	2.39	41.3	20.9	0.26	3.30	—	3.30	3.30	—	3.30	—	120,906	120,906	13.3	1.16	—	121,584
Water	—	—	—	—	—	—	—	—	—	—	—	1,533	4,921	6,454	158	3.81	—	11,533
Waste	—	—	—	—	—	—	—	—	—	—	—	7,725	0.00	7,725	772	0.00	—	27,027
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108	108

Total	67.9	431	46.2	567	0.29	3.75	0.00	3.75	3.64	0.00	3.64	9,257	127,501	136,759	943	4.98	108	161,933
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	11.5	78.2	0.89	99.6	< 0.005	0.08	—	0.08	0.06	—	0.06	0.00	277	277	0.01	< 0.005	—	278
Energy	0.87	0.44	7.54	3.82	0.05	0.60	—	0.60	0.60	—	0.60	—	20,017	20,017	2.21	0.19	—	20,130
Water	—	—	—	—	—	—	—	—	—	—	—	254	815	1,068	26.1	0.63	—	1,909
Waste	—	—	—	—	—	—	—	—	—	—	—	1,279	0.00	1,279	128	0.00	—	4,475
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.9	17.9
Total	12.4	78.6	8.43	103	0.05	0.68	0.00	0.68	0.66	0.00	0.66	1,533	21,109	22,642	156	0.82	17.9	26,810

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	27,909	27,909	3.53	0.43	—	28,125

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	5,470	5,470	0.69	0.08	—	5,512
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	35,718	35,718	4.52	0.55	—	35,995
Total	—	—	—	—	—	—	—	—	—	—	—	—	69,097	69,097	8.74	1.06	—	69,631
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	27,909	27,909	3.53	0.43	—	28,125
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	5,470	5,470	0.69	0.08	—	5,512
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	35,718	35,718	4.52	0.55	—	35,995
Total	—	—	—	—	—	—	—	—	—	—	—	—	69,097	69,097	8.74	1.06	—	69,631
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	4,621	4,621	0.58	0.07	—	4,656
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	906	906	0.11	0.01	—	913
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	5,914	5,914	0.75	0.09	—	5,959
Total	—	—	—	—	—	—	—	—	—	—	—	—	11,440	11,440	1.45	0.18	—	11,528

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Mid Rise	2.95	1.48	25.2	10.7	0.16	2.04	—	2.04	2.04	—	2.04	—	32,012	32,012	2.83	0.06	—	32,101
Single Family Housing	0.93	0.47	7.95	3.38	0.05	0.64	—	0.64	0.64	—	0.64	—	10,088	10,088	0.89	0.02	—	10,116
Strip Mall	0.90	0.45	8.14	6.84	0.05	0.62	—	0.62	0.62	—	0.62	—	9,709	9,709	0.86	0.02	—	9,736
Total	4.78	2.39	41.3	20.9	0.26	3.30	—	3.30	3.30	—	3.30	—	51,809	51,809	4.59	0.10	—	51,953
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	2.95	1.48	25.2	10.7	0.16	2.04	—	2.04	2.04	—	2.04	—	32,012	32,012	2.83	0.06	—	32,101
Single Family Housing	0.93	0.47	7.95	3.38	0.05	0.64	—	0.64	0.64	—	0.64	—	10,088	10,088	0.89	0.02	—	10,116
Strip Mall	0.90	0.45	8.14	6.84	0.05	0.62	—	0.62	0.62	—	0.62	—	9,709	9,709	0.86	0.02	—	9,736
Total	4.78	2.39	41.3	20.9	0.26	3.30	—	3.30	3.30	—	3.30	—	51,809	51,809	4.59	0.10	—	51,953
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.54	0.27	4.60	1.96	0.03	0.37	—	0.37	0.37	—	0.37	—	5,300	5,300	0.47	0.01	—	5,315
Single Family Housing	0.17	0.08	1.45	0.62	0.01	0.12	—	0.12	0.12	—	0.12	—	1,670	1,670	0.15	< 0.005	—	1,675
Strip Mall	0.16	0.08	1.49	1.25	0.01	0.11	—	0.11	0.11	—	0.11	—	1,607	1,607	0.14	< 0.005	—	1,612
Total	0.87	0.44	7.54	3.82	0.05	0.60	—	0.60	0.60	—	0.60	—	8,578	8,578	0.76	0.02	—	8,601

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	338	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	31.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	92.1	86.3	7.15	797	0.04	0.65	—	0.65	0.49	—	0.49	—	2,444	2,444	0.10	0.02	—	2,453
Total	92.1	455	7.15	797	0.04	0.65	—	0.65	0.49	—	0.49	0.00	2,444	2,444	0.10	0.02	—	2,453
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	338	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	31.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	369	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	61.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	—	5.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	11.5	10.8	0.89	99.6	< 0.005	0.08	—	0.08	0.06	—	0.06	—	277	277	0.01	< 0.005	—	278
Total	11.5	78.2	0.89	99.6	< 0.005	0.08	—	0.08	0.06	—	0.06	0.00	277	277	0.01	< 0.005	—	278

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	723	1,944	2,667	74.4	1.79	—	5,060
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	80.4	1,081	1,161	8.38	0.21	—	1,434
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	729	1,896	2,625	75.0	1.81	—	5,039
Total	—	—	—	—	—	—	—	—	—	—	—	1,533	4,921	6,454	158	3.81	—	11,533
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	723	1,944	2,667	74.4	1.79	—	5,060

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	80.4	1,081	1,161	8.38	0.21	—	1,434
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	729	1,896	2,625	75.0	1.81	—	5,039
Total	—	—	—	—	—	—	—	—	—	—	—	1,533	4,921	6,454	158	3.81	—	11,533
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	120	322	442	12.3	0.30	—	838
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	13.3	179	192	1.39	0.04	—	237
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	121	314	435	12.4	0.30	—	834
Total	—	—	—	—	—	—	—	—	—	—	—	254	815	1,068	26.1	0.63	—	1,909

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	4,206	0.00	4,206	420	0.00	—	14,715
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	611	0.00	611	61.1	0.00	—	2,138
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2,908	0.00	2,908	291	0.00	—	10,174
Total	—	—	—	—	—	—	—	—	—	—	—	7,725	0.00	7,725	772	0.00	—	27,027

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	4,206	0.00	4,206	420	0.00	—	14,715
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	611	0.00	611	61.1	0.00	—	2,138
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2,908	0.00	2,908	291	0.00	—	10,174
Total	—	—	—	—	—	—	—	—	—	—	—	7,725	0.00	7,725	772	0.00	—	27,027
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	696	0.00	696	69.6	0.00	—	2,436
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	101	0.00	101	10.1	0.00	—	354
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	481	0.00	481	48.1	0.00	—	1,684
Total	—	—	—	—	—	—	—	—	—	—	—	1,279	0.00	1,279	128	0.00	—	4,475

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	62.2	62.2

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.0	14.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.0	32.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108	108
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	62.2	62.2
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.0	14.0
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.0	32.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108	108
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.3	10.3
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.33	2.33
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.30	5.30
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17.9	17.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Single Family Housing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	9050
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	1006

Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
21565642.5	7,188,548	7,708,124	2,569,375	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	39,061,269	261	0.0330	0.0040	99,886,475
Single Family Housing	7,655,280	261	0.0330	0.0040	31,477,454
Strip Mall	49,991,466	261	0.0330	0.0040	30,295,444

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	377,214,634	28,914,197
Single Family Housing	41,931,262	231,277,204
Strip Mall	380,640,096	11,719,256

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	7,804	—
Single Family Housing	1,134	—
Strip Mall	5,396	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.1	annual days of extreme heat
Extreme Precipitation	4.85	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	77.8
AQ-DPM	67.0
Drinking Water	88.0
Lead Risk Housing	88.3
Pesticides	0.00
Toxic Releases	71.1
Traffic	47.7
Effect Indicators	—
CleanUp Sites	78.0
Groundwater	0.00
Haz Waste Facilities/Generators	74.7
Impaired Water Bodies	0.00
Solid Waste	0.00

Sensitive Population	—
Asthma	84.2
Cardio-vascular	95.4
Low Birth Weights	87.4
Socioeconomic Factor Indicators	—
Education	87.7
Housing	97.0
Linguistic	75.5
Poverty	98.4
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	1.62966765
Employed	3.503143847
Median HI	4.350057744
Education	—
Bachelor's or higher	10.07314256
High school enrollment	100
Preschool enrollment	54.67727448
Transportation	—
Auto Access	14.48736045
Active commuting	43.19260875
Social	—
2-parent households	33.38893879

Voting	12.4085718
Neighborhood	—
Alcohol availability	14.80816117
Park access	42.38419094
Retail density	69.9088926
Supermarket access	94.25125112
Tree canopy	28.82073656
Housing	—
Homeownership	13.20415758
Housing habitability	7.596561016
Low-inc homeowner severe housing cost burden	3.823944566
Low-inc renter severe housing cost burden	34.2871808
Uncrowded housing	13.01167715
Health Outcomes	—
Insured adults	14.98780957
Arthritis	9.2
Asthma ER Admissions	12.6
High Blood Pressure	12.9
Cancer (excluding skin)	55.0
Asthma	3.1
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	3.4
Diagnosed Diabetes	3.0
Life Expectancy at Birth	6.1
Cognitively Disabled	4.4
Physically Disabled	17.3
Heart Attack ER Admissions	1.6

Mental Health Not Good	6.5
Chronic Kidney Disease	5.2
Obesity	5.7
Pedestrian Injuries	85.9
Physical Health Not Good	4.0
Stroke	3.8
Health Risk Behaviors	—
Binge Drinking	89.1
Current Smoker	10.2
No Leisure Time for Physical Activity	7.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	12.4
Elderly	81.9
English Speaking	35.3
Foreign-born	60.1
Outdoor Workers	30.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.4
Traffic Density	21.6
Traffic Access	23.0
Other Indices	—
Hardship	97.5
Other Decision Support	—
2016 Voting	17.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	97.0
Healthy Places Index Score for Project Location (b)	4.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Proposed buildout land uses 10,056 dwelling units (90% multi-family, 10% single family) 5,138,749 sf retail/office 484.7 acres 38,816 population
Operations: Vehicle Data	Vehicle emissions modeled separately
Operations: Hearths	No fireplaces or wood stoves modeled