Appendix A

Iron Lofts Multifamily Residential Air Quality, Global Climate Change, Health Risk Assessment, and Energy Impact Analysis

Ganddini Group, Inc

April 25, 2025

IRON LOFTS MULTIFAMILY RESIDENTIAL AIR QUALITY, GLOBAL CLIMATE CHANGE, HEALTH RISK ASSESSMENT, AND ENERGY IMPACT ANALYSIS

City of Riverside

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gandini

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

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City of Riverside

April 25, 2025

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Project No. 19630

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The purpose of this air quality, global climate change, health risk assessment, and energy impact analysis is to provide an assessment of the impacts resulting from development of the proposed Iron Lofts Multifamily Residential project and to identify measures that may be necessary to reduce potentially significant impacts.

Construction-Source Emissions

Project construction-source emissions would not exceed applicable regional thresholds of significance established by the South Coast Air Quality Management District (SCAQMD). For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less than significant.

Operational-Source Emissions

Project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality or toxic air contaminant (TAC) impacts as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related trips will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO "hotspots). The project is a residential use and will not be a significant source of TACs. Therefore, project operational-source emissions would not adversely affect sensitive receptors within the vicinity of the project.

The analysis contained in this report shows that none of the proposed sensitive receptors would be exposed to a cancer risk in excess of 10 in a million from rail and freeway-related diesel particulate matter (DPM) mobile source emissions. Impacts are considered to be less than significant. The rail and roadway-related health risk impacts for non-cancer related impacts are less than 1.0; therefore, they are also considered to be less significant. No mitigation is required.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less than significant.

Greenhouse Gases

Project-related greenhouse gas (GHG) emissions would not exceed the SCAQMD draft screening threshold of 3,000 MTCO2e per year for all land uses. Furthermore, the project would not conflict with the goals of the RRG-CAP, AB-32, SB-32, or the CARB Scoping Plan; therefore, the project would not conflict with an

applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases and impacts are considered to be less than significant.

Energy

For new development such as that proposed by the Iron Lofts Multifamily Residential project, compliance with California Building Standards Code Title 24 energy efficiency requirements (CALGreen), are considered demonstrable evidence of efficient use of energy. As discussed below, the project would provide for, and promote, energy efficiencies required under other applicable federal and State of California standards and regulations, and in so doing would meet or exceed all California Building Standards Code Title 24 standards. Moreover, energy consumed by the project's operation is calculated to be comparable to, or less than, energy consumed by other residential uses of similar scale and intensity that are constructed and operating in California. On this basis, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy. Impacts are considered to be less than significant.

1. INTRODUCTION

This section describes the purpose of this air quality, global climate change, health risk assessment, and energy impact analysis, project location, proposed development, and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

This study was performed to address the possibility of regional/local air quality impacts and global climate change impacts, from project related air emissions. The objectives of the study include:

- documentation of the atmospheric setting
- discussion of criteria pollutants and greenhouse gases
- discussion of the air quality and global climate change regulatory framework
- discussion of the air quality, greenhouse gases, and cancer risk thresholds of significance
- analysis of the construction related air quality and greenhouse gas emissions
- analysis of the operations related air quality and greenhouse gas emissions
- discussion of the cancer and non-cancer risk from freeway-related diesel emissions
- analysis of the conformity of the proposed project with the SCAQMD AQMP
- analysis of the project's energy use during construction and operation
- recommendations for mitigation/emissions reduction measures

The City of Riverside is the lead agency for this air quality, greenhouse gas, health risk, and energy analysis, in accordance with the California Environmental Quality Act authorizing legislation. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with terms unique to air quality and global climate change, a definition of terms has been provided in Appendix A.

PROJECT LOCATION

The 6.94-acre project site is located east of Commerce Street between 5th Street and Mission Inn Avenue in the City of Riverside, California. The project site is currently partially developed with commercial/industrial buildings and zoned as Business & Manufacturing Park Zone (BMP). A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The proposed project (TTM 38624) involves removal of the existing buildings and construction of 295 mid-rise multifamily dwelling units and 5 low-rise multifamily dwelling units within a residential complex. Vehicular access for the project site is proposed via two driveways with one on 5th Street and one on Mission Inn Avenue.

The project site requires a General Plan Amendment and Zoning Amendment to rezone the site from Business & Manufacturing Park Zone (BMP) to Mixed-use Urban (MU-U) to accommodate the residential development and a Specific Plan Amendment to amend the Riverside Marketplace Specific Plan to expand the mixed-used Marketplace Sub-area. The proposed plan also includes a street vacation of 6th Street from Commerce Street to the east side of the project.

Figure 2 illustrates the proposed site plan.

PHASING AND TIMING

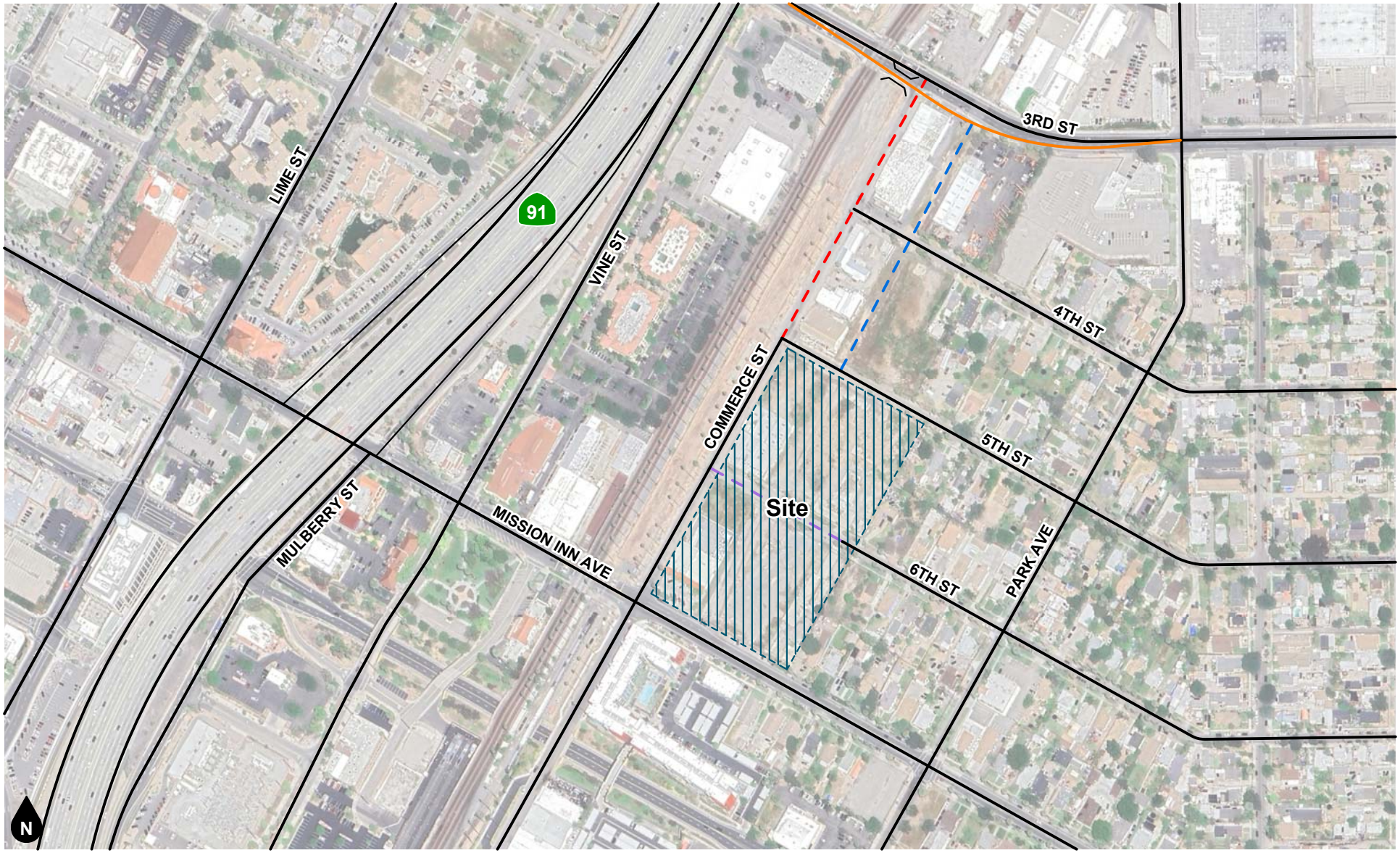
The proposed project is anticipated to be operational in 2027. The project is anticipated to be built in one phase with project construction anticipated to start no sooner than the beginning of August 2025 and being completed by August 2027. Even if construction was to occur any time after the respective dates, the analysis represents "worst-case" since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[1]

SENSITIVE RECEPTORS IN PROJECT VICINITY

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24 hours, such as residences, hospitals, or convalescent facilities (South Coast Air Quality Management District 2008). Commercial and industrial facilities are not included in the definition because employees do not typically remain on-site for 24 hours.

The nearest sensitive receptors to the project site are the existing single-family residential uses located adjacent to the east, approximately 100 feet (~30 meters) southeast (across Mission Inn Avenue), and approximately 65 feet (~20 meters) northeast (across 5th Street) and the multi-family residential uses located approximately 100 feet (~30 meters) south (across Mission Inn Avenue) of the project site. Other air quality sensitive land uses are located further from the project site and would experience lower impacts.

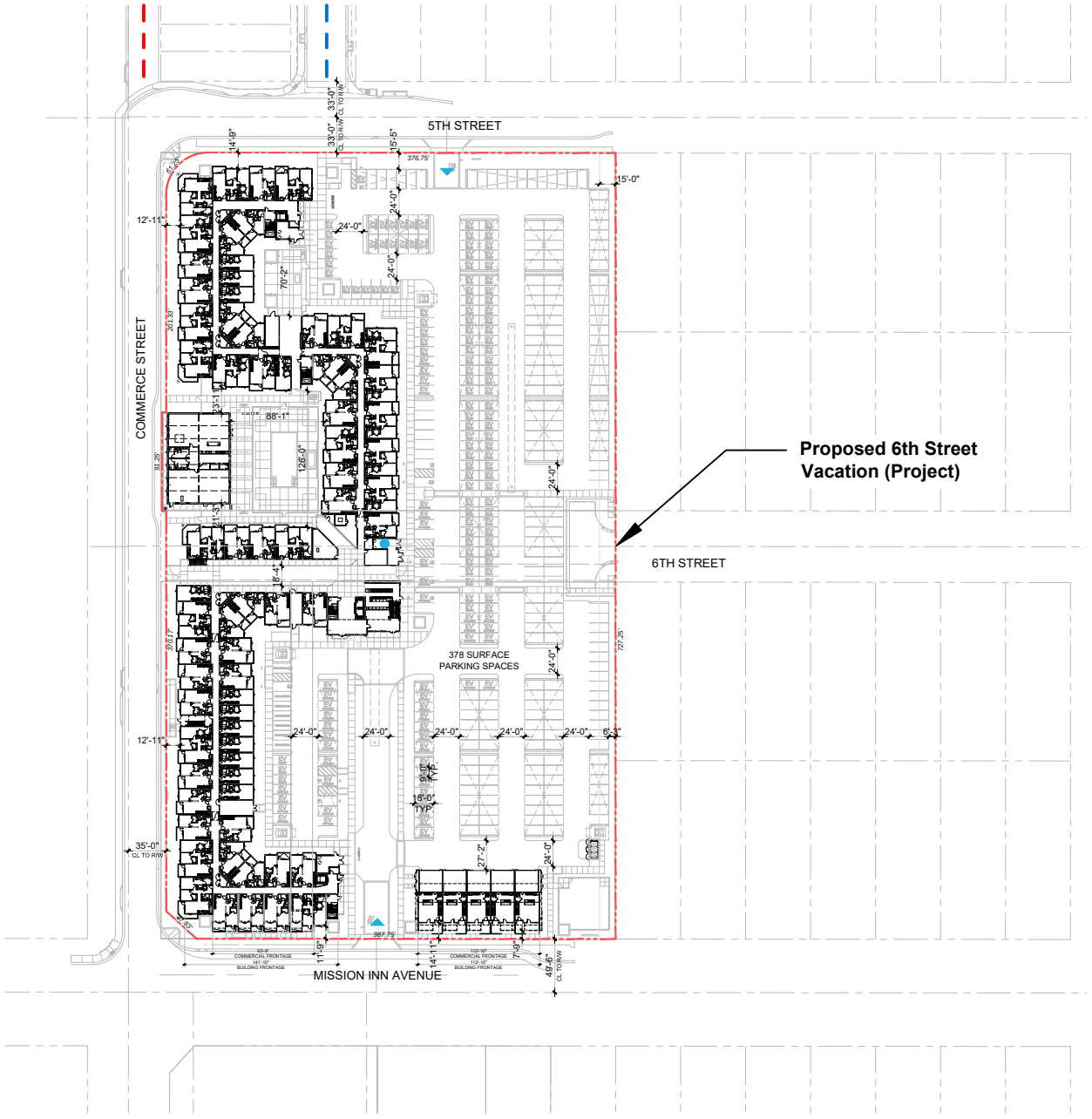
[1] As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2020.4.0, Section 4.3.2 "OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.



Legend

- Planned 3rd Street Grade Separation Project (City Project)
- Planned Commerce Street Realignment (City Project)
- Planned Commerce Street Vacation (City Project)
- Proposed 6th Street Vacation (Project)

Figure 1
Project Location Map



Planned Commerce Street Realignment (City Project)

Planned Commerce Street Vacation (City Project)

Figure 2
Site Plan

2. AIR QUALITY ANALYSIS

EXISTING AIR QUALITY CONDITIONS

Local Air Quality

The project is located within the City of Riverside in the portion of Riverside County that lies within the South Coast Air Basin (Basin). The project area is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of southern California combine to make the Basin an area of high air pollution potential. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds.

The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions that produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix (SCAQMD, 2007).

The temperature and precipitation levels for the City of Riverside are shown below in Table 1. Table 1 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 1
Local Monthly Climate Data

Descriptor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Max. Temperature	69.1	69.8	73.1	77.6	82.4	88.4	94.6	95.7	91.5	83.5	72.6	68.8
Avg. Min. Temperature	42.3	44.3	46.4	49.8	54.9	58.9	63.3	64.1	60.7	54.1	44.9	41.6
Avg. Total Precipitation (in.)	1.81	2.39	1.79	0.70	0.19	0.08	0.04	0.12	0.15	0.46	0.78	1.39

Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7470
Data from the Riverside Fire STA 3, CA station (047470).

Pollutants

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

Nitrogen Dioxides

Nitrogen Oxides (NOx) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NOx and the pollutants formed from NOx can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone (O_3) is not usually emitted directly into the air but at ground-level is created by a chemical reaction between NOx and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor

vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Dioxide

Sulfur Oxide (SOx) gases (including sulfur dioxide [SO2]) are formed when fuel containing sulfur, such as coal and oil is burned, and from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead (Pb) is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Particulate matter is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Reactive Organic Gases (ROG)

Although not a criteria pollutant, reactive organic gases (ROGs), or volatile organic compounds (VOCs), are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM10 and lower visibility.

Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as from accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2013 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot". Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

The SCAQMD Multiple Air Toxics Exposure Study V (MATES V) shows that the project lies in an area with an ambient air toxics cancer risk of 427 in one million. The air toxics cancer risk in this zip code (92507) is higher than 40 percent of the South Coast AQMD population.

Asbestos

Asbestos is listed as a TAC by the ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is not present in Orange County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located as Asbestos Mountain in the San Jacinto Valley; approximately 58 miles southeast of the site. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

REGULATORY SETTING

The proposed project is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The National Ambient Air Quality Standards (NAAQS) pollutants were identified using medical evidence and are shown below in Table 2.

The EPA and the California Air Resource Board (CARB) designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the Federal annual PM2.5 standard is met if the three-year average of the annual average PM2.5 concentration is less than or equal to the standard. Attainment status is shown in Table 3.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The State Implementation Plan (SIP) must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan (SIP).

As indicated below in Table 3, the Basin has been designated by the EPA as a non-attainment area for ozone (O_3) and suspended particulates (PM2.5). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO_2), suspended particulate matter (PM-10), and nitrogen dioxide (NO_2).

State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California Ambient Air Quality Standards (CAAQS) for criteria pollutants are shown in Table 2. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. Furthermore, the motor vehicle emission standards established by CARB include compliance with the Safer Affordable Fuel Efficient Vehicles (SAFE) Rule, issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020). The SAFE Rule sets fuel economy and carbon dioxide standards that increase 1.5 percent in stringency each year from model years 2021 through 2026, and apply to both passenger cars and light trucks. CARB. It also sets fuel specifications to further reduce vehicular emissions.

The South Coast Air Basin has been designated by the CARB as a nonattainment area for ozone, PM10 and PM2.5. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, lead, SO_2, NO_2, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On June 20, 2002, the CARB revised the PM10 annual average standard to 20 µg/m^3 and established an annual average standard for PM2.5 of 12 µg/m^3. These standards were approved by the Office of Administrative Law in June 2003 and are now effective. On September 27, 2007 CARB approved the South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards. The plan projected attainment for the 8-hour Ozone standard by 2024 and the PM2.5 standard by 2015.

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, Title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California.

The CARB is also responsible for regulations pertaining to toxic air contaminants. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the South Coast Air Basin. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

AB 617 Nonvehicular air pollution: criteria air pollutants and toxic air contaminants

This bill requires the state board to develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants for use by certain categories of stationary sources. The bill requires those stationary sources to report their annual emissions of criteria air pollutants and toxic air contaminants, as specified. This bill required the state board, by October 1, 2018, to prepare a monitoring plan regarding technologies for monitoring criteria air pollutants and toxic air contaminants and the need for and benefits of additional community air monitoring systems, as defined. The bill requires the state board to select, based on the monitoring plan, the highest priority locations in the state for the deployment of community air monitoring systems. The bill requires an air district containing a selected location, by July 1, 2019, to deploy a system in the selected location. The bill would authorize the air district to require a stationary source that emits air pollutants in, or that materially affect, the selected location to deploy a fence-line monitoring system, as defined, or other specified real-time, on-site monitoring. The bill authorizes the state board, by January 1, 2020, and annually thereafter, to select additional locations for the deployment of the systems. The bill would require air districts that have deployed a system to provide to the state board air quality data produced by the system. By increasing the duties of air districts, this bill would impose a state-mandated local program. The bill requires the state board to publish the data on its Internet Web site.

Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. On June 30, 2016, the SCAQMD released its Draft 2016 AQMP.

Air Quality Management Plan

In May 2022, the SCAQMD completed the 2022 Draft AQMP. The 2022 Draft AQMP is focused on attaining the 2015 8-hour ozone standard (70 ppb) for the South Coast Air Basin and Coachella Valley. The Draft 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emission technologies, when cost-effective and feasible, and low NOx technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other CAA measures to achieve the 2015 8-hour ozone standard. The 2022 AQMP was adopted December 2, 2022, by SCAQMD Governing Board. The 2022 AQMP was approved and adopted by CARB on January 26, 2023. The 2022 AQMP strategy includes the following:[2]

- Wide adoption of zero emissions technologies anywhere available.
- Low NOx technologies where zero emissions isn't feasible.
- Federal Action.
- Zero emissions technologies for residential and industrial sources such as water and space heaters in buildings and homes regionwide.
- Incentive funding in environmental justice areas.
- Prioritize benefits on the most disadvantaged communities.

SCAQMD Rules and Regulations

During construction and operation, the project must comply with applicable rules and regulations. The following are rules that the project may be required to comply with, either directly, or indirectly:

SCAQMD Rule 402

Prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403

Governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In

[2] SCAQMD 2022 AQMP Infographic. http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/2022-aqmp-infographic

addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors. Rule 403 measures may include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving.)
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

SCAQMD Rule 445

Prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

SCAQMD Rule 481

Applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

(1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
(2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
(3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

SCAQMD Rule 1108

Governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

SCAQMD Rule 1113

Governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the project must comply with SCAQMD Rule 1113.

SCAQMD Rule 1143

Governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

SCAQMD Rule 1186

Limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

SCAQMD Rule 1303

Governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM_{10} among other pollutants.

SCAQMD Rule 1401

New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

SCAQMD Rule 1403

Asbestos Emissions from Demolition/Renovation Activities, specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM).

SCAQMD Rule 2202

On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

SCAQMD Rule 2305

The Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program aims to reduce nitrogen oxide and diesel emissions associated with warehouses, help meet federal standards and improve public health. The WAIRE Program is an indirect source rule that regulates warehouse facilities to reduce emissions from the goods movement industry. Owners and operators of warehouses that have 100,000 square feet or more of indoor floor space in a single building must comply with the WAIRE Program. WAIRE is a menu-based point system in which warehouse operators are required to earn a specific number of points every year. The yearly number of points required is based on the number of trucks trips made to and from the warehouse

each year, with larger trucks such as tractors or tractor-trailers multiplied by 2.5. Warehouse operators may be exempt from parts of the rule if they operate less than 50,000 square feet of warehousing activities, if the number of points required is less than 10, or if the WAIRE menu action chosen under performs due to circumstances beyond the operator's control, such as a manufacturer defect. SCAQMD Rule 316 establishes fees to fund Rule 2305 compliance activities.

Air Quality Guidance Documents

SCAQMD CEQA Handbook

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the South Coast Air Basin. Instead, this is controlled through local jurisdictions in accordance with the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook) prepared by the SCAQMD (1993) with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that the SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. SCAQMD is in the process of developing an "Air Quality Analysis Guidance Handbook" to replace the CEQA Air Quality Handbook approved by the AQMD Governing Board in 1993. The 1993 CEQA Air Quality Handbook is still available but not online. In addition, there are sections of the 1993 Handbook that are obsolete. In order to assist the CEQA practitioner in conducting an air quality analysis while the new Handbook is being prepared, supplemental information regarding significance thresholds and analysis, emissions factors, cumulative impacts emissions analysis, and other useful subjects, are available at the SCAQMD website[3]. The SCAQMD CEQA Handbook and supplemental information is used in this analysis.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the Federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Transportation Plan and Regional Transportation Improvement Plan (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency, analysis included in the AQMP. The Regional Transportation Plan, Regional Transportation Improvement Plan, and AQMP are based on projections originating within the City and County General Plans.

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (2016 RTP/SCS or Plan). The Plan is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The Plan charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It outlines more than $556.5 billion in transportation system investments through 2040. The Plan was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration (FHWA) and the

[3] http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

Federal Transit Administration (FTA) indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 FTIP Consistency Amendment through Amendment 15-12 have been met.

On September 3, 2020, SCAG's Regional Council unanimously voted to approve and fully adopt Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than $638 billion in transportation system investments through 2045. It was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura.

Local – City of Riverside

Local jurisdictions, such as the City of Riverside, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2022 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

City of Riverside General Plan

The Air Quality Element of the City of Riverside General Plan includes the following objectives and policies:

Objective AQ-1	Adopt land use policies that site polluting facilities away from sensitive receptors and vice versa; improve job-housing balance; reduce vehicle miles traveled and length of work trips; and improve the flow of traffic.
Policy AQ-1.3	Separate, buffer and protect sensitive receptors from significant sources of pollution to the greatest extent possible.
Policy AQ-1.7	Support appropriate planned residential developments and infill housing, which reduce vehicle trips.
Policy AQ-1.8	Promote "Job/Housing Opportunity Zones" and incentives to support housing in job-rich areas and jobs in housing-rich areas, where the jobs are located at non-polluting or extremely low-polluting entities.
Policy AQ-1.7	Support appropriate planned residential developments and infill housing, which reduce vehicle trips.
Policy AQ-1.12	Support mixed-use land use patterns but avoid placing residential and other sensitive receptors in close proximity to businesses that emit toxic air contaminants to the

	greatest extent possible. Encourage community centers that promote community self-sufficiency and containment and discourage automobile dependency.
Policy AQ-1.15	Establish land use patterns that reduce the number and length of motor vehicle trips and promote alternative modes of travel.
Policy AQ-1.17	Avoid locating multiple-family developments close to commercial areas that emit harmful air contaminants.
Policy AQ-1.18	New residential subdivisions shall be designed to encourage "walkable" neighborhoods with pedestrian walkways and bicycle paths to facilitate pedestrian travel.
Objective AQ-2	Reduce air pollution by reducing emissions from mobile sources.
Objective AQ-3	Prevent and reduce pollution from stationary sources, including point sources (such as power plants and refinery boilers) and area sources (including small emission sources such as residential water heaters and architectural coatings).
Policy AQ-3.4	Require projects to mitigate, to the extent feasible, anticipated emissions which exceed AQMP Guidelines.
Policy AQ-3.6	Support "green" building codes that require air conditioning/filtration installation, upgrades or improvements for all buildings, but particularly for those associated with sensitive receptors.
Policy AQ-3.7	Require use of pollution control measures for stationary and area sources through the use of best available control activities, fuel/material substitution, cleaner fuel alternatives, product reformulation, change in work practices and of control measures identified in the latest AQMP.
Objective AQ-4	Reduce particulate matter, as defined by the Environmental Protection Agency (EPA), as either airborne photochemical precipitates or windborne dust.
Policy AQ-4.5	Require the suspension of all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
Objective AQ-5	Increase energy efficiency and conservation in an effort to reduce air pollution.
Policy AQ-5.1	Utilize source reduction, recycling and other appropriate measures to reduce the amount of solid waste disposed of in landfills.
Policy AQ-5.7	Require residential building construction to meet or exceed energy use guidelines in Title 24 of the California Administrative Code.
Objective AQ-6	Develop a public education program committed to educating the general public on the issues of air pollution and mitigation measures that can be undertaken by businesses and residents to improve air quality.
Objective AQ-7	Support a regional approach to improving air quality through multi-jurisdictional cooperation.
Objective AQ-8	Make sustainability and global warming education a priority for the City's effort to protect public health and achieve state and federal clean air standards.

Table 2
State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm/1-hour 0.07 ppm/8-hour	0.070 ppm/8-hour	(a) Decline in pulmonary function and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm/1-hour 9.0 ppm/8-hour	35.0 ppm/1-hour 9.0 ppm/8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm/1-hour 0.03 ppm/annual	100 ppb/1-hour 0.053 ppm/annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm/1-hour 0.04 ppm/24-hour	75 ppb/1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 µg/m^3/24-hour 20 µg/m^3/annual	150 µg/m^3/24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3/24-hour 9 µg/m^3/annual	
Sulfates	25 µg/m^3/24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage.
Lead	1.5 µg/m^3/30-day	0.15 µg/m^3/3-month rolling	(a) Learning disabilities; (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particles when humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf

Table 3
South Coast Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment (Extreme)
Carbon monoxide	Attainment	Attainment (Maintenance)
Nitrogen dioxide	Attainment	Unclassifable/Attainment
Sulfur dioxide	Attainment	Unclassifiable/Attainment
PM10	Nonattainment	Attainment (Maintenance)
PM2.5	Nonattainment	Nonattainment (Serious)

Source (Federal and State Status): California Air Resources Board (2022) https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations & SCAQMD 2022 Air Quality Management Plan (December 2022) http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16.

MONITORED AIR QUALITY

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates of the existing emissions in the Basin provided in the Final 2022 Air Quality Management Plan prepared by SCAQMD (December 2022) indicate that collectively, mobile sources account for 46 percent of the VOC, 85 percent of the NOx emissions, 89 percent of the CO emissions and 29 percent of directly emitted PM2.5, with another 18 percent of PM2.5 from road dust.

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in the Metropolitan Riverside County Air Monitoring Area (Area 23). Data was taken from the Riverside-Rubidoux monitoring station (Riverside Station). The Riverside Station is located approximately 3.15 miles west of the project site at 5888 Mission Boulevard, Rubidoux. Table 4 presents the monitored pollutant levels from the Riverside Station. However, it should be noted that due to the air monitoring stations distances from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table 4 summarizes 2021 through 2023 published monitoring data, which is the most recent 3-year period available. The data shows that during the past few years, the project area has exceeded the ozone and particulate matter (PM10 and PM2.5) standards.

Ozone

During the 2021 to 2023 monitoring period, the State 1-hour concentration standard for ozone was exceeded between 20 and 48 days each year at the Riverside Station. The State 8-hour ozone standard has been exceeded between 57 and 72 days each year over the past three years at the Riverside Station. The Federal 8-hour ozone standard was exceeded between 55 and 70 days each year over the past three years at the Riverside Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Riverside Station did not record an exceedance of the state or federal 8-hour CO standard for the last three years.

Nitrogen Dioxide

The Riverside Station did not record an exceedance of the State or Federal NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standards for PM10 were exceeded between three and 75 days each year over the past three years at the Riverside Station. Over the past three years, the Federal 24-hour standards for PM10 was exceeded by only one day in 2023 at the Riverside Station.

The Federal 24-hour standard for PM2.5 was exceeded between one and 11 days each year over the past three years at the Riverside Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths during exercise.

Table 4
Air Quality Monitoring Summary

Pollutant (Standard)[1]		Year		
		2021	2022	2023
Ozone:	Maximum 1-Hour Concentration (ppm)	0.117	0.122	0.139
	Days > CAAQS (0.09 ppm)	20	30	48
	Maximum 8-Hour Concentration (ppm)	0.098	0.095	0.107
	Days > NAAQS (0.070 ppm)	55	70	69
	Days > CAAQS (0.070 ppm)	57	72	70
Carbon Monoxide:	Maximum 8-Hour Concentration (ppm)	*	*	*
	Days > CAAQS (9 ppm)	0	0	0
	Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:	Maximum 1-Hour Concentration (ppm)	0.052	0.056	0.055
	Days > CAAQS (0.18 ppm)	0	0	0
Inhalable Particulates (PM10):	Maximum 24-Hour Concentration (µg/m^3)	114.3	153.6	166.5
	Days > NAAQS (150 µg/m3)	0	0	1
	Days > CAAQS (50 µg/m3)	75	5	3
	Annual Average (µg/m3)	33.4	37.5	33.7
Ultra-Fine Particulates (PM2.5):	Maximum 24-Hour Concentration (µg/m3)	82.1	38.5	74.4
	Days > NAAQS (35 µg/m3)	11	1	2
	Annual Average (µg/m3)	12.7	10.8	10.6

Notes:
Source: http://www.arb.ca.gov/adam/topfour/topfour1.php. Data from the Riverside-Rubidoux Monitoring Station, unless otherwise noted.

(1) CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

* Means there was insufficient data available to determine value.

AIR QUALITY STANDARDS

Significance Thresholds

Appendix G of the State CEQA Guidelines

Appendix G of the State CEQA Guidelines states that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make a significance determination. Pursuant to Appendix G, the project would result in a significant impact related to air quality if it would:

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

The CEQA Guidelines Section 15064.7 provides the significance criteria established by the applicable air quality management district or air pollution control district, when available, may be relied upon to make determinations of significance. The potential air quality impacts of the project are, therefore, evaluated according to thresholds developed by SCAQMD in their CEQA Air Quality Handbook, Air Quality Analysis Guidance Handbook, and subsequent guidance, which are listed below.[4] Therefore, the project would result in a potentially significant impact to air quality if it would:

AIR-1: Conflict with or obstruct the implementation of the applicable air quality plan;

AIR-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of:

- Criteria pollutant emissions during construction (direct and indirect) in excess of the SCAQMD's regional significance thresholds,
- Criteria pollutant emissions during operation (direct and indirect) in excess of the SCAQMD's regional significance thresholds.

AIR-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

AIR-4: Expose sensitive receptors to substantial pollutant concentrations that would:

- Exceed SCAQMD's localized significance thresholds,
- Cause or contribute to the formation of CO hotspots.

AIR-5: Create objectionable odors affecting a substantial number of people.

[4] While the SCAQMD CEQA Air Quality Handbook contains significance thresholds for lead, Project construction and operation would not include sources of lead emissions and would not exceed the established thresholds for lead. Unleaded fuel and unleaded paints have virtually eliminated lead emissions from industrial land use projects such as the Project. As a result, lead emissions are not further evaluated herein.

The SCAQMD is in the process of developing an Air Quality Analysis Guidance Handbook to replace the CEQA Air Quality Handbook. In the interim, supplemental guidance has been adopted by the SCAQMD. The potential air quality impacts of the project are, therefore, evaluated according to numeric indicators developed by the SCAQMD in the CEQA Air Quality Handbook and supplemental guidance from the SCAQMD.[5]

Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, the SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the South Coast Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 5.

Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significance Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significance Thresholds Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significance Thresholds Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5. Under the LST methodology, local air quality emissions from the project were analyzed using the SCAQMD's Mass Rate Localized Significance Thresholds Look-up Tables.

The significance thresholds for the local emissions of NO_2 and CO are determined by subtracting the highest background concentration from the last three years of these pollutants from Table 4 above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the Localized Significance Thresholds. Table 5 shows the ambient air quality standards for NO_2, CO, and PM10 and PM2.5.

Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to hazardous air pollutants (HAP), the Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, (Diesel Analysis) prepared by SCAQMD (August 2003) recommends

[5] While the SCAQMD CEQA Air Quality Handbook contains significance thresholds for lead, Project construction and operation would not include sources of lead emissions and would not exceed the established thresholds for lead. Unleaded fuel and unleaded paints have virtually eliminated lead emissions from residential land use projects such as the Project. As a result, lead emissions are not further evaluated herein.

that if the proposed project is anticipated to create hazardous air pollutants through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the hazardous air pollutants and the toxicity of the hazardous air pollutants should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

As determined in the *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369 (CBIA) case the California Supreme Court determined that CEQA does not generally require an impact analysis of the existing environmental conditions on the future residents of a proposed project and generally only requires an analysis of the proposed project's impact on the environment. However, the CBIA case also stated that when a proposed project brings development and people into an area already subject to specific hazards and the new development/people exacerbate the existing hazards, then CEQA requires an analysis of the hazards and the proposed project's effect in terms of increasing the risks related to those hazards. In regards to air quality hazards, TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As such, if a proposed project would not exacerbate pre-existing hazards (e.g., TAC health risks) then an analysis of those hazards and the proposed project's effect on increasing those hazards is not required.

The project is a residential project and will not be a source of toxic air contaminants. However, as the project is locating sensitive receptors in proximity to freeway-related DPM sources, an HRA was conducted (see Section 3 of this report) for informational and disclosure purposes.

Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

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

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

Table 5
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds[1]		
Pollutant	Construction (lbs/day)	Operation (lbs/day)
NOx	100	55
VOC	75	55
PM10	150	150
PM2.5	55	55
SOx	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminants (TACs), Odor and GHG Thresholds		
TACs (including carginogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index > 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO2e for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants[2]		
NO2 1-hour average annual arithmetic mean	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) & 0.0534 ppm (federal)	
PM10 24-hour average annual average	10.4 µg/m^3 (construction)[3] & 2.5 ug/m^3 (operation) 1.0 ug/m^3	
PM2.5 24-hour average	10.4 µg/m^3 (construction)[3] & 2.5 µg/m^3 (operation)	
SO2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m^3 (state)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) & 35 ppm (federal) 9 ppm (state/federal)	
Lead 30-day average Rolling 3-month average	1.5 µg/m^3 (state) 0.15 µg/m^3 (federal)	

Notes:
Source: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook
(1) Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)
(2) Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
(3) Ambient air quality threshold based on South Coast AQMD Rule 403.

SHORT-TERM CONSTRUCTION EMISSIONS

Construction activities associated with the proposed project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. The construction activities for the proposed project are anticipated to include: demolition of an approximately 15,000 square foot existing warehouse building and an approximately 9,500 square foot warehouse building for a total of approximately 24,500 square feet of demolition; site preparation to remove approximately 45,100 square feet of existing concrete slabs and parking areas; grading of approximately 6.94 acres; construction of a 5 low-rise multi-family units and 295 mid-rise multi-family units; paving of a parking lot with 378 parking spaces; and application of architectural coatings. Grading of the site is anticipated to include approximately 10,000 cubic yards of export. See Appendix B for more details.

The proposed project is anticipated to start construction no sooner than the beginning of August 2025 with completion estimated by early August 2027. The project is anticipated to be operational in 2027.

Methodology

The following provides a discussion of the methodology used to calculate regional construction air emissions and an analysis of the proposed project's short-term construction emissions for the criteria pollutants. The construction-related regional air quality impacts have been analyzed for both criteria pollutants and GHGs.

Emissions are estimated using the CalEEMod (Version 2022.1.1.29) software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California and is recommended by the SCAQMD.[6]

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. The input values used in this analysis were adjusted to be project-specific for the construction schedule and the equipment used was based on CalEEMod defaults. The CalEEMod program uses the EMFAC2021 computer program to calculate the emission rates specific for the northwestern portion of Riverside County for construction-related employee vehicle trips and the OFFROAD2017 computer program to calculate emission rates for heavy truck operations. EMFAC2021 and OFFROAD2017 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Daily truck trips and CalEEMod default trip length data were used to assess roadway emissions from truck exhaust. The maximum daily emissions are estimated values for the worst-case day and do not represent the emissions that would occur for every day of project construction. The maximum daily emissions are compared to the SCAQMD daily regional numeric indicators. Detailed construction equipment lists, construction scheduling, and emission calculations are provided in Appendix B.

The project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site

[6] South Coast Air Quality Management District, California Emissions Estimator Model, http://www.aqmd.gov/caleemod/.

access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area (approximately 6.94 acres) a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 403 has been included in the CalEEMod modeling for the proposed project.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less of VOCs for building coatings and 100 grams per liter or less of VOCs for traffic coatings.

The phases of the construction activities which have been analyzed below for each phase are: (1) demolition, (2) site preparation, (3) grading, (4) building construction, (5) paving, and (6) application of architectural coatings. Details pertaining to the project's construction timing and the type of equipment modeled for each construction phase are available in the CalEEMod output in Appendix B.

Construction-Related Regional Impacts

The maximum summer or winter criteria pollutant emissions from the proposed project's construction-related criteria pollutant emissions are shown below in Table 6. Table 6 shows that none of the project's emissions will exceed regional thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

Local Air Quality Impacts from Construction

The SCAQMD has published a "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds."[7] CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain the following parameters:

(1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
(2) The maximum number of acres disturbed on the peak day.
(3) Any emission control devices added onto off-road equipment.
(4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The CalEEMod output in Appendix B show the equipment used for this analysis.

[7] Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf

As shown in Table 7, the maximum number of acres disturbed in a day would be 3.5 acres during site preparation. The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significance Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology prepared by SCAQMD (revised July 2008). The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were calculated based on the Metropolitan Riverside County source receptor area (SRA) 23 and a disturbance value of 3.5 acre per day.[8] According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25-meter thresholds. The nearest sensitive receptors are the existing single-family residential uses located adjacent to the east, approximately 100 feet (~30 meters) southeast, and approximately 65 feet (~20 meters) northeast and the multi-family residential uses located approximately 100 feet (~30 meters) south of the project site; therefore, the SCAQMD Look-up Tables for 25 meters were used. Table 8 shows the on-site emissions from the CalEEMod model for the different construction phases and the LST emissions thresholds.

The data provided in Table 8 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Construction-Related Health Impacts

Regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during construction of the project would be below the applicable thresholds, it would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of project construction are not anticipated.

Construction-Related Toxic Air Contaminant Impacts

The greatest potential for TAC emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to the Office of Environmental Health Hazard Assessment (OEHHA)[9] and the SCAQMD *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis* (August 2003),[10] health effects from TACs are described in terms of individual cancer risk based on a lifetime (i.e., 30-year) resident exposure duration. Given the temporary and short-term construction schedule (approximately 24 months), the project would not result in a long-term (i.e., lifetime or 30-year) exposure as a result of project construction. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds.

The project would comply with the CARB Air Toxics Control Measure that limits diesel powered equipment and vehicle idling to no more than 5 minutes at a location, and the CARB In-Use Off-Road Diesel Vehicle Regulation; compliance with these would minimize emissions of TACs during construction. The project would

[8] The 3.5 acre threshold was interpolated using SCAQMD's 2 acre and 5 acre thresholds.

[9] Office of Environmental Health Hazard Assessment, Air Toxic Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessment, February 2015, https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

[10] South Coast Air Quality Management District, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, August 2003,http://www.aqmd.gov/docs/default-source/ceqa/handbook/mobile-source-toxics-analysis.doc?sfvrsn=2.

also comply with the requirements of SCAQMD Rule 1403 if asbestos is found during the renovation and construction activities. Therefore, impacts from TACs during construction would be less than significant.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected to cease upon the drying or hardening of the odor producing materials. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors.

Table 6
Construction-Related Regional Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO_2	PM10	PM2.5
Maximum Daily Emissions[1,2]	54.20	31.90	38.50	0.05	9.30	5.26
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds?	No	No	No	No	No	No

Notes:

Source: CalEEMod Version 2022.1.1.29.

(1) On-site demolition, site preparation and grading PM-10 and PM-2.5 emissions show compliance with SCAQMD Rule 403 for fugitive dust.

(2) Construction, painting and paving phases may overlap.

Table 7
Maximum Number of Acres Disturbed Per Day

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Demolition	Crawler Tractors[1]	2	0.5	1
Total for phase		-	-	1
Site Preparation	Rubber Tired Dozers	3	0.5	1.5
	Crawler Tractors[1]	4	0.5	2
Total for phase		-	-	3.5
Grading	Graders	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
	Crawler Tractors[1]	3	0.5	1.5
Total for phase		-	-	2.5

Notes:
Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds, 2011b.
(1) Tractor/loader/backhoe is a suitable surrogate for a crawler tractor per SCAQMD staff.

Table 8
Local Construction Emissions at the Nearest Receptors

Activity	On-Site Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Demolition	22.20	19.90	1.36	0.91
Site Preparation	31.60	30.20	9.04	5.20
Grading	16.30	17.90	3.49	2.00
Building Construction	10.40	13.00	0.43	0.40
Paving	6.94	9.95	0.30	0.27
Architectural Coating	0.83	1.13	0.02	0.02
SCAQMD Thresholds[1,2]	230	1,299	11	6
Exceeds Threshold?	No	No	No	No

Notes:

Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for an interpolated 3.5 acre threshold at a distance of 25 meters in SRA 23 Metropolitan Riverside County.

(1) The nearest sensitive receptors to the project include the existing single-family residential uses located adjacent to the east, approximately 100 feet (~30 meters) southeast, and approximately 65 feet (~20 meters) northeast and the multi-family residential uses located approximately 100 feet (~30 meters) south of the project site; therefore, the 25 meter threshold was used.

Note: The project will disturb up to a maximum of 3.5 acres a day during site preparation (see Table 7).

(2) The 3.5 acre threshold was interpolated based on the 2 acre and 5 acre thresholds.

LONG-TERM OPERATIONAL EMISSIONS

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed project.

Operations-Related Regional Air Quality Impacts

The potential operations-related air emissions have been analyzed below for the criteria pollutants and cumulative impacts.

Operations-Related Criteria Pollutants Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of the CalEEMod model. The operating emissions were based on the year 2027, which is the anticipated opening year per for the proposed project. The operations daily emissions printouts from the CalEEMod model are provided in Appendix B. The CalEEMod analyzes operational emissions from area sources, energy usage, and mobile sources, which are discussed below.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trips (trip generation rate) from the *Iron Lofts Multifamily Residential Traffic Impact Analysis* (TIA) prepared by Ganddini Group, Inc. (January 15, 2025) into the CalEEMod Model. The TIA found that the proposed project will generate approximately 1,425 daily vehicle trips per day with trip generation rates of 4.72 trips per dwelling unit per day for the low-rise multifamily housing and 4.75 trips per dwelling unit per day for the mid-rise multifamily housing. The TIA also found that the existing uses to be removed as part of the project generate approximately 212 daily vehicle trips with a trip generation rate of 20 trips per thousand square feet per day. The net new daily vehicle trips, with consideration of the existing uses to be removed, is 1,213 daily vehicle trips per day. Therefore, to account for the reduction of existing trips, a trip generation rate of 4.043 trips per dwelling unit per day for both the low-rise and mid-rise housing was used in the modeling.[11] The CalEEMod program then applies the emission factors for each trip which is provided by the EMFAC2021 model to determine the vehicular traffic pollutant emissions.

Area Sources

Per the CAPCOA Appendix A Calculation Details for CalEEMod, area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment. The modeling takes into account SCAQMD Rule 445 which prohibits the installation of wood burning devices in new developments. No other changes were made to the default area source parameters.

[11] 1,213 daily vehicle trips / 300 total dwelling units = 4.043 trips/DU/day.

Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. No changes were made to the default energy usage parameters.

Project Impacts

The maximum daily pollutant emissions created from the proposed project's long-term operations have been calculated and are shown below in Table 9. The results show that none of the SCAQMD regional thresholds would be exceeded. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analysis analyzes the vehicular CO emissions, local impacts from on-site operations per SCAQMD LST methodology, and odor impacts.

Local CO Emission Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented above.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

The analysis prepared for CO attainment in the South Coast Air Basin by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans. In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: South Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority[12] evaluated the Level of Service in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be Level of Service E during the morning peak hour and Level of Service F during the afternoon peak hour.

[12] Metropolitan Transportation Authority, *2004 Congestion Management Plan for Los Angeles County*, Adopted July 22, 2004.

The TIA showed that the proposed project would only generate approximately 1,425 daily vehicle trips. The intersection with the highest traffic volume is located at Commerce Street and 3rd Street (no 3rd Street realignment project) and has a Buildout Year 2045 With Project PM peak hour volume of 1,128vehicles. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. Therefore, as the intersection volume falls far short of 100,000 vehicles per day, no CO "hot spot" modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Air Quality Impacts from On-Site Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The nearest sensitive receptors that may be impacted by the proposed project are the existing single-family residential uses located adjacent to the east, approximately 100 feet (~30 meters) southeast, and approximately 65 feet (~20 meters) northeast and the multi-family residential uses located approximately 100 feet (~30 meters) south of the project site.

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources (such as heavy-duty trucks) that may spend long periods queuing and idling at the site; such as industrial warehouse/transfer facilities. The proposed project is the development of the site with residential uses and does not include such uses. Therefore, due the lack of stationary source emissions, no long-term localized significance threshold analysis is warranted.

Operations-Related Health Impacts

Regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during operation of the project would be below the applicable thresholds, it would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of project operation are not anticipated.

The potential for health risks due to freeway related diesel particulate matter (DPM) emissions is examined in Section 3 of this report.

Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from the intermittent diesel delivery truck emissions and trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project.

Table 9
Regional Operational Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Maximum Daily Emissions	13.20	10.10	59.70	0.14	9.76	2.86
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:

Source: CalEEMod Version 2022.1.1.29; the higher of either summer or winter emissions.

CUMULATIVE AIR QUALITY IMPACTS

There are a number of cumulative projects in the project area that have not yet been built or are currently under construction. Since the timing or sequencing of the cumulative projects is unknown, any quantitative analysis to ascertain daily construction emissions that assumes multiple, concurrent construction projects would be speculative. Further, cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. The SCAQMD recommends using two different methodologies: (1) that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality;[13] and (2) that a project's consistency with the current AQMP be used to determine its potential cumulative impacts.

Project Specific Impacts

The project area is out of attainment for ozone, PM10, and PM2.5. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic volumes from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. This applies to TACs as well, as the SCAQMD does not have any cumulative TAC thresholds; therefore, projects that do not exceed the SCAQMD TAC threshold criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant.

Project operations would generate emissions of NOx, ROG, CO, PM10, and PM2.5, which would not exceed the SCAQMD regional or local thresholds and would not be expected to result in ground level concentrations that exceed the NAAQS or CAAQS. The project will not be a source of significant TACs and will not cause significant cancer or non-cancer-related health risks. Since the project would not introduce any substantial stationary sources of emissions, CO is the benchmark pollutant for assessing local area air quality impacts from post-construction motor vehicle operations. As indicated earlier, no violations of the state and federal CO standards are projected to occur for the project, based on the magnitude of traffic the project is anticipated to create.

Therefore, operation of the project would not result in a cumulatively considerable net increase for non-attainment of criteria pollutants or ozone precursors. As a result, the project would result in a less than significant cumulative impact for operational emissions.

Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

[13] South Coast Air Quality Management District, Potential Control Strategies to Address Cumulative Impacts from Air Pollution White Paper, 1993, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP". Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
(2) Whether the project will exceed the assumptions in the AQMP in 2022 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criteria 1 – Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this Air Analysis, short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. This Air Analysis also found that, long-term operations impacts will not result in significant impacts based on the SCAQMD local and regional thresholds of significance.

Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

Criteria 2 – Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2020-2045 Regional Transportation/Sustainable Communities Strategy prepared by SCAG (2020) includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Riverside Land Use Plan defines the assumptions that are represented in the AQMP.

The project site has a current land use designation of Business/Office Park (B/OP) on the City of Riverside Land Use Map and is zoned as Business & Manufacturing Park Zone (BMP). As stated in the City's General Plan, the B/OP land use designation allows for single or mixed light industrial uses that do not create nuisances due to odor, dust, noise or heavy truck traffic. Suitable uses include corporate and general business offices, supportive retail and commercial uses, research and development, light manufacturing, light industrial and small warehouse uses (up to 10,000 square feet per site). The proposed project consists of 295 mid-rise multifamily dwelling units and 5 low-rise multifamily dwelling units within a residential complex on approximately 6.94 acres. The project site requires a General Plan Amendment and Zoning Amendment to rezone the site from Business & Manufacturing Park Zone (BMP) to Mixed-use Urban (MU-U) to accommodate the residential development and a Specific Plan Amendment to amend the Riverside Marketplace Specific Plan to expand the mixed-used Marketplace Sub-area. The proposed plan also includes

a street vacation of 6th Street from Commerce Street to the east side of the project. Therefore, the proposed project is not currently consistent with the existing land use designation. However, once the General Plan Amendment, Zoning Amendment, and Specific Plan Amendment are approved, the project would be consistent with the general plan land use designation. Although the project and amendments may initially result in an inconsistency with the AQMP on paper, the inconsistency would not necessarily constitute a conflict with the AQMP. The SCAQMD acknowledges that strict consistency with all aspects of the AQMP is not required in order to make a finding of no conflict. Rather, a project is considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The project would implement contemporary energy-efficient technologies and regulatory/operational programs required per Title 24, CalGreen and City standards. Generally, compliance with SCAQMD emissions reductions and control requirements also act to reduce project air pollutant emissions. In combination, project emissions-reducing design features and regulatory/operational programs are consistent with and support overarching AQMP air pollution reduction strategies. Project support of these strategies promotes timely attainment of AQMP air quality standards and would bring the project into conformance with the AQMP. Therefore, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

3. DIESEL EMISSIONS HEALTH RISK ASSESSMENT

The proposed project would be exposed to toxic air contaminant emissions from diesel truck emissions from nearby freeway and rail DPM sources. As stated previously, in the *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369 (CBIA) case the California Supreme Court determined that CEQA does not generally require an impact analysis of the existing environmental conditions on the future residents of a proposed project and generally only requires an analysis of the proposed project's impact on the environment. However, the CBIA case also stated that when a proposed project brings development and people into an area already subject to specific hazards and the new development/people exacerbate the existing hazards, then CEQA requires an analysis of the hazards and the proposed project's effect in terms of increasing the risks related to those hazards. In regard to air quality hazards, TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As such, if a proposed project would not exacerbate pre-existing hazards (e.g., TAC health risks) then an analysis of those hazards and the proposed project's effect on increasing those hazards is not required. However, as the project is a residential project and will not be a source of toxic air contaminants, and the existing conditions on the project site does not contain any operational land uses that emit toxic air contaminants, the following health risk assessment was performed for informational and disclosure purposes only.

SCAQMD methodology states that health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 30-year lifetime will contract cancer, based on the use of revised Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology.

A health risk assessment requires the completion and interaction of four general steps:

(1) Quantify project-generated TAC emissions.
(2) Identify nearby ground-level receptor locations that may be affected by the emissions (including any special sensitive receptor locations such as residences, schools, hospitals, convalescent homes, and daycare centers).
(3) Perform air dispersion modeling analyses to estimate ambient pollutant concentrations at each receptor location using project TAC emissions and representative meteorological data to define the transport and dispersion of those emissions in the atmosphere.
(4) Characterize and compare the calculated health risks with the applicable health risk significance thresholds.

The CARB Air Quality and Land Use Handbook (CARB Handbook) provides an advisory recommendation to avoid the locating of new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day or 1,000 feet of a major service and maintenance rail yard. The closest portion of the proposed residential uses are within approximately 640 feet of the 91 Freeway and approximately 160 feet of the rail line. The California Department of Transportation vehicular counts show 2022 AADT values of 219,000 (back AADT) at the segment of Riverside, JCT RT 60, JCT. RTE 215 North End of Route 91, with a total of 10,950 (5.0%) of those vehicles being trucks.

In addition, although the CARB Handbook does not specifically address rail lines, portions of the rail line, which are used primarily by freight and passenger trains, are within 160 feet of the project site. Current rail estimates from the U.S. DOT show the rail line runs eight freight trains and eight passenger trains per day past the site (see Appendix C for details).

To determine the potential health risk from freeway emissions sources to the future residents of the project site, a health risk estimate was performed.

ESTIMATE OF EMISSIONS FACTORS

PM 2.5 running and idling exhaust emissions are used as a surrogate for DPM. The DPM emission factors for the various vehicle types were derived from the CARB EMFAC2021 mobile source emission model for Riverside County for year 2027. The emissions factors used in this assessment are detailed in Table 10. It should be noted that the DPM emissions on both the gram per mile and gram per idle hour bases have declined beyond 2027 for all vehicle classes and in particular the heavy-heavy-duty truck class (the 4+ axle "big rig" trucks). This is due to the CARB emissions' requirements on heavy-duty trucks that call for either the replacement of older trucks with cleaner trucks or the installation of diesel particulate matter filters on the truck fleet. Rail emissions factors for freight and passenger trains were obtained from the EPA and CARB see Appendix C for details).

Emission Source Characterization

Each of the emission source types described above also requires geometrical and emission release specifications for use in the air dispersion model. As the majority of DPM emissions are sourced from big rig trucks, an average truck height of 13.5 feet and average truck width of 8.5 feet were entered into the haul road calculator in AERMOD in order to calculate the plume height and release height for the line sources. The rail source was modeled as a line source. Table 11 provides a summary of the assumptions used to configure the various emission sources. The following definitions are used to characterize the emission source geometrical configurations referred to in Table 11:

- Line source: A series of volume sources along a path, for example, vehicular volumes along a roadway or locomotives along a rail line (shown as blue lines on Figure 3).

Figure 3 provides the location of the receptors (shown by orange triangles) and emission source locations, shown by the blue line along each direction of the freeway (as the emissions are calculated for both the northbound and southbound lanes of the freeway). The project boundaries are outlined in pink. The proposed residential buildings are located within the project boundaries and receptors have been placed at representative residential uses within the project site.

RECEPTOR NETWORK

The assessment requires that a network of receptors be specified where the impacts can be computed at the various locations surrounding the project. Receptors were located at proposed residential use within the proposed project (as detailed above). In addition, the identified sensitive receptor locations were supplemented by the specification of a modeling grid that extended around the proposed project to identify other potential locations of impact. Per SCAQMD AERMOD guidance, and to ensure that impacts to children of all heights were assessed, the receptor height is 0 meters (per SCAQMD methodology). The locations of the receptors are shown as orange triangles on Figure 3.

DISPERSION MODELING

The next step in the assessment process utilizes the emissions inventory along with a mathematical air dispersion model and representative meteorological data to calculate impacts at the various receptor locations. The dispersion model used in this assessment is described below.

Model Selection

The assessment of air quality and health risk impacts from pollutant emissions from this project applied the USEPA AERMOD Model, which is the air dispersion model accepted by the SCAQMD for performing air quality impact analyses. AERMOD predicts pollutant concentrations from point, area, volume, line, and flare sources with variable emissions in terrain from flat to complex. It captures the essential atmospheric physical

processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios. AERMOD View Version 13.0.0, MPI version No. 23132, was utilized for this analysis. AERMAP, which assigns detailed terrain information, was run prior to running AERMOD.

General Model Assumptions

The basic options used in the dispersion modeling are summarized in Table 12.

Meteorological Data

Meteorological data from the Air District's Riverside Airport monitoring site was selected for this modeling application as it was the closest station with the requisite data to the site. Five full years of sequential meteorological data was collected at the site for 2012-2016 by the SCAQMD. The SCAQMD processed the data for input to the model. The data was obtained at SCAQMD's http://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/data-for-aermod. Figure 4 shows a Wind Rose for Riverside Airport.

ESTIMATION OF HEALTH RISKS

Health risks from diesel particulate matter are twofold. First, diesel particulate matter is a carcinogen according to the State of California. Second, long-term chronic exposure to diesel particulate matter can cause health effects to the respiratory system. Each of these health risks is discussed below.

Cancer Risks

According to the *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, released by the Office of Environmental Health Hazard Assessment (OEHHA) in February 2015 and formally adopted in March 2015, the residential inhalation dose for cancer risk assessment should be calculated using the following formula:

[Dose-air (mg/(Kg-day)]*Cancer Potency*[1x10^{-6}] = Potential Cancer Risk

Where:
Cancer Potency Factor = 1.1
Dose-inh = (C¬air * DBR * A * EF * ED *ASF*FAH* 10-6) / AT

Where:

Cair	[Concentration in air (µg/m^3)] = (Calculated by AERMOD Model)
DBR	[Daily breathing rate (L/kg body weight – day)] = 261 for adults, 572 for children, and 1,090 for infants, and 361 for 3rd trimester per SCAQMD guidance.
A	[Inhalation absorption factor] = 1
EF	[Exposure frequency (days/year)] = 350
ED	[Exposure duration (years)] = 30 for adults (for an individual who is an adult at opening year), 14 for children (from 2-16 years), 14 for adults (from 16-30 years), 2 for infants, and 1 for 3rd trimester
ASF	[Age sensitivity factor) = 10 for 3rd trimester to 2 years of age, 3 for 2 to 16 years of age, and 1 for 16 to 30 years of age
FAH	[Fraction of time spent at home] = 1 for 3rd trimester to 2 years of age, 1 for 2 to 16 years of age, and 0.73 for 16 to 30 years of age
10^6	[Micrograms to milligrams conversion]
AT	[Average time period over which exposure is averaged in days] = 25,550

The model run results are shown in Appendix C. Figure 5 illustrates the cancer risk to the most-affected group, children 2 to 16 years old.

Table 13 shows the cancer risk for the unborn child during the 3rd trimester, Table 14 shows the cancer risk to infants (0-2 years), Table 15 shows the cancer risk to children ages 2 to 16 years and Table 16 shows the cancer risk as that child becomes an adult (years 16-30). The highest 3rd trimester cancer risk is at receptor 1; with a maximum risk of 0.10 in one million. The highest infant cancer risk is also at receptor 1; with a maximum risk of 2.33 in one million. The highest child (2-16 years) cancer risk is at receptor 1; with a maximum risk of 2.57 in one million. Therefore, no unborn babies, infants or children are exposed to cancer risk in excess of 10 in a million. The highest adult (16-30 years) cancer risk is at receptor 1; with a maximum risk of 0.28 in one million; therefore, no adults are exposed to cancer risk from rail and freeway-related emissions in excess of 10 in a million either.

The assessment of cancer-related health risk to sensitive receptors within the project vicinity is based on the following most-conservative scenario:

- an unborn child in its 3rd trimester is potentially exposed to DPM emissions (via exposure of the mother) during the opening year,
- that child is born opening year and then remains at home for the entire first two years of life
- from age 2 to 16, the child remains at home 100 percent of the time
- from age 16 to 30, the child continues to live at home, growing into an adult that spends 73 percent of its time at home and lives there until age 30.

Based on the above, ultra-conservative assumptions, the 30.25-year, cumulative carcinogenic health risk (3rd trimester [-0.25 to 0 years] + infant [0-2 years] + child [2-16 years] + adult [16-30 years]) to an individual born during the opening year of the project, and located in the project vicinity for the entire 30-year duration, is a maximum of 5.28 in a million, as shown in Table 17.

As stated previously, the *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369 (CBIA) case the California Supreme Court determined that CEQA does not generally require an impacts analysis of the existing environmental conditions on the future residents of a proposed project and generally only requires an analysis of the proposed project's impact on the environment. However, the CBIA case also stated that when a proposed project brings development and people into an area already subject to specific hazards and the new development/people exacerbate the existing hazards, then CEQA requires an analysis of the hazards and the proposed project's effect in terms of increasing the risks related to those hazards.

Operation of the proposed project would not result in any non-permitted direct emissions (e.g., those from a point source such as diesel generators) or result in a substantial increase in diesel vehicles (i.e., delivery trucks). Overall, the proposed project would not result in exposure of sensitive receptors in the vicinity of the project site (i.e., the residences to the southwest, east, and northeast of the project site) to substantial TAC concentrations and would not exacerbate pre-existing health risk hazards.

As cancer-related health risks are less than 10 in a million, impacts are considered to be less than significant. No mitigation is required.

Non-Cancer Risks

The relationship for non-cancer health effects is given by the equation:

HIDPM = CDPM/RELDPM

Where,

HIDPM	=	Hazard Index; an expression of the potential for non-cancer health effects.
CDPM	=	Annual average diesel particulate matter concentration in µg/m3.

RELDPM = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The non-carcinogenic hazards to 3rd trimester, infant, child and adult receptors are also detailed in Tables 13 through 16 column (j). The RELDPM is 5 µg/m3. The Office of Environmental Health Hazard Assessment as protective for the respiratory system has established this concentration. Using the maximum DPM concentration for the opening year, the resulting Hazard Index is:

HIDPM = 0.00709/5 = 0.0014

The criterion for significance is a Hazard Index increase of 1.0 or greater. Therefore, the proposed project would have a less than significant impact due to the non-cancer risk from diesel emissions from the nearby rail and freeway vehicular volumes.

Table 10
DPM Vehicular and Rail Emission Factors

Vehicle Type	MPH assumed for vehicle type	2027 PM2.5 Exhaust Emissions Factor (g/mi)[1]
Light Duty Auto (LDA)	70	0.028065085
Light Duty Truck 1 (LDT1)	70	0.275224359
Light Duty Truck 2 (LDT2)	70	0.004623182
Medium Duty Truck (MDV)	60	0.006750692
Light-Heavy Duty Truck 1 (LHDT1)	60	0.014853289
Light-Heavy Duty Truck 2 (LHDT2)	60	0.014848045
Medium-Heavy Duty Truck (MHDT)	55	0.011790
Heavy-Heavy Duty Truck (HHDT)	55	0.021248

Vehicle Type	MPH assumed for train	Average DPM Exhaust Emissions Factor(g/sec)[2]
Freight Train	25	0.0000248
Passenger Train	25	0.0000105

Notes:

(1) Source: EMFAC2021 for SCAQMD.

Table 11
Summary of Emission Configurations

Emission Source Type	Geometric Configuration	Relevant Assumptions
Off-Site Diesel Traffic	Line Sources	Release height: 3.5 meters
		Vehicle speed: See Table 10
		Length of the line source (91 Freeway segments west of the project)
		Vehicle types: see Table 10
		Emission factor: CARB EMFAC2021

Table 12
General Modeling Assumptions - AERMOD Model

Feature	Option Selected
Zone	11 North
Terrain processing	AERMAP - NED GEOTIFF 30 meter
Emission source configuration	See Table 11
Regulatory dispersion options	Default
Land use	Urban[1]
Coordinate system	UTM
Receptor height	0 meters above ground[1]
Meteorological data	SCAQMD Riverside Airport

Notes:

(1) Per SCAQMD AERMOD guidance methodology, available at http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/modeling-guidance

Table 13
Carcinogenic Risks and Non-Carcinogenic Hazards
- 3rd Trimester Exposure Scenario (0.25 Years)

Receptor ID (a)	Maximum Concentration (ug/m3) (b)	Maximum Concentration (mg/m3) (c)	Weight Fraction (d)	Contaminant (e)	Carcinogenic Hazards CPF (mg/kg/day) (f)	Carcinogenic Hazards RISK (per million) (g)	Noncarcinogenic Hazards REL (ug/m3) (h)	Noncarcinogenic Hazards RfD (mg/kg/day) (i)	Noncarcinogenic Hazards Index (j)
1	0.00709	7.1E-06	1.00E+00	DPM	1.1E+00	0.10	5.0E+00	1.4E-03	0.0014
2	0.00688	6.9E-06	1.00E+00	DPM	1.1E+00	0.09	5.0E+00	1.4E-03	0.0014
3	0.00541	5.4E-06	1.00E+00	DPM	1.1E+00	0.07	5.0E+00	1.4E-03	0.0011
4	0.00652	6.5E-06	1.00E+00	DPM	1.1E+00	0.09	5.0E+00	1.4E-03	0.0013
5	0.00612	6.1E-06	1.00E+00	DPM	1.1E+00	0.08	5.0E+00	1.4E-03	0.0012
6	0.00463	4.6E-06	1.00E+00	DPM	1.1E+00	0.06	5.0E+00	1.4E-03	0.0009
7	0.00394	3.9E-06	1.00E+00	DPM	1.1E+00	0.05	5.0E+00	1.4E-03	0.0008

Note: Exposure factors used to calculate TAC intake

Exposure Frequency (days/year)	350
Exposure Duration (years)	0.25
Daily Breathing Rate	361
Age Sensitivity Factor	10
Fraction of Time At Home (FAH)	1
Averaging Time $_{(cancer)}$ (days)	25550
Averaging Time $_{(non\text{-}cancer)}$ (days)	91.25

E= 10^, i.e. E-02 = 10^{-2}

Table 14
Carcinogenic Risks and Non-Carcinogenic Hazards
- Infant Exposure Scenario (0-2 Years)

Receptor ID (a)	Maximum Concentration (ug/m3) (b)	Maximum Concentration (mg/m3) (c)	Weight Fraction (d)	Contaminant (e)	Carcinogenic Hazards CPF (mg/kg/day) (f)	Carcinogenic Hazards RISK (per million) (g)	Noncarcinogenic Hazards REL (ug/m3) (h)	Noncarcinogenic Hazards RfD (mg/kg/day) (i)	Noncarcinogenic Hazards Index (j)
1	0.00709	7.1E-06	1.00E+00	DPM	1.1E+00	2.33	5.0E+00	1.4E-03	0.0014
2	0.00688	6.9E-06	1.00E+00	DPM	1.1E+00	2.26	5.0E+00	1.4E-03	0.0014
3	0.00541	5.4E-06	1.00E+00	DPM	1.1E+00	1.78	5.0E+00	1.4E-03	0.0011
4	0.00652	6.5E-06	1.00E+00	DPM	1.1E+00	2.14	5.0E+00	1.4E-03	0.0013
5	0.00612	6.1E-06	1.00E+00	DPM	1.1E+00	2.01	5.0E+00	1.4E-03	0.0012
6	0.00463	4.6E-06	1.00E+00	DPM	1.1E+00	1.52	5.0E+00	1.4E-03	0.0009
7	0.00394	3.9E-06	1.00E+00	DPM	1.1E+00	1.29	5.0E+00	1.4E-03	0.0008

Note: Exposure factors used to calculate TAC intake

Exposure Frequency (days/year)	350
Exposure Duration (years)	2
Daily Breathing Rate	1090
Age Sensitivity Factor	10
Fraction of Time At Home (FAH)	1
Averaging Time $_{(cancer)}$ (days)	25550
Averaging Time $_{(non\text{-}cancer)}$ (days)	730

E= 10^, i.e. E-02 = 10^{-2}

Table 15
Carcinogenic Risks and Non-Carcinogenic Hazards
- Child Exposure Scenario (2-16 Years)

Receptor ID (a)	Maximum Concentration (ug/m3) (b)	Maximum Concentration (mg/m3) (c)	Weight Fraction (d)	Contaminant (e)	Carcinogenic Hazards CPF (mg/kg/day) (f)	Carcinogenic Hazards RISK (per million) (g)	Noncarcinogenic Hazards REL (ug/m3) (h)	Noncarcinogenic Hazards RfD (mg/kg/day) (i)	Noncarcinogenic Hazards Index (j)
1	0.00709	2.7E-03	1.00E+00	DPM	1.1E+00	2.57	5.0E+00	1.4E-03	0.0014
2	0.00688	2.5E-03	1.00E+00	DPM	1.1E+00	2.49	5.0E+00	1.4E-03	0.0014
3	0.00541	2.5E-03	1.00E+00	DPM	1.1E+00	1.96	5.0E+00	1.4E-03	0.0011
4	0.00652	2.5E-03	1.00E+00	DPM	1.1E+00	2.36	5.0E+00	1.4E-03	0.0013
5	0.00612	2.5E-03	1.00E+00	DPM	1.1E+00	2.22	5.0E+00	1.4E-03	0.0012
6	0.00463	2.5E-03	1.00E+00	DPM	1.1E+00	1.68	5.0E+00	1.4E-03	0.0009
7	0.00394	3.9E-06	1.00E+00	DPM	1.1E+00	1.43	5.0E+00	1.4E-03	0.0008

Note: Exposure factors used to calculate TAC intake

Exposure Frequency (days/year)	350
Exposure Duration (years)	14
Daily Breathing Rate	572
Age Sensitivity Factor	3
Fraction of Time At Home (FAH)	1
Averaging Time $_{(cancer)}$ (days)	25550
Averaging Time $_{(non\text{-}cancer)}$ (days)	5110

E= 10^, i.e. E-02 = 10^{-2}

Table 16
Carcinogenic Risks and Non-Carcinogenic Hazards
- Adult Exposure Scenario (16-30 Years)

Receptor ID (a)	Maximum Concentration (ug/m3) (b)	Maximum Concentration (mg/m3) (c)	Weight Fraction (d)	Contaminant (e)	Carcinogenic Hazards CPF (mg/kg/day) (f)	Carcinogenic Hazards RISK (per million) (g)	Noncarcinogenic Hazards REL (ug/m3) (h)	Noncarcinogenic Hazards RfD (mg/kg/day) (i)	Noncarcinogenic Hazards Index (j)
1	0.00709	7.1E-06	1.00E+00	DPM	1.1E+00	0.28	5.0E+00	1.4E-03	0.0014
2	0.00688	6.9E-06	1.00E+00	DPM	1.1E+00	0.28	5.0E+00	1.4E-03	0.0014
3	0.00541	5.4E-06	1.00E+00	DPM	1.1E+00	0.22	5.0E+00	1.4E-03	0.0011
4	0.00652	6.5E-06	1.00E+00	DPM	1.1E+00	0.26	5.0E+00	1.4E-03	0.0013
5	0.00612	6.1E-06	1.00E+00	DPM	1.1E+00	0.25	5.0E+00	1.4E-03	0.0012
6	0.00463	4.6E-06	1.00E+00	DPM	1.1E+00	0.19	5.0E+00	1.4E-03	0.0009
7	0.00394	3.9E-06	1.00E+00	DPM	1.1E+00	0.16	5.0E+00	1.4E-03	0.0008

Note: Exposure factors used to calculate TAC intake

Exposure Frequency (days/year)	350
Exposure Duration (years)	14
Daily Breathing Rate	261
Age Sensitivity Factor	1
Fraction of Time At Home (FAH)	0.73
Averaging Time $_{(cancer)}$ (days)	25550
Averaging Time $_{(non\text{-}cancer)}$ (days)	5110

E= 10^, i.e. E-02 = 10^{-2}

Table 17
Cumulative Carcinogenic Risk 30.25-Year Exposure Scenario

Receptor ID	Cumulative RISK (per million)
1	5.28
2	5.12
3	4.03
4	4.85
5	4.85
6	3.45
7	2.93

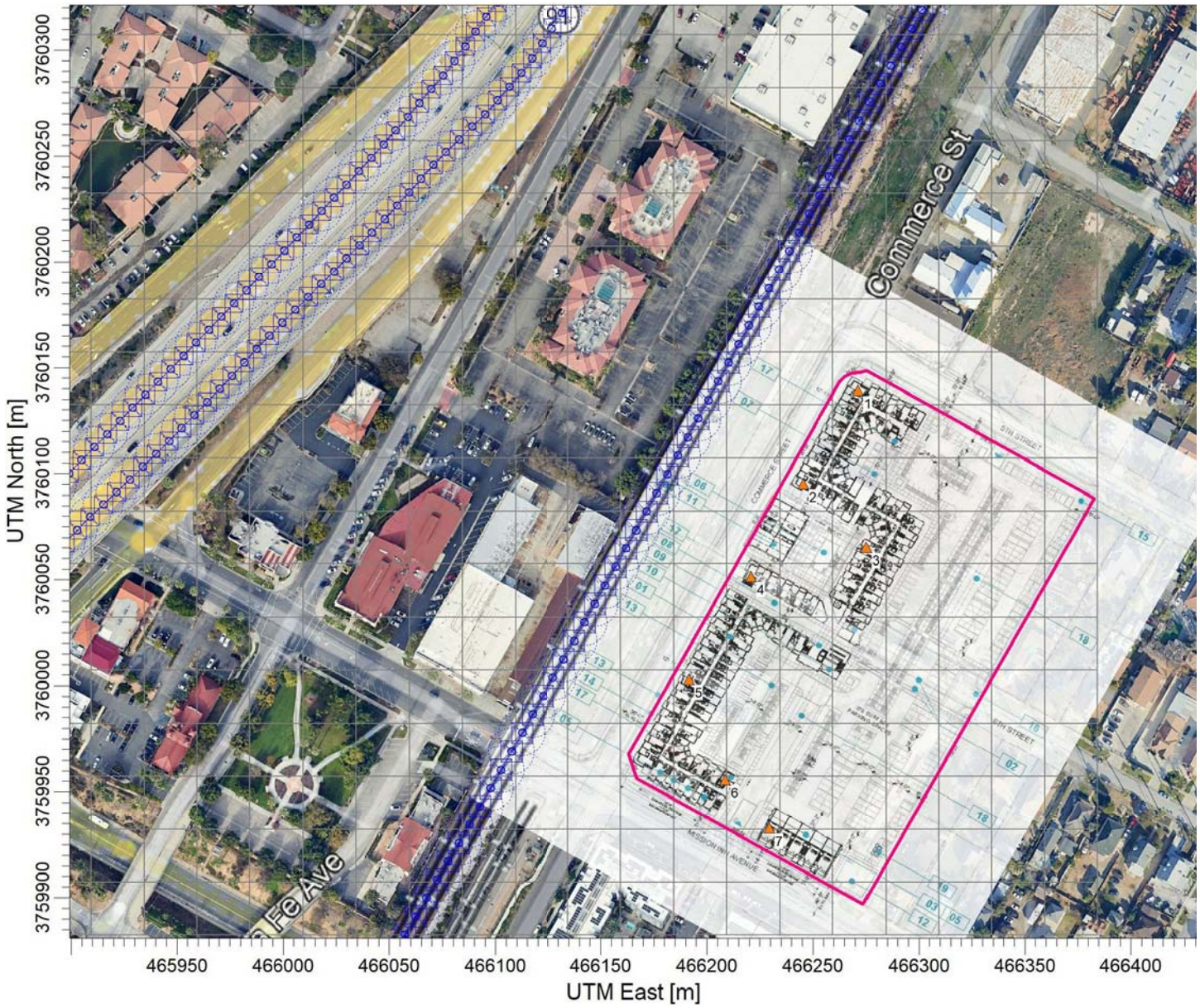


Figure 3
AERMOD Model Source and Receptor Placement

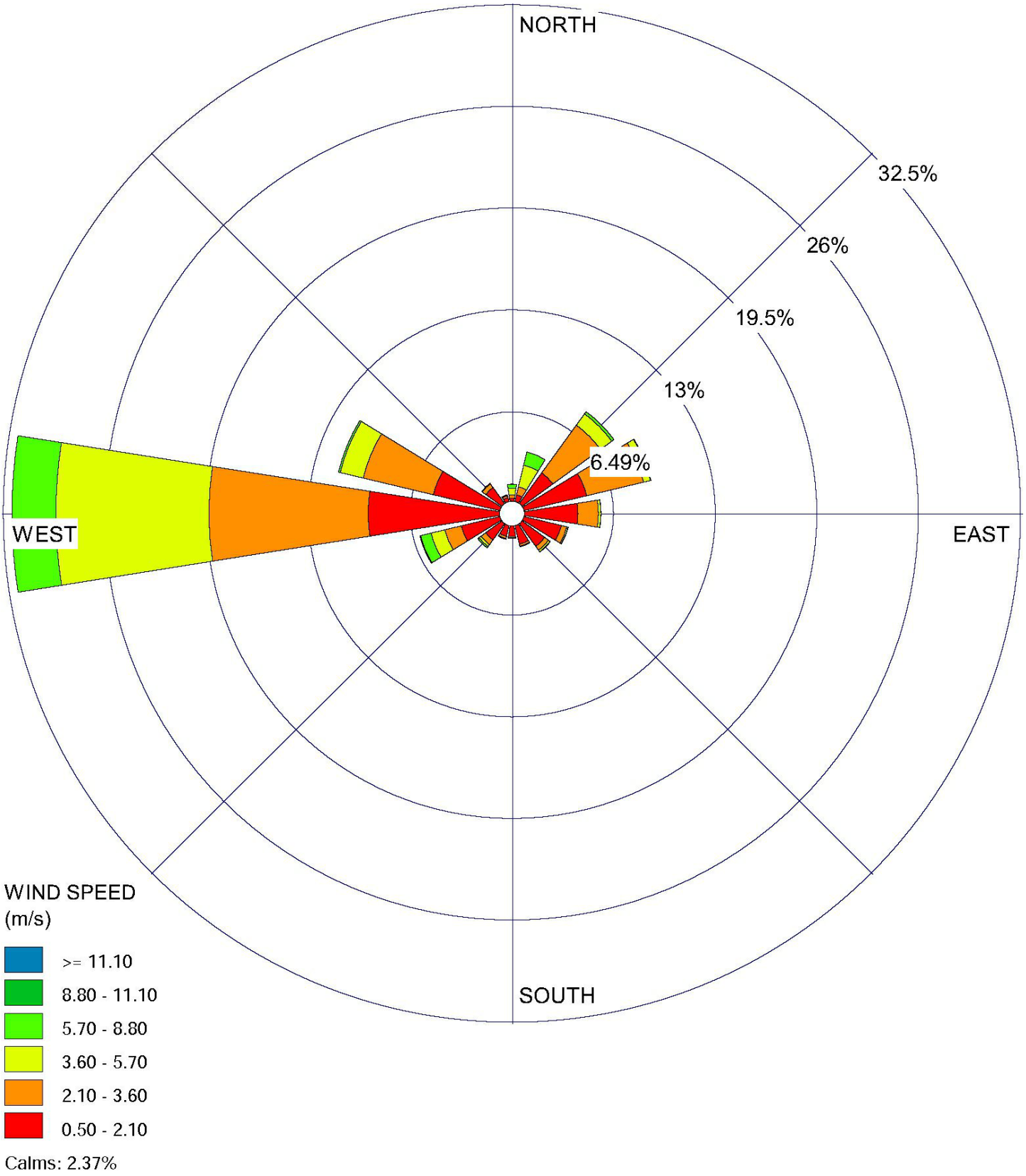
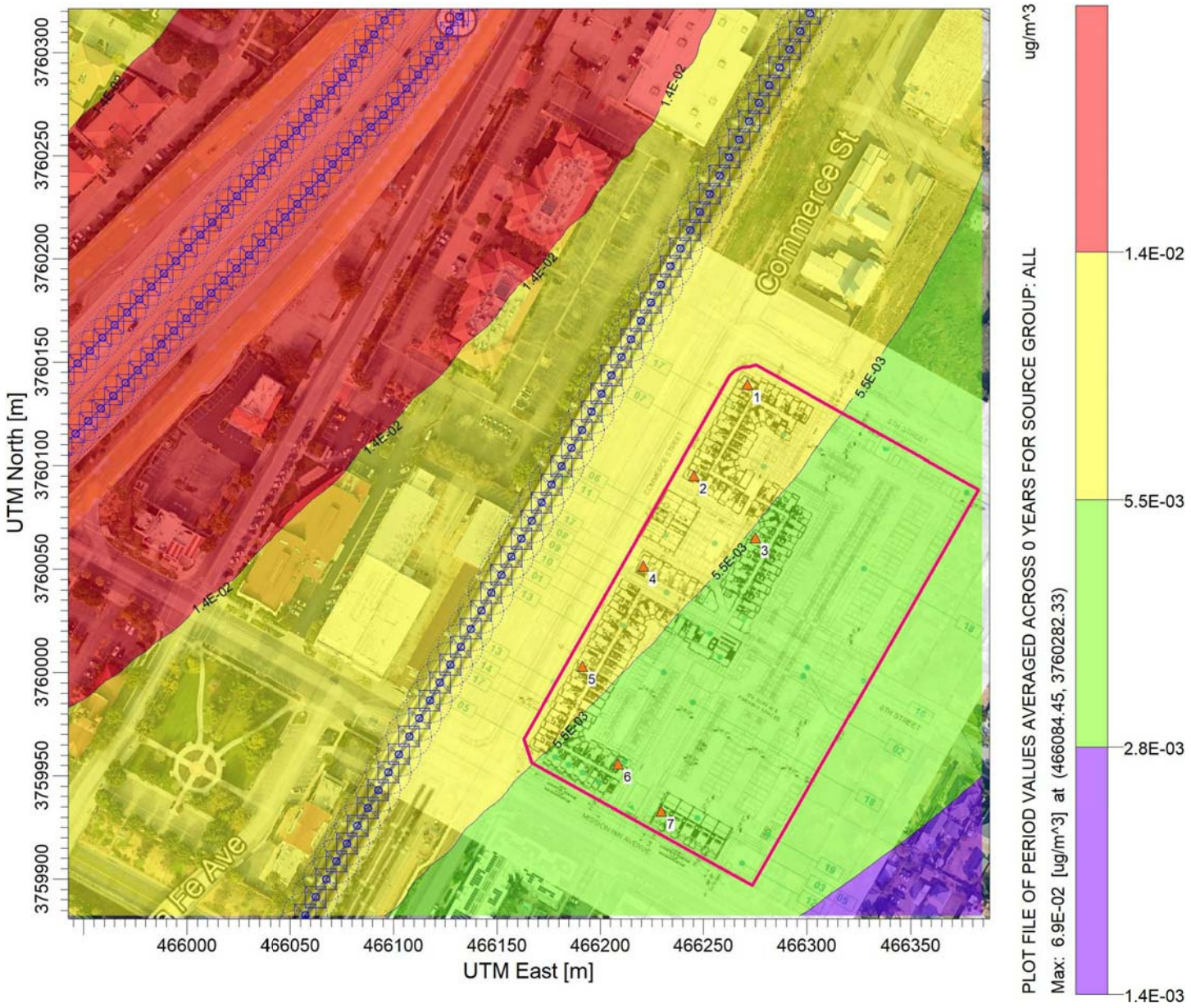


Figure 4
Wind Rose: Riverside Airport



Legend
Cancer Risk to Children (2-16) Years
- 5 in a million
- 2 in a million
- 1 in a million
- 0.5 in a million

Figure 5
Modeled Study Area Highest Cancer Risk from Annual DPM Emissions

4. GLOBAL CLIMATE CHANGE ANALYSIS

EXISTING GREENHOUSE GAS ENVIRONMENT

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NOx) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop". The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide (CO_2)

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s. Each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC Fifth Assessment Report, 2014) Emissions of CO_2 from fossil fuel combustion and industrial processes contributed about 78% of the total GHG emissions increase from 1970 to 2010, with a similar percentage contribution for the increase during the period 2000 to 2010. Globally, economic and population growth continued to be the most important drivers of increases in CO_2 emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to the previous three decades, while the contribution of economic growth has risen sharply.

Methane (CH_4)

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and Chlorofluorocarbons (CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide (N_2O)

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is also commonly used as an aerosol spray propellant, (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and in race cars).

Chlorofluorocarbons (CFC)

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons (HFC)

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons (PFC)

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride (SF_6)

SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

Global Warming Potential

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases (e.g., to compile a national GHG inventory), and allows policymakers to compare emissions reduction opportunities across sectors and gases. A summary of the atmospheric lifetime and the global warming potential of selected gases are summarized in Table 18. As shown in Table 18, the global warming potential of GHGs ranges from 1 to 22,800.

Table 18
Global Warming Potentials and Atmospheric Lifetimes

Gas	Atmospheric Lifetime	(100 Year Horizon)
Carbon Dioxide (CO_2)	-- [2]	1
Methane (CH_4)	12	28-36
Nitrous Oxide (NO)	114	298
Hydrofluorocarbons (HFCs)	1-270	12-14,800
Perfluorocarbons (PFCs)	2,600-50,000	7,390-12,200
Nitrogen trifluoride (NF_3)	740	17,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Notes:

Source: http://www3.epa.gov/climatechange/ghgemissions/gases.html

(1) Compared to the same quantity of CO_2 emissions.

(2) Carbon dioxide's lifetime is poorly defined because the gas is not destroyed over time, but instead moves among different parts of the ocean–atmosphere–land system. Some of the excess carbon dioxide will be absorbed quickly (for example, by the ocean surface), but some will remain in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments.

GREENHOUSE GAS STANDARDS AND REGULATION

International

Montreal Protocol

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

The Paris Agreement

The Paris Agreement became effective on November 4, 2016. Thirty days after this date at least 55 Parties to the United Nations Framework Convention on Climate Change (Convention), accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions, had deposited their instruments of ratification, acceptance, approval or accession with the Depositary.

The Paris Agreement built upon the Convention and – for the first time – attempted to bring all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework.

Federal

The United States Environmental Protection Agency (USEPA) is responsible for implementing federal policy to address GHGs. The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As

such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO_2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions will not themselves impose any requirements on industry or other entities. However, it is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the EPA and Department of Transportation on September 15, 2009.

Clean Air Act

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), the U.S. Supreme Court held in April of 2007 that the USEPA has statutory authority under Section 202 of the federal Clean Air Act (CAA) to regulate GHGs. The court did not hold that the USEPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA. The USEPA adopted a Final Endangerment Finding for the six defined GHGs (CO2, CH4, N2O, HFCs, PFCs, and SF6) on December 7, 2009. The Endangerment Finding is required before USEPA can regulate GHG emissions under Section 202(a)(1) of the CAA consistently with the United States Supreme Court decision. The USEPA also adopted a Cause or Contribute Finding in which the USEPA Administrator found that GHG emissions from new motor vehicle and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. These findings do not, by themselves, impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

Energy Independence Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of green jobs.[14]

Executive Order 13432

In response to the Massachusetts v. Environmental Protection Agency ruling, the President signed Executive Order 13432 on May 14, 2007, directing the USEPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. Executive Order 13432 was codified into law by the 2009 Omnibus Appropriations Law signed on February 17, 2009. The order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. Light-Duty Vehicle GHG and Corporate Average Fuel Economy Standards.

On May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard applies to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy standards (CAFE)[15] and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO2 per mile by model year 2016, based on USEPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle.[16] In 2017, the USEPA recommended no change to the GHG standards for light-duty vehicles for model years 2022-2025.

In December 2021, the EPA finalized federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026. The updated standards will result in avoiding more than 3 billion tons of GHG emissions through 2050. These standards set the light-duty vehicle GHG program on track to provide a strong launch point for the agency's next phase of standards for model year 2027 and beyond.[17] On April 12, 2023, EPA announced new, more ambitious proposed standards to further reduce harmful air pollutant emissions from light-duty and medium-duty vehicles starting with model year 2027. The proposal builds upon EPA's final standards for federal greenhouse gas emissions standards for passenger cars and light trucks for model years 2023 through 2026 and leverages advances in clean car technology to unlock benefits to Americans ranging from reducing climate pollution, to improving public health, to saving drivers money through reduced fuel and maintenance costs. The proposed standards would phase in over model years 2027 through 2032.[18]

[14] A green job, as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.

[15] The Corporate Average Fuel Economy standards are regulations in the United States, first enacted by Congress in 1975, to improve the average fuel economy of cars and light trucks. The U.S Department of Transportation has delegated the National Highway Traffic Safety Administration as the regulatory agency for the Corporate Average Fuel Economy standards.

[16] United States Environmental Protection Agency, EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, August 2012, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF.

[17] United States Environmental Protection Agency (EPA), Regulations for Emissions from Vehicles and Engines, Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026. https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-revise-existing-national-ghg-emissions

[18] United States Environmental Protection Agency (EPA), Regulations for Emissions from Vehicles and Engines, Proposed Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles. https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-multi-pollutant-emissions-standards-model

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[19]

On May 12, 2021, the National Highway Traffic Safety Administration (NHTSA) published a notice of proposed rulemaking in the Federal Register, proposing to repeal "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program," published Sept. 27, 2019 (SAFE I Rule), in which NHTSA codified regulatory text and made additional pronouncements regarding the preemption of state and local laws related to fuel economy standards. Specifically, this document proposed to fully repeal the regulatory text and appendices promulgated in the SAFE I Rule. In addition, this document proposed to repeal and withdraw the interpretative statements made by the Agency in the SAFE I Rule preamble, including those regarding the preemption of particular state Greenhouse Gas (GHG) Emissions standards or Zero Emissions Vehicle (ZEV) mandates. As such, this document proposed to establish a clean slate with respect to NHTSA's regulations and interpretations concerning preemption under the Energy Policy and Conservation Act (EPCA).[20] This action is effective as of January 28, 2022. [21]

State of California

California Air Resources Board

CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets state ambient air quality standards (California Ambient Air Quality Standards [CAAQS]), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2004, the California Air Resources Board (CARB) adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other toxic air contaminants (Title 13 California Code of Regulations [CCR], Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure generally does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location with certain exemptions for equipment in which idling is a necessary function such as concrete trucks. While this measure primarily targets diesel particulate matter emissions, it has co-benefits of minimizing GHG emissions from unnecessary truck idling.

In 2008, CARB approved the Truck and Bus regulation to reduce particulate matter and nitrogen oxide emissions from existing diesel vehicles operating in California (13 CCR, Section 2025, subsection (h)). CARB has also promulgated emission standards for off-road diesel construction equipment of greater than 25

[19] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

[20] https://www.federalregister.gov/documents/2021/05/12/2021-08758/corporate-average-fuel-economy-cafe-preemption

[21] https://www.federalregister.gov/documents/2021/05/12/2021-08758/corporate-average-fuel-economy-cafe-preemption

horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation, adopted by the CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. While these regulations primarily target reductions in criteria air pollutant emission, they have co-benefits of minimizing GHG emissions due to improved engine efficiencies.

The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

Assembly Bill 1493

California Assembly Bill 1493 enacted on July 22, 2002, required the CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009. After adopting these initial greenhouse gas standards for passenger vehicles, CARB adopted continuing standards for future model years.

Executive Order S-3-05

The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Assembly Bill 32 (California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006)

In 2006, the California State Legislature adopted Assembly Bill (AB) 32 (codified in the California Health and Safety Code [HSC], Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO2, CH4, N2O, HFCs, PFCs, and SF6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

Senate Bill 32 and Assembly Bill 197

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 and AB 197 amends HSC Division 25.5 and establishes a new climate

pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure the benefits of state climate policies reach into disadvantaged communities.

Climate Change Scoping Plan (2008)

A specific requirement of AB 32 was to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (Health and Safety Code section 38561 (h)). CARB developed an AB 32 Scoping Plan that contains strategies to achieve the 2020 emissions cap. The initial Scoping Plan was approved in 2008, and contains a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was originally set at 427 $MMTCO_2e$ using the GWP values from the IPCC SAR. CARB also projected the state's 2020 GHG emissions under no-action-taken (NAT) conditions – that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB originally used an average of the state's GHG emissions from 2002 through 2004 and projected the 2020 levels at approximately 596 $MMTCO_2e$ (using GWP values from the IPCC SAR). Therefore, under the original projections, the state must reduce its 2020 NAT emissions by 28.4 percent in order to meet the 1990 target of 427 $MMTCO_2e$.

First Update to the Climate Change Scoping Plan (2014)

The First Update to the Scoping Plan was approved by CARB in May 2014 and builds upon the initial Scoping Plan with new strategies and recommendations. In 2014, CARB revised the target using the GWP values from the IPCC AR4 and determined that the 1990 GHG emissions inventory and 2020 GHG emissions limit is 431 $MMTCO_2e$. CARB also updated the State's 2020 NAT emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that were recently adopted for motor vehicles and renewable energy. CARB's projected statewide 2020 emissions estimate using the GWP values from the IPCC AR4 is 509.4 $MMTCO_2e$.

2017 Climate Change Scoping Plan

In response to the 2030 GHG reduction target, CARB adopted the 2017 Climate Change Scoping Plan at a public meeting held in December 2017. The 2017 Scoping Plan outlines the strategies the State will implement to achieve the 2030 GHG reduction target of 40 percent below 1990 levels. The 2017 Scoping Plan also addresses GHG emissions from natural and working lands of California, including the agriculture and forestry sectors. The 2017 Scoping Plan considered the Scoping Plan Scenario and four alternatives for achieving the required GHG reductions but ultimately selected the Scoping Plan Scenario.

CARB states that the Scoping Plan Scenario "is the best choice to achieve the State's climate and clean air goals."[22] Under the Scoping Plan Scenario, the majority of the reductions would result from the continuation of the Cap-and-Trade regulation. Additional reductions are achieved from electricity sector standards (i.e., utility providers to supply at least 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. The alternatives were designed to consider various combinations of these programs, as well as consideration of a carbon tax in the event the Cap-and-Trade regulation is not continued. However, in July 2017, the California Legislature voted to extend the Cap-and-Trade regulation to 2030. Implementing this Scoping Plan will ensure

[22] California Air Resources Board, California's 2017 Climate Change Scoping Plan, November 2017, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

that California's climate actions continue to promote innovation, drive the generation of new jobs, and achieve continued reductions of smog and air toxics. The ambitious approach draws on a decade of successful programs that address the major sources of climate-changing gases in every sector of the economy:

- More Clean Cars and Trucks: The plan sets out far-reaching programs to incentivize the sale of millions of zero-emission vehicles, drive the deployment of zero-emission trucks, and shift to a cleaner system of handling freight statewide.
- Increased Renewable Energy: California's electric utilities are ahead of schedule meeting the requirement that 33 percent of electricity come from renewable sources by 2020. The Scoping Plan guides utilities to 50 percent renewables, as required under SB 350.
- Slashing Super-Pollutants: The plan calls for a significant cut in super-pollutants such as methane and HFC refrigerants, which are responsible for as much as 40 percent of global warming.
- Cleaner Industry and Electricity: California's renewed cap-and-trade program extends the declining cap on emissions from utilities and industries and the carbon allowance auctions. The auctions will continue to fund investments in clean energy and efficiency, particularly in disadvantaged communities.
- Cleaner Fuels: The Low Carbon Fuel Standard will drive further development of cleaner, renewable transportation fuels to replace fossil fuels.
- Smart Community Planning: Local communities will continue developing plans which will further link transportation and housing policies to create sustainable communities.
- Improved Agriculture and Forests: The Scoping Plan also outlines innovative programs to account for and reduce emissions from agriculture, as well as forests and other natural lands.

The 2017 Scoping Plan also evaluates reductions of smog-causing pollutants through California's climate programs.

2022 Climate Change Scoping Plan

CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality on November 16, 2022. The 2022 Scoping Plan lays out the sector-by-sector roadmap for California, the world's fifth largest economy, to achieve carbon neutrality by 2045 or earlier, outlining a technologically feasible, cost-effective, and equity-focused path to achieve the state's climate target. The Plan addresses recent legislation and direction from Governor Newsom and extends and expands upon earlier plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. The plan also takes the unprecedented step of adding carbon neutrality as a science-based guide and touchstone for California's climate work. Specifically, this plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.
- Incorporates the contribution of natural and working lands (NWL) to the state's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.
- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

SB 32, Pavley. California Global Warming Solutions Act of 2006

(1) The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective greenhouse gas emissions reductions. This bill would require the state board to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 level by 2030.
(2) This bill would become operative only if AB 197 of the 2015–16 Regular Session is enacted and becomes effective on or before January 1, 2017. AB 197 requires that the California Air Resources Board, which directs implementation of emission-reduction programs, should target direct reductions at both stationary and mobile sources. AB 197 of the 2015-2016 Regular Session was approved on September 8, 2016.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs the CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to the

CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009, the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010, and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation".
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bill 100

Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). The CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by

passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. The CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG) jurisdiction, which has authority to develop the SCS or APS. For the SCAG region, the targets set by the CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 19 percent below 2005 per capita GHG emissions levels by 2035. These reduction targets became effective October 2018.

Senate Bill X7-7

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

Assembly Bill 939 and Senate Bill 1374

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004, suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008, and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. CalEEMod modeling defaults to 2008 standards. 2013 Standards were approved and have been effective since July 1, 2014. 2016 Standards were adopted January 1, 2017. 2019 standards were published July 1, 2019 and became effective January 1, 2020. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

Per Section 100 Scope, the 2019 Title 24, Part 6 Building Code now requires healthcare facilities, such as assisted living facilities, hospitals, and nursing homes, to meet documentation requirements of Title 24, Part 1 Chapter 7 – Safety Standards for Health Facilities. A healthcare facility is defined as any building or portion

thereof licensed pursuant to California Health and Safety Code Division 2, Chapter 1, Section 1204 or Chapter 2, Section 1250.

Section 120.1 Ventilation and Indoor Air Quality included both additions and revisions in the 2019 Code. This section now requires nonresidential and hotel/motel buildings to have air filtration systems that use forced air ducts to supply air to occupiable spaces to have air filters. Further, the air filter efficiency must be either MERV 13 or use a particle size efficiency rating specific in the Energy Code AND be equipped with air filters with a minimum 2-inch depth or minimum 1-inch depth if sized according to the equation 120.1-A. If natural ventilation is to be used the space must also use mechanical unless ventilation openings are either permanently open or controlled to stay open during occupied times. The 2019 version of the Code also completely revised the minimum ventilation requirements including DVC airflow rates within Section 120.1 Table 120.1–A. Table 120.1-A now includes air classification and recirculation limitations, these are based on either the number of occupants or the CFM/ft^2 (cubic feet per minute per square foot), whichever is greater.

Section 120.1 Ventilation and Indoor Air Quality also included additions for high-rise residential buildings. Requirements include that mechanical systems must provide air filters that and that air filters must be MERV 13 or use a particle size efficiency rating specified in the Energy Code. Window operation is no longer a method allowed to meet ventilation requirements, continuous operation of central forced air system handlers used in central fan integrated ventilation system is not a permissible method of providing the dwelling unit ventilation airflow, and central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow to each dwelling unit. In addition, requirements for kitchen range hoods were also provided in the updated Section 120.1.

Per Section 120.1(a) healthcare facilities must be ventilated in accordance with Chapter 4 of the California Mechanical Code and are NOT required to meet the ventilations requirements of Title 24, Part 6.

Section 140.4 Space Conditioning Systems included both additions and revisions within the 2019 Code. The changes provided new requirements for cooling tower efficiency, new chilled water cooling system requirements, as well as new formulas for calculating allowed fan power. Section 140.4(n) also provide a new exception for mechanical system shut-offs for high-rise multifamily dwelling units, while Section 140.4(o) added new requirements for conditioned supply air being delivered to space with mechanical exhaust.

Section 120.6 Covered Processes added information in regards to adiabatic chiller requirements that included that all condenser fans for air-cooled converseness, evaporative-cooled condensers, adiabatic condensers, gas coolers, air or water fluid coolers or cooling towers must be continuously variable speed, with the speed of all fans serving a common condenser high side controlled in unison .Further, the mid-condensing setpoint must be 70 degrees Fahrenheit for all of the above mentioned systems.

New regulations were also adopted under Section 130.1 Indoor Lighting Controls. These included new exceptions being added for restrooms, the exception for classrooms being removed, as well as exceptions in regard to sunlight provided through skylights and overhangs.

Section 130.2 Outdoor Lighting Controls and Equipment added automatic scheduling controls which included that outdoor lighting power must be reduced by 50 to 90 percent, turn the lighting off during unoccupied times and have at least two scheduling options for each luminaire independent from each other and with a 2-hour override function. Furthermore, motion sensing controls must have the ability to reduce power within 15 minutes of area being vacant and be able to come back on again when occupied. An exception allows for lighting subject to a health or life safety statute, ordinance, or regulation may have a minimum time-out period longer than 15 minutes or a minimum dimming level above 50% when necessary to comply with the applicable law.

The 2022 Building Energy Efficiency Standards will become effective on January 1, 2023. [23] The core focus of the building standards has been efficiency, but the 2019 Energy Code ventured into onsite generation by requiring solar PV on new homes, providing significant GHG savings. The 2022 update builds off this progress with expanded solar standards and the move to onsite energy storage that will help Californians save on utility bills while bolstering the grid. The 2022 Energy Code update focuses on four key areas in new construction of homes and businesses:

- Encouraging electric heat pump technology and use, which consumes less energy and produces fewer emissions than traditional HVACs and water heaters.
- Establishing electric-ready requirements when natural gas is installed, which positions owners to use cleaner electric heating, cooking and electric vehicle (EV) charging options whenever they choose to adopt those technologies.
- Expanding solar photovoltaic (PV) system and battery storage standards to make clean energy available onsite and complement the state's progress toward a 100 percent clean electricity grid.
- Strengthening ventilation standards to improve indoor air quality.

The 2022 Energy Code affects homes by establishing energy budgets based on efficient heat pumps for space or water heating to encourage builders to install heat pumps over gas-fueled HVAC units; requiring homes to be electric-ready, with dedicated 240-volt outlets and space (with plumbing for water heaters) so electric appliances can eventually replace installed gas appliances; increasing minimum kitchen ventilation requirements so that fans over cooktops have higher airflow or capture efficiency to better exhaust pollution from gas cooking and improve indoor air quality; and allowing exceptions to existing solar PV standards when roof area is not available (such as for smaller homes). In addition, the effect on businesses includes establishing combined solar PV and battery standards for select businesses with systems being sized to maximize onsite use of solar energy and avoid electricity demand during times when the grid must use gas-powered plants; establishing new efficiency standards for commercial greenhouses (primarily cannabis growing); and improving efficiency standards for building envelope, various internal

California Code of Regulations (CCR) Title 24, Part 11 (California Green Building Standards)

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011.

2016 CALGreen Code: The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. During the 2016-2017 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle.

HCD also increased the required construction waste reduction from 50 percent to 65 percent of the total building site waste. This increase aids in meeting CalRecycle's statewide solid waste recycling goal of 75 percent for 2020 as stated in Chapter 476, Statutes of 2011 (AB 341). HCD adopted new regulations requiring recycling areas for multifamily projects of five or more dwelling units. This regulation requires developers to provide readily accessible areas adequate in size to accommodate containers for depositing, storage and collection of non-hazardous materials (including organic waste) for recycling. This requirement assists businesses that were required as of April 1, 2016, to meet the requirements of Chapter 727, Statutes of 2014 (AB 1826).

HCD adopted new regulations to require information on photovoltaic systems and electric vehicle chargers to be included in operation and maintenance manuals. Currently, CALGreen section 4.410.1 Item 2(a) requires

[23] California Energy Commission (CEC). 2022. Building Energy Efficiency Standards. https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency.

operation and maintenance instructions for equipment and appliances. Photovoltaic systems and electric vehicle chargers are systems that play an important role in many households in California, and their importance is increasing every day. HCD incorporated these two terms in the existing language in order to provide clarity to code users as to additional systems requiring operation and maintenance instructions.

HCD updated the reference to Clean Air Standards of the United States Environmental Protection Agency applicable to woodstoves and pellet stoves. HCD also adopted a new requirement for woodstoves and pellet stoves to have a permanent label indicating they are certified to meet the emission limits. This requirement provides clarity to the code user and is consistent with the United States Environmental Protection Agency's New Source Performance Standards. HCD updated the list of standards which can be used for verification of compliance for exterior grade composite wood products. This list now includes four standards from the Canadian Standards Association (CSA): CSA O121, CSA O151, CSA O153 and CSA O325. HCD updated heating and air-conditioning system design references to the ANSI/ACCA 2 Manual J, ANSI/ACCA 1 Manual D, and ANSI/ACCA 3 Manual S to the most recent versions approved by ANSI. HCD adopted a new elective measure for hot water recirculation systems for water conservation. The United States Department of Energy estimates that 3,600 to 12,000 gallons of water per year can be saved by the typical household (with four points of hot water use) if a hot water recirculation system is installed.

2019 CALGreen Code: During the 2019-2020 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. The 2019 version of the California Green Building Standards became effective January 1, 2020.

HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2 for projects that disturb one or more acres of land. This section requires projects that disturb one acre or more of land or less than one acre of land but are part of a larger common plan of development or sale must comply with the post construction requirement detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board. The NPDES permits require post construction runoff (post-project hydrology) to match the preconstruction runoff pre-project hydrology) with installation of post construction stormwater management measures.

HCD added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking. Section 5.106.4.1.3 requires new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. In addition, Section 5.106.4.1.5 states that acceptable bicycle parking facility for Sections 5.106.4.1.2 through 5.106.4.1.4 shall be convenient from the street and shall meeting one of the following: (1) covered, lockable enclosures with permanently anchored racks for bicycles; (2) lockable bicycle rooms with permanently anchored racks; or (3) lockable, permanently anchored bicycle lockers.

HCD amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles.

HCD updated section 5.303.3.3 in regard to showerhead flow rates. This update reduced the flow rate to 1.8 GPM.

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regard to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13. MERV 13 filters are to be installed prior to

occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

The 2022 California Green Building Standards Code became effective on January 1, 2023.[24]

HCD amended Section 5.106.5.3 in regard to increasing the EV capable space percentages and adding a new requirement for installed Level 2 DCFC chargers.

HCD under Section 5.106.5.4 added new regulation for electric vehicle charging readiness requirements for new construction of warehouse, grocery stores, and retail stores with planned off-street loading spaces. [25]

Executive Order B-30-15

On April 29, 2015, Governor Brown issued Executive Order B-30-15. Therein, the Governor directed the following:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

Executive Order B-29-15

Executive Order B-29-15, mandates a statewide 25 percent reduction in potable water usage. EO B-29-15 signed into law on April 1, 2015.

Executive Order B-37-16

Executive Order B-37-16, continuing the State's adopted water reductions, was signed into law on May 9, 2016. The water reductions build off the mandatory 25 percent reduction called for in EO B-29-15.

Executive Order N-79-20

Executive Order N-79-20 Signed in September 2020, Executive Order N-79-20 establishes as a goal that where feasible, all new passenger cars and trucks, as well as all drayage/cargo trucks and off-road vehicles and equipment, sold in California, will be zero-emission by 2035. The executive order sets a similar goal requiring that all medium and heavy-duty vehicles will be zero-emission by 2045 where feasible. It also directs CARB to develop and propose rulemaking for passenger vehicles and trucks, medium-and heavy-duty fleets where feasible, drayage trucks, and off-road vehicles and equipment "requiring increasing volumes" of new zero emission vehicles (ZEVs) "towards the target of 100 percent." The executive order directs the California Environmental Protection Agency, the California Geologic Energy Management Division (CalGEM), and the California Natural Resources Agency to transition and repurpose oil production facilities with a goal toward meeting carbon neutrality by 2045. Executive Order N-79-20 builds upon the CARB Advanced Clean Trucks regulation, which was adopted by CARB in July 2020.

[24] California Building Standards Commission (CBSC). 2022. California Green Building Standards. Website: https://codes.iccsafe.org/content/CAGBC2022P1.

[25] https://www.dgs.ca.gov/BSC/Resources/2022-Title-24-California-Code-Changes

SBX1 2

Signed into law in April 2011, SBX1 2, requires one-third of the State's electricity to come from renewable sources. The legislation increases California's current 20 percent renewables portfolio standard target in 2010 to a 33 percent renewables portfolio standard by December 31, 2020.

Senate Bill 350

Signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Governor Newsom's September 2022 Climate Legislation

On September 16, 2022, California enacted some of the nation's most aggressive climate measures in history as Governor Gavin Newsom signed a sweeping package of legislation to cut pollution, protect Californians from big polluters, and accelerate the state's transition to clean energy. The Governor partnered with legislative leaders to advance groundbreaking measures to achieve carbon neutrality no later than 2045 and 90 percent clean energy by 2035, establish new setback measures protecting communities from oil drilling, capture carbon pollution from the air, advance nature-based solutions, and more.

Over the next two decades, the California Climate Commitment will:

- Create 4 million new jobs
- Cut air pollution by 60 percent
- Reduce state oil consumption by 91 percent
- Save California $23 billion by avoiding the damages of pollution
- Reduce fossil fuel use in buildings and transportation by 92 percent
- Cut refinery pollution by 94 percent[26]

The following describes a few of the many bills signed in through the Governor's climate package.

Assembly Bill 1279

Establishes a clear, legally binding, and achievable goal for California to achieve statewide carbon neutrality as soon as possible, and no later than 2045, and establishes an 85% emissions reduction target as part of that goal.

Senate Bill 1137

Establishes a setback distance of 3,200 feet between any new oil well and homes, schools, parks or businesses open to the public. Ensures comprehensive pollution controls for existing oil wells within 3,200 feet of these facilities.

[26] https://www.gov.ca.gov/2022/09/16/governor-newsom-signs-sweeping-climate-measures-ushering-in-new-era-of-world-leading-climate-action/

Senate Bill 1020

Creates clean electricity targets of 90 percent by 2035 and 95 percent by 2040 with the intent of advancing the state's trajectory to the existing 100 percent clean electricity retail sales by 2045 goal.

Senate Bill 905

Establishes a clear regulatory framework for carbon removal and carbon capture, utilization and sequestration. Bans the practice of injecting carbon dioxide for the purpose of enhanced oil recovery.

Assembly Bill 1757

Requires the state to develop an achievable carbon removal target for natural and working lands.

Energy Sector and CEQA Guidelines Appendix F

The CEC first adopted Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically (typically every three years) to allow for the consideration and inclusion of new energy efficiency technologies and methods. The 2016 update to the Energy Efficiency Standards for Residential and Nonresidential Buildings focuses on several key areas to improve the energy efficiency of renovations and addition to existing buildings as well as newly constructed buildings and renovations and additions to existing buildings. The major efficiency improvements to the residential Standards involve improvements for attics, walls, water heating, and lighting, whereas the major efficiency improvements to the nonresidential Standards include alignment with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2013 national standards. Furthermore, the 2016 update required that enforcement agencies determine compliance with CCR, Title 24, Part 6 before issuing building permits for any construction.[27]

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality."[28] As of January 1, 2011, the CALGreen Code is mandatory for all new buildings constructed in the state. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. The CALGreen Code was most recently updated in 2022 to include new mandatory measures for residential and nonresidential uses; the new measures take effect on January 1, 2023.

Regional – South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

[27] California Energy Commission, 2016 Building Energy Efficiency Standards, June 2015, http://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf

[28] California Building Standards Commission, 2010 California Green Building Standards Code, (2010).

SCAQMD Regulation XXVII, Climate Change

SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 $MTCO_2e$ per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The SCAQMD is in the process of developing thresholds, as discussed below.

SCAQMD Threshold Development

On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project.

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"); however, the SCAQMD Board has not approved the thresholds as of the date of the Notice of Preparation. The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 $MTCO_2e$ per year
  - Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year.
  - Based on land type: Industrial (where SCAQMD is the lead agency), 10,000 $MTCO_2e$ per year.
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures.

- Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$/SP/year for projects and 6.6 $MTCO_2e$/SP/year for plans;
- Option 3, 2035 target: 3.0 $MTCO_2e$/SP/year for projects and 4.1 $MTCO_2e$/SP/year for plans.

- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate. Specifically, the Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact report, which includes analyzing feasible alternatives and imposing feasible mitigation measures. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 $MMTCO_2eq$/year). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to BACT for criteria pollutants and are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.

SCAQMD Working Group

Since neither the CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 10,000 MTCO2e for industrial uses.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

SCAQMD Rules 2700 and 2701

The SCAQMD adopted Rules 2700 and 2701 on December 5, 2008, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2700 establishes definitions for the various terms used in Regulation XXVII – Global Climate Change. Rule 2701 provides specific protocols for private parties to follow to generate certified GHG emission reductions for projects within the district. Approved protocols include forest projects, urban tree planting, and manure management. The SCAQMD is currently developing additional protocols for other reduction measures. For a GHG emission reduction project to qualify, it must be verified and certified by the SCAQMD Executive Officer, who has 60 days to approve or deny the Plan to reduce GHG emissions. Upon approval of the Plan, the Executive Officer issues required to issue a certified receipt of the GHG emission reductions within 90 days.

SCAQMD Rule 2702

The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions,

pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a federal cap and trade program.

SCAQMD Rule 3002

The SCAQMD amended Rule 3002 on November 5, 2010 to include facilities that emit greater than 100,000 tons per year of CO_2e are required to apply for a Title V permit by July 1, 2011. A Title V permit is for facilities that are considered major sources of emissions.

Local – City of Riverside

The City adopted its Riverside Restorative Growthprint (RRG) Economic Prosperity Action Plan (RRG-EPAP) and Climate Action Plan (RRG-CAP) in January 2016. The City of Riverside is a participant in the Western Riverside Council of Governments (WRCOG) Subregional Climate Action Plan (CAP) project, whereby Riverside and 11 additional local jurisdictions prepared baseline inventories to quantify GHG emissions from community contributors and government operations. 2010 was chosen as the inventory base year for 10 of the 12 participating jurisdictions within the WRCOG subregion, including the City of Riverside. The local Riverside Climate Action Plan (CAP), while consistent with the WRCOG subregional CAP, is customized to meet the specific needs of the City and designed to be integrated with the many planning projects that are currently underway in the City.

In order to show a more comprehensive and locally-focused picture of the City's emissions profile, 2007 is used as the baseline emissions year for the local CAP. Selecting 2007 as the baseline year recognizes important accomplishments the City has already taken to reduce community-wide GHG emissions, most notably the shift from coal-generated electricity to renewable sources, and it ensures that those accomplishments are accounted for in assessing progress toward future goals.

The RRG-CAP expands upon the efforts of the WRCOG Subregional CAP, employing local measures to help the City achieve deep GHG reductions through the year 2035. Through participation in the WRCOG Subregional CAP, the City of Riverside has adopted a 2020 community-wide emissions target of 2,224,908 MT CO_2e, representing a 15% reduction from the City's 2010 emissions inventory. The Subregional CAP suggests a goal for 2035 equivalent to 49 percent below baseline emissions. This is derived from a straight-line interpolation of the state-wide AB 32 goal and Executive Order (EO) S-3-05, which aims for 80 percent below 1990 levels by 2050.5 Using this approach, the City of Riverside set its 2035 GHG emissions goal to 49 percent below the 2007 baseline,

SIGNIFICANCE THRESHOLDS

Appendix G of State CEQA Guidelines

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

- The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

- The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[29]

Thresholds of Significance for this Project

To determine whether the project's GHG emissions are significant, this analysis uses the SCAQMD screening threshold of 3,000 $MTCO_2e$ per year for all land uses.

METHODOLOGY

The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. The following provides the methodology used to calculate the project-related GHG emissions and the project impacts.

CalEEMod Version 2022.1.1.29 was used to calculate the GHG emissions from the proposed project. The CalEEMod Output for year 2027 is available in Appendix B. Each source of GHG emissions is described in greater detail below.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. No changes were made to the default area source emissions.

Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. Per SCAQMD Rule 445, it is anticipated that the single-family dwelling units will have no fireplaces and will not have any wood-burning stoves. No other changes were made to the default energy usage parameters.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trips from the TIA into the CalEEMod Model. The program then applies the emission factors for each trip which is provided by the EMFAC2021 model to determine the vehicular traffic pollutant emissions. See Section 2 for details.

Waste

Waste includes the GHG emissions generated from the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. No changes were made to the default waste parameters.

Water

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. No changes were made to CalEEMod default values for waste generated.

[29] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Construction

The construction-related GHG emissions were also included in the analysis and were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The construction-related GHG emissions were calculated by CalEEMod and in the manner detailed above in Section 2.

PROJECT GREENHOUSE GAS EMISSIONS

The GHG emissions have been calculated based on the parameters described above. A summary of the results is shown below in Table 19 and the CalEEMod Model run for the proposed project is provided in Appendix B. Table 19 shows that the total for the proposed project's emissions (without credit for any reductions from sustainable design, and/or regulatory requirements) would be 2,851.57 $MTCO_2e$ per year. According to the thresholds of significance established above, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations of the proposed project would exceed the SCAQMD draft threshold of 3,000 $MTCO_2e$ per year for all land uses. Therefore, operation of the proposed project would not create a significant cumulative impact to global climate change.

Table 19
Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year)					
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	CO_2e
Maximum Annual Operations	23.70	2,710.00	2,734.00	2.49	0.09	2,827.00
Construction[1]	0.00	24.20	24.20	0.00	0.00	24.57
Total Emissions	23.70	2,734.20	2,758.20	2.49	0.09	2,851.57
SCAQMD Draft Screening Threshold						3,000
Exceeds Threshold?						No

Notes:
Source: CalEEMod Version 2022.1.1.29 for Opening Year 2027.
(1) Construction GHG emissions CO2e based on a 30 year amortization rate.

CONSISTENCY WITH APPLICABLE GREENHOUSE GAS REDUCTION PLANS AND POLICIES

The proposed project could have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The City of Riverside has an Economic Prosperity Action Plan and Climate Action Plan (RRG-CAP) that includes policies and Measures that the City implements to achieve the reduction targets required by the state's AB 32 requirements and the statewide GHG reduction goals. The City has also adopted the California Building Code (Title 24), which includes the CalGreen requirements that require new development to reduce water and energy consumption, and reduce solid waste.

As stated previously, the SCAQMD's tier 3 thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which was phased in starting in 2012.

Therefore as the project's emissions meet the threshold for compliance with Executive Order S-3-05, the project's emissions also comply with the goals of AB 32 and the RRG-CAP. Additionally, as the project meets the current interim emissions targets/thresholds established by, the project would also be on track to meet the reduction target of 40 percent below 1990 levels by 2030 mandated by SB-32. Furthermore, all of the post 2020 reductions in GHG emissions are addressed via regulatory requirements at the State level and the project will be required to comply with these regulations as they come into effect.

At a level of 2,851.57 $MTCO_2e$ per year, the project's GHG emissions do not exceed the SCAQMD draft threshold of 3,000 $MTCO_2e$ per year for all land uses and is in compliance with the reduction goals of the RRG-CAP, AB-32 and SB-32. Furthermore, the project will comply with applicable Green Building Standards and City of Riverside's policies regarding sustainability (as dictated by the City's General Plan and RRG-CAP). Therefore, the proposed project will not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases, no mitigation is required, and impacts are considered to be less than significant.

CUMULATIVE GREENHOUSE GAS IMPACTS

Although the project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. Therefore, in the case of global climate change, the proximity of the project to other GHG emission generating activities is not directly relevant to the determination of a cumulative impact because climate change is a global condition. According to CAPCOA, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective."[30] The resultant consequences of that climate change can cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change.

In 2006, under Assembly Bill 32, the state mandated a goal of reducing statewide emissions to 1990 levels by 2020 . In November of 2022, the CARB released the 2022 Scoping Plan. The 2022 Scoping Plan 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 Assembly Bill 1279. In order to achieve these goals, CARB is in the process of establishing and implementing regulations to reduce statewide GHG emissions. Consistent with CEQA Guidelines Section 15064h(3),[31] the City, as lead agency, has determined that the project's contribution to cumulative GHG emissions and global climate change would be less than significant if the project is consistent with the applicable regulatory plans and policies to reduce GHG emissions.

As discussed in the Consistency With Applicable Greenhouse Gas Reduction Plans and Policies section above, the project is consistent with the RRG-CAP.

Thus, given the project's consistency with the City's RRG-CAP and SCAQMD's draft 3,000 $MTCO_2e$ per year threshold for all land uses, the project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Given this consistency, it is concluded that the project's incremental contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable.

[30] Source: California Air Pollution Control Officers Association, CEQA & Climate change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, (2008).

[31] The State CEQA Guidelines were amended in response to SB 97. In particular, the State CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction program renders a cumulative impact insignificant. Per State CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of greenhouse gas emissions."

5. ENERGY ANALYSIS

EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the project area and region.

Overview

California's estimated annual energy use as of 2023 included:

- Approximately 281,140 gigawatt hours of electricity;[32]
- Approximately 2,087,461 million cubic feet of natural gas per year;[33] and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015).[34]

As of 2022, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 42.6 percent transportation;
- Approximately 22.5 percent industrial;
- Approximately 17.6 percent residential; and
- Approximately 17.4 percent commercial.[35]

California's electricity in-state generation system generates approximately 215,623 gigawatt-hours each year. In 2023, California produced approximately 77 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 6 percent) and the U.S. Southwest (approximately 18 percent). Natural gas is the main source for electricity generation at approximately 43.68 percent of the total in-state electric generation system power as shown Table 20.

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- In 2023, California was the seventh-largest producer of crude oil among the 50 states, and, the state ranked third in crude oil refining capacity.
- California is the largest consumer of jet fuel and second-largest consumer of motor gasoline among the 50 states.
- California was the second-largest total energy consumer among the states, after Texas, but its per capita energy consumption is the fourth lowest in the nation.
- In 2023, renewable resources, including hydroelectric power and small-scale solar power, supplied 54% of California's in-state electricity generation. Natural gas fueled another 39% and nuclear power supplied almost all the rest.

[32] California Energy Commission. Energy Almanac. Total Electric Generation. [Online] 2023. 2023 Total System Electric Generation (ca.gov).

[33] Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] 2023. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

[34] California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] 2021. https://www.energy.ca.gov/data-reports/planning-and-forecasting

[35] U.S. Energy Information Administration. California Energy Consumption by End-Use Sector, 2021. California State Profile Overview.[Online] January 8, 2023 https://www.eia.gov/state/?sid=CA#tabs-2

- In 2023, California was the fourth-largest electricity producer in the nation. It is also the nation's third-largest electricity consumer and imports more electricity than any other state.[36]

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the project by Riverside Public Utilities (RPU). RPU was established in 1895 and is a consumer-owned water and electric utility provider.[37] Energy resources such as sunlight, wind, water, natural gas, coal, oil and nuclear are used to convert energy to generate power for RPU.[38]

Table 21 identifies RPU's specific proportional shares of electricity sources in 2022. As shown in Table 21, the 2022 RPU Power Mix has renewable energy at 45.4 percent of the overall energy resources, of which biomass and waste is at 0 percent, geothermal is at 33.4 percent, eligible hydroelectric is at 0 percent, solar energy is at 10.5 percent, and wind power is at 1.5 percent; other energy sources include coal at 19.4 percent, large hydroelectric at 1.2 percent, natural gas at 4.5 percent, nuclear at 4.7 percent, and unspecified sources at 24.8 percent.

Natural Gas

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California."[39]

[36] State Profile Overview. [Online] [Cited: April 20, 2023.] https://www.eia.gov/state/?sid=CA#tabs-2

[37] https://riversideca.gov/utilities/about-rpu/general-info/about

[38] https://riversideca.gov/utilities/about-rpu/general-info/about

[39] California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available shows the transportation sector emits 38 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).[40,41] About 27 percent of total United States energy consumption in 2022 was for transporting people and goods from one place to another. In 2022, petroleum comprised about 90 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.[42] In 2022, about 135.06 billion gallons (or about 3.22 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 370 million gallons (or about 8.81 million barrels) per day.[43]

Regulatory Background

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[44]

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[45]

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[40] CARB. California Greenhouse Gas Emissions Inventory – 2022 Edition. https://www.arb.ca.gov/cc/inventory/data/data.htm

[41] CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

[42] US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

[43] https://www.eia.gov/tools/faqs/faq.php?id=23&t=10

[44] https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy.

[45] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

On May 12, 2021, the National Highway Traffic Safety Administration (NHTSA) published a notice of proposed rulemaking in the Federal Register, proposing to repeal "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program," published Sept. 27, 2019 (SAFE I Rule), in which NHTSA codified regulatory text and made additional pronouncements regarding the preemption of state and local laws related to fuel economy standards. Specifically, this document proposed to fully repeal the regulatory text and appendices promulgated in the SAFE I Rule. In addition, this document proposed to repeal and withdraw the interpretative statements made by the Agency in the SAFE I Rule preamble, including those regarding the preemption of particular state Greenhouse Gas (GHG) Emissions standards or Zero Emissions Vehicle (ZEV) mandates. As such, this document proposed to establish a clean slate with respect to NHTSA's regulations and interpretations concerning preemption under the Energy Policy and Conservation Act (EPCA). This action is effective as of January 28, 2022. [46]

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2022 Integrated Energy Policy Report (2022 IEPR) was adopted in February 28, 2023. The 2022 IEPR provides updates on a variety of energy issues facing California. These issues will require action if the state is to meet its climate, energy, air quality, and other environmental goals while maintaining reliability and controlling costs. The 2022 IEPR also discusses the California Energy Commission's equity and environmental justice efforts, its development of a more easily navigable online data platform via the California Energy Planning Library, and an update to the California Energy Demand Forecast. The report also provides

[46] https://www.federalregister.gov/documents/2021/05/12/2021-08758/corporate-average-fuel-economy-cafe-preemption

information on emerging topics related to energy reliability, western electricity integration, hydrogen, gasoline prices, gas transition, and distributed energy resources.[47]

The 2023 Integrated Energy Policy Report (2023 IEPR) was completed in January 2024. The 2023 IEPR discusses speeding connection of clean resources to the electricity grid, the potential use of clean and renewable hydrogen, and the California Energy Demand Forecast to 2040. The report also provides updates on topics such as gas decarbonization, energy efficiency, the Clean Transportation Program, Assembly Bill 1257 (Bocanegra, Chapter 749, Statutes of 2013), and publicly owned utilities' progress toward peak demand reserves and margins.[48]

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

The California Building Standards Code Title 24 was previously discussed in Section 4 of this report.

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2022 Title 24 standards, which became effective on January 1, 2023[49] and build upon the 2019 Standards. The core focus of the building standards has been efficiency, but the 2019 Energy Code ventured into onsite generation by requiring solar PV on new homes, providing significant GHG savings. The 2022 update builds off this progress with expanded solar standards and the move to onsite energy storage that will help Californians save on utility bills while bolstering the grid. The 2022 Energy Code update focuses on four key areas in new construction of homes and businesses:

- Encouraging electric heat pump technology and use, which consumes less energy and produces fewer emissions than traditional HVACs and water heaters.
- Establishing electric-ready requirements when natural gas is installed, which positions owners to use cleaner electric heating, cooking and electric vehicle (EV) charging options whenever they choose to adopt those technologies.
- Expanding solar photovoltaic (PV) system and battery storage standards to make clean energy available onsite and complement the state's progress toward a 100 percent clean electricity grid.
- Strengthening ventilation standards to improve indoor air quality.

[47] California Energy Commission. Final 2022 Integrated Energy Policy Report. February 2023. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update

[48] California Energy Commission. Final 2023 Integrated Energy Policy Report. January 2024. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report

[49] California Energy Commission (CEC). 2022. Building Energy Efficiency Standards. https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency.

The 2022 Energy Code affects homes by establishing energy budgets based on efficient heat pumps for space or water heating to encourage builders to install heat pumps over gas-fueled HVAC units; requiring homes to be electric-ready, with dedicated 240-volt outlets and space (with plumbing for water heaters) so electric appliances can eventually replace installed gas appliances; increasing minimum kitchen ventilation requirements so that fans over cooktops have higher airflow or capture efficiency to better exhaust pollution from gas cooking and improve indoor air quality; and allowing exceptions to existing solar PV standards when roof area is not available (such as for smaller homes). In addition, the effect on businesses includes establishing combined solar PV and battery standards for select businesses with systems being sized to maximize onsite use of solar energy and avoid electricity demand during times when the grid must use gas-powered plants; establishing new efficiency standards for commercial greenhouses (primarily cannabis growing); and improving efficiency standards for building envelope, various internal.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

As previously discussed in Section 3 of this report, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2 for projects that disturb one or more acres of land. This section requires projects that disturb one acre or more of land or less than one acre of land but are part of a larger common plan of development or sale must comply with the postconstruction requirement detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board. The NPDES permits require postconstruction runoff (post-project hydrology) to match the preconstruction runoff pre-project hydrology) with installation of postconstruction stormwater management measures.

HCD added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking. Section 5.106.4.1.3 requires new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. In addition, Section 5.106.4.1.5 states that acceptable bicycle parking facility for Sections 5.106.4.1.2 through 5.106.4.1.4 shall be convenient from the street and shall meeting one of the following: (1) covered, lockable enclosures with permanently anchored racks for bicycles; (2) lockable bicycle rooms with permanently anchored racks; or (3) lockable, permanently anchored bicycle lockers.

HCD amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles.

HCD updated section 5.303.3.3 in regard to showerhead flow rates. This update reduced the flow rate to 1.8 GPM.

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regard to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13. MERV 13 filters are to be installed prior to

occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

The 2022 California Green Building Standards Code became effective on January 1, 2023[50] and builds upon the 2019 Standards.

HCD amended Section 5.106.5.3 in regard to increasing the EV capable space percentages and adding a new requirement for installed Level 2 DCFC chargers.

HCD under Section 5.106.5.4 added new regulation for electric vehicle charging readiness requirements for new construction of warehouse, grocery stores, and retail stores with planned off-street loading spaces. [51]

Senate Bill 100

Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 350

As previously discussed in Section 4 of this report, Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Senate Bill 1020

Senate Bill 1020 (SB 1020) requires all eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035, 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040, 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045, and 100 percent of electricity procured to serve all state agencies by December 31, 2035.

Assembly Bill 32

As discussed in Section 3 of this report, in 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations

[50] California Building Standards Commission (CBSC). 2022. California Green Building Standards. Website: https://codes.iccsafe.org/content/CAGBC2022P1.

[51] https://www.dgs.ca.gov/BSC/Resources/2022-Title-24-California-Code-Changes

that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective. Please see Section 3 for further detail on AB 32.

Assembly Bill 1493/Pavley Regulations

As discussed in Section 4 of this report, California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009. Although aimed at reducing GHG emissions, specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

Executive Order S-1-07/Low Carbon Fuel Standard

As discussed in Section 4 of this report, Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

California Air Resources Board

CARB's Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025.15 The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV)

regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[52]

In addition, the Advanced Clean Cars II was effective as of November 30, 2022. This regulation takes the state's already growing zero-emission vehicle market and robust motor vehicle emission control rules and augments them to meet more aggressive tailpipe emissions standards and ramp up to 100 percent zero-emission vehicles. The Advanced Clean Cars II regulations will rapidly scale down light-duty passenger car, pickup truck and SUV emissions starting with the 2026 model year through 2035. The regulations are two-pronged. First, it amends the Zero-emission Vehicle Regulation to require an increasing number of zero-emission vehicles, and relies on currently available advanced vehicle technologies, including battery-electric, hydrogen fuel cell electric and plug-in hybrid electric-vehicles, to meet air quality and climate change emissions standards. These amendments support Governor Newsom's 2020 Executive Order N-79-20 that requires all new passenger vehicles sold in California to be zero emissions by 2035. Second, the Low-emission Vehicle Regulations were amended to include increasingly stringent standards for gasoline cars and heavier passenger trucks to continue to reduce smog-forming emissions. In October 2023, CARB staff launched a new effort to consider potential amendments to the Advanced Clean Cars II regulations, including updates to the tailpipe greenhouse gas emission standard and limited revisions to the Low-emission Vehicle and Zero-emission Vehicle regulations.[53]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, form In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NOX) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission-controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

As previously stated in Section 4 of this report, Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and

[52] California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

[53] California Air Resources Board, Advanced Clean Cars II. https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii

housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG) jurisdiction, which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 19 percent below 2005 per capita GHG emissions levels by 2035. These reduction targets became effective October 2018.

PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

Evaluation Criteria

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Methodology

Information from the CalEEMod 2022.1.1.29 Outputs contained in Appendix B, utilized for air quality and greenhouse gas analyses in Sections 2 and 4 of this report, were also utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

Construction Energy Demands

The construction schedule is anticipated to occur between the beginning of August 2025 and early August 2027 and be completed in one phase. Staging of construction vehicles and equipment will occur on-site. The approximately twenty-four-month schedule is relatively short, and the disturbed portion of the project site is approximately 6.94 acres.

Construction Equipment Electricity Usage Estimates

As stated previously, Electrical service will be provided by Riverside Public Utilities. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2021 National

Construction Estimator, Richard Pray (2021)[54], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.37. The project plans to develop the site with 295 mid-rise multifamily dwelling units and 5 low-rise multifamily dwelling units within a residential complex, totaling approximately 288,500 square feet. Based on Table 22, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately $16,409.88. Furthermore, RPU's general service demand rate is approximately $0.14 per kWh of electricity.[55] As shown in Table 22, the total electricity usage from project construction related activities is estimated to be approximately 120.307 kWh.

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of 24 months
- All construction equipment was assumed to run on diesel fuel
- Typical daily use of 8 hours, with some equipment operating from ~6-7 hours
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/gallon (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input for the air quality and greenhouse gas analyses (Sections 2 and 4 of this report), the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2017 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 23 shows the results of the analysis of construction equipment.

As presented in Table 23, project construction activities would consume an estimated 57,813 gallons of diesel fuel. As stated previously, project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that construction worker trips are from light duty autos (LDA), light duty truck 1 (LDT1), and light duty truck 2 (LDT2) at a mix of 25 percent/50 percent/25 percent, respectively, along area roadways.[56] With respect to estimated VMT, the construction worker trips would generate an estimated 1,560,466 VMT. Data regarding project related construction worker trips were based on CalEEMod 2022.1.1.29 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analyses (Sections 2 and 4 of this report) using information generated using CARB's 2021 EMFAC model (see

[54] Pray, Richard. 2021 National Construction Estimator. Carlsbad : Craftsman Book Company, 2021.

[55] Assumes the project will be under the demand basis Domestic Service Schedule D rate for 2027 under RPU. https://riversideca.gov/utilities/sites/riversideca.gov.utilities/files/pdf/rates-electric/2024/Electric%20Schedule%20D%20-%20Effective%2001-1-24%20Final.pdf

[56] CalEEMod User's Guide Appendix C (April 2022) states that construction work trips are made by a fleet consisting of 25 percent light-duty auto (or passenger car), 50 percent light-duty truck type 1 (LDT1), and 25 percent light duty truck type 2 (LDT2).

Appendix B for details). An aggregate fuel efficiency of 26.6 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 24 shows that an estimated 58,697 gallons of fuel would be consumed for construction worker trips.

Construction Vendor/Hauling Fuel Estimates

Tables 25 and 26 show the estimated fuel consumption for vendor and hauling during demolition, site preparation, grading, building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 154,036 VMT. Data regarding project related construction worker trips were based on CalEEMod 2022.1.1.29 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during demolition, site preparation, grading and building construction would use medium to heavy duty vehicles with an average fuel consumption of 7.87 mpg for medium heavy-duty trucks and 6.15 mpg for heavy heavy-duty trucks (see Appendix B for details).[57] Tables 25 and 26 show that an estimated 5,082 gallons of fuel would be consumed for vendor and hauling trips.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately twenty-four-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Operational Energy Demands

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

[57] CalEEMod User's Guide Appendix C (April 2022) states that vendor trips are made by a fleet consisting of 50 percent medium trucks (MHDT) and 50 percent heavy trucks (HHDT) and that hauling and onsite truck trips are made by a fleet consisting of 100 percent HHDT.

Transportation Fuel Consumption

Using the CalEEMod output from the air quality and greenhouse gas analyses (Sections 2 and 4 of this report), it is assumed that an average trip for light autos was assumed to be 7.5 miles, light trucks was assumed to be 12.9 miles and 2,3, and - 4-axle trucks were assumed to travel an average of 20.5 miles.[58] In order to present a worst-case scenario, it was assumed that vehicles would operate 365 days per year. Table 27 shows the estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[59]

The proposed project would generate a total of 1,425 trips per day. The vehicle fleet mix was used from the CalEEMod output. Table 27 shows that an estimated 214,378 gallons of fuel would be consumed per year for the operation of the proposed project.

Trip generation and VMT generated by the proposed project are consistent with other similar residential uses of similar scale and configuration as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021). That is, the proposed project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption. Furthermore, the state of California consumed approximately 3.1 billion gallons of diesel and 13.6 billion gallons of gasoline in 2022.[60,61] Therefore, the increase in fuel consumption from the proposed project is insignificant in comparison to the State's demand. Therefore, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by Riverside Public Utilities) and natural gas (provided by Southern California Gas Company). The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analyses (Sections 2 and 4 of this report) and are provided in Table 28.

As shown in Table 28, the estimated electricity demand for the proposed project is approximately 1,839,149 kWh per year. In 2022, the residential sector of the County of Riverside consumed approximately 9,061 million kWh of electricity.[62] In addition, the estimated natural gas consumption for the proposed project is approximately 3,888,231 kBTU per year. In 2022, the residential sector of the County of Riverside consumed approximately 284 million therms of gas.[63] Therefore, the increase in both electricity and natural gas demand from the proposed project is insignificant compared to the County's 2022 residential sector demands.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.). The proposed project would be required to comply with Title 24 standards.

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[58] CalEEMod maximum default distance for H-W (home-work) is 20.54 miles; 7.5 miles for H-O (home-other); and 12.92 miles for H-S (home-shop).

[59] Average fuel economy based on aggregate mileage calculated in EMFAC 2021 for opening year (2027). See Appendix B for EMFAC output.

[60] https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics

[61] https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics and https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm

[62] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx

[63] California Energy Commission, Gas Consumption by County. http://ecdms.energy.ca.gov/gasbycounty.aspx

Furthermore, the proposed project energy demands in total would be comparable to other residential projects of similar scale and configuration. Therefore, the project facilities' energy demands and energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by Riverside Public Utilities and Southern California Gas Company.

Regarding Pavley (AB 1493) regulations, an individual project does not have the ability to comply or conflict with these regulations because they are intended for agencies and their adoption of procedures and protocols for reporting and certifying GHG emission reductions from mobile sources. However, the vehicles associated with the proposed project would be required to comply with federal and state fuel efficiency standards.

Regarding the State's Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CALGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

As shown in Section 4 above, the proposed project would be consistent with the goals of the RRG-CAP.

Conclusions

As supported by the preceding analyses, project construction and operations would not result in the inefficient, wasteful or unnecessary consumption of energy. The proposed project does not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is a residential project that is not proposing any additional features that would require a larger energy demand than other residential projects of similar scale and configuration. The energy demands of the project are anticipated to be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California. Notwithstanding, the project proposes residential uses and will not have any long-term effects on an energy provider's future energy development or future energy conservation strategies.

Table 20
Total Electricity System Power (California 2023)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Total California Energy Mix (GWh)	Total California Power Mix
Coal	257	0.12%	163	4,561	4,724	4,981	1.77%
Natural Gas	94,192	43.68%	52	8,530	8,582	102,774	36.56%
Oil	36	0.02%	-	-	-	36	0.01%
Other (Waste Heat/Petroleum Coke)	206	0.10%	-	-	-	206	0.07%
Unspecified Sources of Power	0	0.00%	100	10,273	10,373	10,373	3.69%
Total Thermal and Unspecified	94,690	43.91%	316	23,363	23,679	118,370	42.10%
Nuclear	17,714	8.22%	196	8361	8558	26,272	9.34%
Large Hydro	27,066	12.55%	4,712	1,109	5,821	32,886	11.70%
Biomass	5,037	2.34%	753	-	753	5,790	2.06%
Geothermal	10,999	5.10%	221	2,347	2,569	13,567	4.83%
Small Hydro	4,853	2.25%	133	2	135	4,988	1.77%
Solar	41,344	19.17%	417	6,108	6,525	47,869	17.03%
Wind	13,920	6.46%	9,177	8,302	17,479	31,399	11.17%
Total Non-GHG and Renewables	120,932	56.09%	15,609	26,229	41,838	162,771	57.90%
Total Energy	215,623	100%	15,925	49,593	65,518	281,140	100%

Notes:

(1) Source: California Energy Commission. 2023 Total System Electric Generation. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation

Table 21
RPU 2022 Power Content Mix

Energy Resources	2022 RPU Power Mix
Eligible Renewable	45.4%
Biomass & Biowaste	*0.0%*
Geothermal	*33.4%*
Eligible Hydroelectric	*0.0%*
Solar	*10.5%*
Wind	*1.5%*
Coal	19.4%
Large Hydroelectric	1.2%
Natural Gas	4.5%
Nuclear	4.7%
Other	0.0%
Unspecified Sources of power*	24.8%
Total	100%

Notes:

(1) https://www.riversideca.gov/utilities/sites/riversideca.gov.utilities/files/pdf/2022%20Power%20Content%20Label_Riverside.pdf

* Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

Table 22
Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)[1]	Construction Duration (months)	Total Project Construction Power Cost
$2.37	288.500	24	$16,409.88

Cost per kWh	Total Project Construction Electricity Usage (kWh)
$0.14	120,307

Note:

(1) Building square footage based on CalEEMod defaults.

*Assumes the project will be under the demand basis Domestic Service Schedule D rate for 2027 under RPU. https://riversideca.gov/utilities/sites/riversideca.gov.utilities/files/pdf/rates-electric/2024/Electric%20Schedule%20D%20-%20Effective%2001-1-24%20Final.pdf

Table 23
Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel)[1]
Demolition	35	Concrete/Industrial Saw	1	8	33	0.73	193	365
	35	Excavators	3	8	36	0.38	328	621
	35	Rubber Tired Dozers	2	8	367	0.40	2,349	4,444
Site Preparation	15	Rubber Tired Dozers	3	8	367	0.40	3,523	2,857
	15	Tractors/Loaders/Backhoes	4	8	84	0.37	995	806
Grading	35	Excavators	1	8	36	0.38	109	207
	35	Grader	1	8	148	0.41	485	918
	35	Rubber Tired Dozers	1	8	367	0.40	1,174	2,222
	35	Tractors/Loaders/Backhoes	3	8	84	0.37	746	1,411
Building Construction	375	Cranes	1	7	367	0.29	745	15,102
	375	Forklifts	3	8	82	0.20	394	7,978
	375	Generator Sets	1	8	14	0.74	83	1,680
	375	Tractors/Loaders/Backhoes	3	7	84	0.37	653	13,230
	375	Welders	1	8	46	0.45	166	3,357
Paving	35	Pavers	2	8	81	0.42	544	1,030
	35	Paving Equipment	2	8	89	0.36	513	970
	35	Rollers	2	8	36	0.38	219	414
Architectural Coating	35	Air Compressors	1	6	37	0.48	107	202
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								57,813

Notes:

(1) Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp. (Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

Table 24
Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)[2]	Estimated Fuel Consumption (gallons)
Demolition	35	15	18.5	9,713	26.6	365
Site Preparation	15	17.5	18.5	4,856	26.6	183
Grading	35	15	18.5	9,713	26.6	365
Building Construction	375	216	18.5	1,498,500	26.6	56,366
Paving	35	15	18.5	9,713	26.6	365
Architectural Coating	35	43.2	18.5	27,972	26.6	1,052
Total Construction Worker Fuel Consumption						58,697

Notes:

(1) Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.29 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes that construction work trips are made by a fleet consisting of 25 percent light-duty auto (or passenger car), 50 percent light-duty truck type 1 (LDT1), and 25 percent light duty truck type 2 (LDT2).

Table 25
Construction Vendor Fuel Consumption Estimates (MHD & HHD Trucks)

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	35	0	10.2	0	7.0	0
Site Preparation	15	0	10.2	0	7.0	0
Grading	35	0	10.2	0	7.0	0
Building Construction	375	32.1	10.2	122,783	7.0	17,515
Paving	35	0	10.2	0	7.0	0
Architectural Coating	35	0	10.2	0	7.0	0
Total Construction Vendor Fuel Consumption						17,515

Notes:

(1) Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.29 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes vendor trips are made by a fleet consisting of 50 percent medium trucks (MHDT) and 50 percent heavy trucks (HHDT).

Table 26
Construction Hauling Fuel Consumption Estimates (HHD Trucks)

Phase	Number of Days	Total Hauling Trips	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	35	8	20	5,642	6.15	917
Site Preparation	15	2	20	621	6.15	101
Grading	35	36	20	24,990	6.15	4,063
Building Construction	375	0	20	0	6.15	0
Paving	35	0	20	0	6.15	0
Architectural Coating	35	0	20	0	6.15	0
Total Construction Hauling Fuel Consumption						5,082

Notes:

(1) Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod Version 2022.1.1.29 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes hauling and onsite truck trips are made by a fleet consisting of 100 percent HHDT.

Table 27
Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles)[1]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	602	7.5	4,515	34.37	131.36	47,948
Light Truck	Automobile	45	12.9	581	26.09	22.28	8,134
Light Truck	Automobile	254	12.9	3,282	26.25	125.02	45,631
Light Heavy Truck	2-Axle Truck	37	20.5	760	16.97	44.78	16,346
Light Heavy Truck 10,000 lbs +	2-Axle Truck	11	20.5	226	16.04	14.09	5,141
Motorcycle	Automobile	28	12.9	362	41.88	8.64	3,153
Medium Truck	Automobile	190	12.9	2,455	21.55	113.91	41,578
Motor Home	--	7	12.9	90	5.8	15.59	5,691
Medium Heavy Truck	3-Axle Truck	18	20.5	370	8.16	45.31	16,538
Other Bus	--	0	12.9	0	6.42	0.00	0
School Bus	--	1	12.9	13	6.59	1.96	716
Urban Bus	--	0	12.9	0	3.63	0.00	0
Heavy Heavy Truck	4-Axle Truck	20	20.5	411	6.38	64.39	23,502
Total		1,213	--	13,064	-	587.34	--
Total Annual Fuel Consumption							214,378

Notes:

(1) Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Table 28
Project Annual Operational Energy Demand Summary

Natural Gas Demand	kBTU/year[1,2]
Apartments Low Rise	84,851
Apartments Mid Rise	3,803,380
Total	3,888,231

Electricity Demand	kWh/year
Apartments Low Rise	34,234
Apartments Mid Rise	1,669,452
Parking Lot	135,463
Total	1,839,149

Notes:

(1) Taken from the CalEEMod Version 2022.1.1.29 output (Appendix B of this report).

6. EMISSIONS REDUCTION MEASURES

CONSTRUCTION MEASURES

Adherence to SCAQMD Rule 403 is required.

No construction mitigation is required.

OPERATIONAL MEASURES

No operational mitigation is required.

7. REFERENCES

California Air Pollution Control Officers Association

2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board

2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Almanac of Emissions and Air Quality.
Source: https://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2017 California's 2017 Climate Change Scoping Plan. November.

2022 2022 Scoping Plan for Achieving Carbon Neutrality. November 16.

City of Riverside

2007 Riverside General Plan 2025. November.

2016 Riverside Restorative Growthprint Economic Prosperity Action Plan and Climate Action Plan. January.

Ganddini Group, Inc.

2025 Iron Lofts Multifamily Residential Traffic Impact Analysis. January 15.

Governor's Office of Planning and Research

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2018 CEQA Guideline Sections to be Added or Amended

Intergovernmental Panel on Climate Change (IPCC)

2014 IPCC Fifth Assessment Report, Climate Change 2014: Synthesis Report

Office of Environmental Health Hazard Assessment

2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District

1993 CEQA Air Quality Handbook

2003 Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis

2005 Rule 403 Fugitive Dust

2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2012 Final 2012 Air Quality Management Plan

2016 2016 Air Quality Management Plan

2021 MATES-V Multiple Air Toxics Exposure Study in the South Coast Air Basin. August.

2021 MATES-V Multiple Air Toxics Exposure Study in the South Coast Air Basin. August.

2022 2022 Air Quality Management Plan. December 2.

Southern California Association of Governments

2020 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

U.S. Environmental Protection Agency (EPA)

2017 Understanding Global Warming Potentials
(Source: https://www.epa.gov/ghgemissions/understanding-global-warming-potentials)

U.S. Geological Survey

2011 Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California

APPENDICES

Appendix A Glossary

Appendix B CalEEMod Model Detailed Report & EMFAC Data

Appendix C AERMOD Model Printouts

APPENDIX A

GLOSSARY

AQMP	Air Quality Management Plan
BACT	Best Available Control Technologies
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HIDPM	Hazard Index Diesel Particulate Matter
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LST	Localized Significance Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
OPR	Governor's Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SANBAG	San Bernardino Association of Governments
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SSAB	Salton Sea Air Basin
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
TAC	Toxic air contaminants
VOC	Volatile organic compounds

APPENDIX B

CALEEMOD MODEL DETAILED REPORT & EMFAC DATA

19630 Iron Lofts Multifamily Residential Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	19630 Iron Lofts Multifamily Residential
Construction Start Date	8/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	33.980377522084325, -117.36536898591403
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5406
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.29

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 Low Rise	5.00	Dwelling Unit	0.31	5,300	0.00	—	16.0	—

Apartments Mid Rise	295	Dwelling Unit	2.27	283,200	35,198	—	953	—
Parking Lot	378	Space	3.55	0.00	15,558	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction 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.	54.4	54.2	31.9	38.5	0.05	1.37	7.93	9.30	1.26	4.00	5.26	—	7,983	7,983	0.24	0.28	12.7	8,085
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.03	3.39	31.9	31.2	0.05	1.37	7.93	9.30	1.26	4.00	5.26	—	6,178	6,178	0.25	0.42	0.36	6,267
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.75	5.65	8.55	18.3	0.02	0.28	2.19	2.47	0.26	0.52	0.78	—	4,383	4,383	0.12	0.20	3.92	4,449
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.05	1.03	1.56	3.34	< 0.005	0.05	0.40	0.45	0.05	0.10	0.14	—	726	726	0.02	0.03	0.65	737

2.2. Construction Emissions by Year, Unmitigated

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

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

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.04	3.39	31.9	31.6	0.05	1.37	7.93	9.30	1.26	4.00	5.26	—	5,684	5,684	0.23	0.12	1.96	5,713
2026	2.34	2.01	11.7	28.8	0.03	0.39	3.10	3.49	0.36	0.74	1.10	—	6,342	6,342	0.24	0.27	12.7	6,441
2027	54.4	54.2	18.1	38.5	0.04	0.65	3.29	3.94	0.60	0.78	1.38	—	7,983	7,983	0.22	0.28	12.1	8,085
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.03	3.39	31.9	31.2	0.05	1.37	7.93	9.30	1.26	4.00	5.26	—	6,178	6,178	0.25	0.42	0.36	6,267
2026	2.29	1.95	11.9	25.1	0.03	0.39	3.10	3.49	0.36	0.74	1.10	—	6,102	6,102	0.16	0.28	0.33	6,189
2027	2.20	1.87	11.3	24.1	0.03	0.35	3.10	3.45	0.32	0.74	1.06	—	6,034	6,034	0.16	0.26	0.30	6,117
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.82	0.69	6.20	6.95	0.01	0.25	0.95	1.20	0.23	0.38	0.61	—	1,586	1,586	0.06	0.07	0.75	1,610
2026	1.63	1.39	8.55	18.3	0.02	0.28	2.19	2.47	0.26	0.52	0.78	—	4,383	4,383	0.12	0.20	3.92	4,449
2027	5.75	5.65	3.57	7.43	0.01	0.12	0.83	0.95	0.11	0.20	0.30	—	1,724	1,724	0.05	0.07	1.32	1,747
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.15	0.13	1.13	1.27	< 0.005	0.05	0.17	0.22	0.04	0.07	0.11	—	263	263	0.01	0.01	0.12	266
2026	0.30	0.25	1.56	3.34	< 0.005	0.05	0.40	0.45	0.05	0.10	0.14	—	726	726	0.02	0.03	0.65	737
2027	1.05	1.03	0.65	1.36	< 0.005	0.02	0.15	0.17	0.02	0.04	0.06	—	285	285	0.01	0.01	0.22	289

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.	14.1	13.2	9.91	59.7	0.14	0.52	9.24	9.76	0.52	2.34	2.86	143	22,232	22,375	15.1	0.56	35.7	22,955

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.2	11.4	10.1	36.3	0.13	0.52	9.24	9.75	0.51	2.34	2.86	143	21,542	21,685	15.2	0.57	2.94	22,237
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.7	12.2	6.08	47.4	0.11	0.18	9.15	9.34	0.18	2.32	2.50	143	16,371	16,514	15.1	0.57	16.6	17,075
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.33	2.22	1.11	8.65	0.02	0.03	1.67	1.70	0.03	0.42	0.46	23.7	2,710	2,734	2.49	0.09	2.75	2,827

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	5.15	4.73	4.29	40.4	0.10	0.07	9.24	9.31	0.07	2.34	2.41	—	10,645	10,645	0.41	0.46	33.6	10,827
Area	8.79	8.45	4.64	18.9	0.03	0.37	—	0.37	0.37	—	0.37	0.00	5,731	5,731	0.11	0.01	—	5,737
Energy	0.11	0.06	0.98	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	5,646	5,646	0.28	0.02	—	5,660
Water	—	—	—	—	—	—	—	—	—	—	—	23.4	211	234	2.41	0.06	—	311
Waste	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.07	2.07
Total	14.1	13.2	9.91	59.7	0.14	0.52	9.24	9.76	0.52	2.34	2.86	143	22,232	22,375	15.1	0.56	35.7	22,955
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.85	4.43	4.60	34.0	0.10	0.07	9.24	9.31	0.07	2.34	2.41	—	10,000	10,000	0.42	0.48	0.87	10,155
Area	7.22	6.95	4.48	1.91	0.03	0.36	—	0.36	0.36	—	0.36	0.00	5,685	5,685	0.11	0.01	—	5,691
Energy	0.11	0.06	0.98	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	5,646	5,646	0.28	0.02	—	5,660

Water	—	—	—	—	—	—	—	—	—	—	—	23.4	211	234	2.41	0.06	—	311
Waste	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.07	2.07
Total	12.2	11.4	10.1	36.3	0.13	0.52	9.24	9.75	0.51	2.34	2.86	143	21,542	21,685	15.2	0.57	2.94	22,237
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.82	4.39	4.68	35.2	0.10	0.07	9.15	9.23	0.07	2.32	2.39	—	10,094	10,094	0.42	0.48	14.5	10,263
Area	7.81	7.73	0.42	11.8	< 0.005	0.03	—	0.03	0.03	—	0.03	0.00	421	421	0.01	< 0.005	—	421
Energy	0.11	0.06	0.98	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	5,646	5,646	0.28	0.02	—	5,660
Water	—	—	—	—	—	—	—	—	—	—	—	23.4	211	234	2.41	0.06	—	311
Waste	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.07	2.07
Total	12.7	12.2	6.08	47.4	0.11	0.18	9.15	9.34	0.18	2.32	2.50	143	16,371	16,514	15.1	0.57	16.6	17,075
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.88	0.80	0.85	6.42	0.02	0.01	1.67	1.68	0.01	0.42	0.44	—	1,671	1,671	0.07	0.08	2.40	1,699
Area	1.43	1.41	0.08	2.15	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	69.6	69.6	< 0.005	< 0.005	—	69.7
Energy	0.02	0.01	0.18	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	935	935	0.05	< 0.005	—	937
Water	—	—	—	—	—	—	—	—	—	—	—	3.87	34.9	38.7	0.40	0.01	—	51.5
Waste	—	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.34	0.34
Total	2.33	2.22	1.11	8.65	0.02	0.03	1.67	1.70	0.03	0.42	0.46	23.7	2,710	2,734	2.49	0.09	2.75	2,827

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.44	0.44	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.13	1.91	< 0.005	0.09	—	0.09	0.08	—	0.08	—	328	328	0.01	< 0.005	—	330
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.35	< 0.005	0.02	—	0.02	0.01	—	0.01	—	54.4	54.4	< 0.005	< 0.005	—	54.6
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.08	0.07	0.07	1.16	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	211	211	0.01	0.01	0.78	215
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.01	0.62	0.15	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	555	555	0.01	0.09	1.18	583
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.03	19.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.06	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	53.3	53.3	< 0.005	0.01	0.05	55.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.12	3.12	< 0.005	< 0.005	0.01	3.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.82	8.82	< 0.005	< 0.005	0.01	9.24

3.3. Site Preparation (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.30	1.24	< 0.005	0.06	—	0.06	0.05	—	0.05	—	218	218	0.01	< 0.005	—	218
Dust From Material Movement	—	—	—	—	—	—	0.32	0.32	—	0.16	0.16	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.24	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.0	36.0	< 0.005	< 0.005	—	36.2
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.35	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	247	247	0.01	0.01	0.91	250
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.16	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	142	142	< 0.005	0.02	0.30	149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.02	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	227	227	0.01	0.01	0.02	230
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	142	142	< 0.005	0.02	0.01	149
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.44	9.44	< 0.005	< 0.005	0.02	9.57
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.85	5.85	< 0.005	< 0.005	0.01	6.14
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.56	1.56	< 0.005	< 0.005	< 0.005	1.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.97	0.97	< 0.005	< 0.005	< 0.005	1.02

3.5. Grading (2025) - Unmitigated

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

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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	2.77	2.77	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.56	1.72	< 0.005	0.07	—	0.07	0.06	—	0.06	—	284	284	0.01	< 0.005	—	285
Dust From Material Movement	—	—	—	—	—	—	0.27	0.27	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	—	47.0	47.0	< 0.005	< 0.005	—	47.1
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	194	194	0.01	0.01	0.02	197
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	0.04	2.85	0.68	0.02	0.05	0.65	0.69	0.05	0.18	0.23	—	2,463	2,463	0.05	0.39	0.14	2,579
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.03	19.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.28	0.06	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	236	236	< 0.005	0.04	0.22	247
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.12	3.12	< 0.005	< 0.005	0.01	3.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.1	39.1	< 0.005	0.01	0.04	41.0

3.7. Building Construction (2025) - Unmitigated

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

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

Off-Road Equipment	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.69	0.87	< 0.005	0.03	—	0.03	0.03	—	0.03	—	160	160	0.01	< 0.005	—	160
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	26.4	26.4	< 0.005	< 0.005	—	26.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.02	0.91	1.04	12.6	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,799	2,799	0.13	0.11	0.29	2,834
Vendor	0.04	0.02	1.13	0.34	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	982	982	0.02	0.15	0.07	1,027
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.89	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	189	189	0.01	0.01	0.32	191
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	65.3	65.3	< 0.005	0.01	0.08	68.4

Hauling	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.2	31.2	< 0.005	< 0.005	0.05	31.7
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.8	10.8	< 0.005	< 0.005	0.01	11.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.77	7.04	9.26	0.02	0.27	—	0.27	0.25	—	0.25	—	1,712	1,712	0.07	0.01	—	1,718

Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.28	1.69	< 0.005	0.05	—	0.05	0.05	—	0.05	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.02	0.91	0.85	15.5	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,979	2,979	0.13	0.10	10.1	3,023
Vendor	0.04	0.02	1.03	0.32	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	965	965	0.02	0.15	2.64	1,013
Hauling	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.86	0.95	11.8	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,739	2,739	0.04	0.11	0.26	2,772
Vendor	0.04	0.02	1.08	0.33	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	966	966	0.02	0.15	0.07	1,011
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.61	0.74	8.79	0.00	0.00	2.00	2.00	0.00	0.47	0.47	—	1,981	1,981	0.03	0.08	3.11	2,008
Vendor	0.03	0.01	0.77	0.23	0.01	0.01	0.19	0.20	0.01	0.05	0.06	—	690	690	0.02	0.11	0.81	723
Hauling	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.13	1.60	0.00	0.00	0.36	0.36	0.00	0.09	0.09	—	328	328	0.01	0.01	0.52	332
Vendor	0.01	< 0.005	0.14	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	114	114	< 0.005	0.02	0.13	120
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	2.32	3.19	0.01	0.08	—	0.08	0.08	—	0.08	—	591	591	0.02	< 0.005	—	593
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.42	0.58	< 0.005	0.02	—	0.02	0.01	—	0.01	—	97.9	97.9	< 0.005	< 0.005	—	98.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.87	0.75	14.3	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,924	2,924	0.03	0.10	9.08	2,964
Vendor	0.04	0.02	0.99	0.31	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	948	948	0.02	0.14	2.41	993
Hauling	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.93	0.82	0.85	10.8	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,689	2,689	0.04	0.10	0.24	2,721
Vendor	0.04	0.02	1.04	0.32	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	948	948	0.02	0.14	0.06	991
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.20	0.23	2.81	0.00	0.00	0.69	0.69	0.00	0.16	0.16	—	671	671	0.01	0.03	0.97	680
Vendor	0.01	< 0.005	0.25	0.08	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	234	234	0.01	0.04	0.26	245
Hauling	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.51	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	111	111	< 0.005	< 0.005	0.16	113
Vendor	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	38.7	38.7	< 0.005	0.01	0.04	40.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2027) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.88	0.74	6.94	9.95	0.01	0.30	—	0.30	0.27	—	0.27	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.27	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.67	0.95	< 0.005	0.03	—	0.03	0.03	—	0.03	—	145	145	0.01	< 0.005	—	145
Paving	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.17	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.05	1.00	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	203	203	< 0.005	0.01	0.63	206

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.1	18.1	< 0.005	< 0.005	0.03	18.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	< 0.005	3.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2027) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	52.8	52.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.8	12.8	< 0.005	< 0.005	—	12.8
Architectural Coatings	5.07	5.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.12	2.12	< 0.005	< 0.005	—	2.13
Architectural Coatings	0.92	0.92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.15	2.87	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	585	585	0.01	0.02	1.82	593
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	52.2	52.2	< 0.005	< 0.005	0.08	52.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.65	8.65	< 0.005	< 0.005	0.01	8.76
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	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. 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 Low Rise	0.09	0.08	0.07	0.67	< 0.005	< 0.005	0.15	0.16	< 0.005	0.04	0.04	—	177	177	0.01	0.01	0.56	180
Apartments Mid Rise	5.06	4.65	4.22	39.7	0.10	0.07	9.08	9.16	0.07	2.31	2.37	—	10,467	10,467	0.40	0.46	33.1	10,647
Parking Lot	0.00	0.00	0.00	0.00	0.00	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	5.15	4.73	4.29	40.4	0.10	0.07	9.24	9.31	0.07	2.34	2.41	—	10,645	10,645	0.41	0.46	33.6	10,827

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.08	0.07	0.08	0.57	< 0.005	< 0.005	0.15	0.16	< 0.005	0.04	0.04	—	167	167	0.01	0.01	0.01	169
Apartments Mid Rise	4.77	4.36	4.52	33.4	0.10	0.07	9.08	9.16	0.07	2.31	2.37	—	9,834	9,834	0.41	0.47	0.86	9,985
Parking Lot	0.00	0.00	0.00	0.00	0.00	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	4.85	4.43	4.60	34.0	0.10	0.07	9.24	9.31	0.07	2.34	2.41	—	10,000	10,000	0.42	0.48	0.87	10,155
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.01	0.01	0.01	0.11	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	27.9	27.9	< 0.005	< 0.005	0.04	28.3
Apartments Mid Rise	0.86	0.79	0.84	6.31	0.02	0.01	1.64	1.66	0.01	0.42	0.43	—	1,643	1,643	0.07	0.08	2.36	1,671
Parking Lot	0.00	0.00	0.00	0.00	0.00	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	0.88	0.80	0.85	6.42	0.02	0.01	1.67	1.68	0.01	0.42	0.44	—	1,671	1,671	0.07	0.08	2.40	1,699

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 Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	81.9	81.9	< 0.005	< 0.005	—	82.1

Apartme Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	3,994	3,994	0.15	0.02	—	4,003
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	324	324	0.01	< 0.005	—	325
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,400	4,400	0.17	0.02	—	4,410
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	81.9	81.9	< 0.005	< 0.005	—	82.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	3,994	3,994	0.15	0.02	—	4,003
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	324	324	0.01	< 0.005	—	325
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,400	4,400	0.17	0.02	—	4,410
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	661	661	0.02	< 0.005	—	663
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	53.7	53.7	< 0.005	< 0.005	—	53.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	728	728	0.03	< 0.005	—	730

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Apartments Mid Rise	0.11	0.06	0.96	0.41	0.01	0.08	—	0.08	0.08	—	0.08	—	1,219	1,219	0.11	< 0.005	—	1,222
Parking Lot	0.00	0.00	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	0.11	0.06	0.98	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	1,246	1,246	0.11	< 0.005	—	1,250
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Apartments Mid Rise	0.11	0.06	0.96	0.41	0.01	0.08	—	0.08	0.08	—	0.08	—	1,219	1,219	0.11	< 0.005	—	1,222
Parking Lot	0.00	0.00	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	0.11	0.06	0.98	0.42	0.01	0.08	—	0.08	0.08	—	0.08	—	1,246	1,246	0.11	< 0.005	—	1,250
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.50	4.50	< 0.005	< 0.005	—	4.51
Apartments Mid Rise	0.02	0.01	0.18	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	202	202	0.02	< 0.005	—	202
Parking Lot	0.00	0.00	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	0.02	0.01	0.18	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	206	206	0.02	< 0.005	—	207

4.3. Area Emissions by Source

4.3.1. 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	0.52	0.26	4.48	1.91	0.03	0.36	—	0.36	0.36	—	0.36	0.00	5,685	5,685	0.11	0.01	—	5,691
Consumer Products	6.19	6.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.58	1.49	0.16	17.0	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.5	45.5	< 0.005	< 0.005	—	45.7
Total	8.79	8.45	4.64	18.9	0.03	0.37	—	0.37	0.37	—	0.37	0.00	5,731	5,731	0.11	0.01	—	5,737
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.52	0.26	4.48	1.91	0.03	0.36	—	0.36	0.36	—	0.36	0.00	5,685	5,685	0.11	0.01	—	5,691
Consumer Products	6.19	6.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	7.22	6.95	4.48	1.91	0.03	0.36	—	0.36	0.36	—	0.36	0.00	5,685	5,685	0.11	0.01	—	5,691

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.01	< 0.005	0.06	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	64.5	64.5	< 0.005	< 0.005	—	64.5
Consumer Products	1.13	1.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.20	0.19	0.02	2.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.16	5.16	< 0.005	< 0.005	—	5.18
Total	1.43	1.41	0.08	2.15	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	69.6	69.6	< 0.005	< 0.005	—	69.7

4.4. Water Emissions by Land Use

4.4.1. 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 Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.39	3.31	3.70	0.04	< 0.005	—	4.99
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	23.0	204	227	2.37	0.06	—	303
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	3.13	3.13	< 0.005	< 0.005	—	3.14
Total	—	—	—	—	—	—	—	—	—	—	—	23.4	211	234	2.41	0.06	—	311

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.39	3.31	3.70	0.04	< 0.005	—	4.99
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	23.0	204	227	2.37	0.06	—	303
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	3.13	3.13	< 0.005	< 0.005	—	3.14
Total	—	—	—	—	—	—	—	—	—	—	—	23.4	211	234	2.41	0.06	—	311
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.06	0.55	0.61	0.01	< 0.005	—	0.83
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.81	33.8	37.6	0.39	0.01	—	50.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.52	0.52	< 0.005	< 0.005	—	0.52
Total	—	—	—	—	—	—	—	—	—	—	—	3.87	34.9	38.7	0.40	0.01	—	51.5

4.5. Waste Emissions by Land Use

4.5.1. 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 Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	—	6.91

Apartme Mid Rise	—	—	—	—	—	—	—	—	—	—	—	118	0.00	118	11.8	0.00	—	411
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.97	0.00	1.97	0.20	0.00	—	6.91
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	118	0.00	118	11.8	0.00	—	411
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.14
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	19.5	0.00	19.5	1.95	0.00	—	68.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3

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 Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.03	2.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.07	2.07
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.03	2.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.07	2.07
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.34	0.34
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.34	0.34

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

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/1/2025	9/18/2025	5.00	35.0	—

Site Preparation	Site Preparation	9/19/2025	10/9/2025	5.00	15.0	—
Grading	Grading	10/10/2025	11/27/2025	5.00	35.0	—
Building Construction	Building Construction	11/28/2025	5/6/2027	5.00	375	—
Paving	Paving	5/3/2027	6/18/2027	5.00	35.0	—
Architectural Coating	Architectural Coating	6/14/2027	8/1/2027	5.00	35.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	8.06	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	2.07	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	35.7	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	216	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	32.1	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—

Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	43.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	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)
Architectural Coating	584,213	194,738	0.00	0.00	9,278

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	24,500	—

Site Preparation	—	304	22.5	0.00	—
Grading	—	10,000	35.0	0.00	—
Paving	0.00	0.00	0.00	0.00	3.55

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Low Rise	—	0%
Apartments Mid Rise	—	0%
Parking Lot	3.55	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	873	0.03	< 0.005
2026	0.00	873	0.03	< 0.005
2027	0.00	873	0.03	< 0.005

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 Low Rise	20.2	20.2	20.2	7,378	217	217	217	79,339
Apartments Mid Rise	1,193	1,193	1,193	435,330	12,825	12,825	12,825	4,681,026
Parking Lot	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 Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	5
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	1
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	266
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	30
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)
584212.5	194,738	0.00	0.00	9,278

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 Low Rise	34,234	873	0.0330	0.0040	84,851
Apartments Mid Rise	1,669,452	873	0.0330	0.0040	3,803,380
Parking Lot	135,463	873	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	203,369	0.00

Apartments Mid Rise	11,998,764	682,109
Parking Lot	0.00	246,683

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	3.66	—
Apartments Mid Rise	218	—
Parking Lot	0.00	—

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 Low 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 Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
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

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	26.3	annual days of extreme heat
Extreme Precipitation	2.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	1.71	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 (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
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	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	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 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	97.0
AQ-PM	90.2
AQ-DPM	91.1
Drinking Water	77.4
Lead Risk Housing	92.8
Pesticides	0.00
Toxic Releases	55.1
Traffic	75.9
Effect Indicators	—
CleanUp Sites	94.6
Groundwater	84.7
Haz Waste Facilities/Generators	79.4
Impaired Water Bodies	0.00
Solid Waste	52.9
Sensitive Population	—
Asthma	70.3
Cardio-vascular	79.3
Low Birth Weights	77.9
Socioeconomic Factor Indicators	—
Education	88.1
Housing	83.9
Linguistic	60.6
Poverty	81.6
Unemployment	89.2

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	15.82189144
Employed	16.16835622
Median HI	16.65597331
Education	—
Bachelor's or higher	8.520467086
High school enrollment	12.44706788
Preschool enrollment	81.47055049
Transportation	—
Auto Access	17.51571924
Active commuting	40.27973823
Social	—
2-parent households	10.48376748
Voting	2.463749519
Neighborhood	—
Alcohol availability	30.51456435
Park access	47.35018606
Retail density	44.4629796
Supermarket access	28.35878352
Tree canopy	47.38868215
Housing	—
Homeownership	31.64378288
Housing habitability	20.33876556
Low-inc homeowner severe housing cost burden	11.76697036
Low-inc renter severe housing cost burden	37.84165277
Uncrowded housing	13.1271654
Health Outcomes	—

Insured adults	9.149236494
Arthritis	23.1
Asthma ER Admissions	29.0
High Blood Pressure	12.0
Cancer (excluding skin)	74.5
Asthma	5.9
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	9.6
Diagnosed Diabetes	7.6
Life Expectancy at Birth	14.5
Cognitively Disabled	74.6
Physically Disabled	73.0
Heart Attack ER Admissions	35.4
Mental Health Not Good	6.5
Chronic Kidney Disease	5.2
Obesity	3.2
Pedestrian Injuries	46.1
Physical Health Not Good	6.0
Stroke	8.8
Health Risk Behaviors	—
Binge Drinking	75.2
Current Smoker	6.5
No Leisure Time for Physical Activity	4.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	36.4
Elderly	64.7

English Speaking	30.2
Foreign-born	65.4
Outdoor Workers	10.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	63.4
Traffic Density	88.7
Traffic Access	57.2
Other Indices	—
Hardship	89.4
Other Decision Support	—
2016 Voting	6.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	99.0
Healthy Places Index Score for Project Location (b)	7.00
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	~6.94-acre site with 5 low-rise multi-family units and 295 mid-rise multi-family units. Site plan shows open space of ~36,770 sf; however, this included ~1,572 sf roof deck. Therefore, open space/landscaping estimated at 35,198 sf for the residential uses. Parking lot to include 378 spaces (site has 388 spaces; however, 10 of these are garage spaces). Per landscape plans, the parking lot covers 154,847 sf (~3.55 acres) with 15,558 sf of parking lot area being that of landscaping.
Construction: Construction Phases	Construction anticipated to begin August 2025 and be completed August 2027. Demo of an existing 15,000 sf warehouse building and a 9,500 sf warehouse building (total of ~24,500 sf demo). Site preparation to remove existing concrete slabs and parking areas estimated at approximately ~45,100 sf (per GE) = 45,100sfx0.3in=13,530c ftx45lbs/cf2=2608,850lbs= ~304 tons. Grading anticipated to include 10,000 CY export.
Operations: Vehicle Data	Per TIA, the multifamily low-rise housing has a daily trip gen rate of 4.72 trips/DU/day and the multifamily mid-rise housing has a daily trip gen rate of 4.75 trips/DU/day. However, to account for the trip reduction of ~212 trips per day from the existing uses to be removed, the trip generation rate for both low-rise and mid-rise was calculated at 4.043 trips/DU/day.
Operations: Hearths	SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Trips	Energy Consumption	Fuel Consumption	Fuel Consumption	Total Fuel Consumptior	Total VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast	2025	HHDT	Aggregate	Aggregate	Gasoline	54.83401411	1097.118954	0	0.915660885	915.6608849	2033428.223	3783.739566	12499201.56	**6.15**	**HHDT**
South Coast	2025	HHDT	Aggregate	Aggregate	Diesel	95337.36817	1459640.636	0	1919.938673	1919938.673		11745346.31			
South Coast	2025	HHDT	Aggregate	Aggregate	Electricity	647.565363	8586.113967	125035.0292	0	0		69780.1703			
South Coast	2025	HHDT	Aggregate	Aggregate	Natural Gas	10701.05249	68656.35135	0	112.5738892	112573.8892		680291.3416			
South Coast	2025	LDA	Aggregate	Aggregate	Gasoline	5244723.652	24385315.28	0	7108.358927	7108358.927	7245907.135	210339700.5	233546247.7	**32.23**	**LDA**
South Coast	2025	LDA	Aggregate	Aggregate	Diesel	13504.15254	56096.65324	0	9.832104986	9832.104986		408222.3366			
South Coast	2025	LDA	Aggregate	Aggregate	Electricity	314906.6469	1568075.372	5911352.826	0	0		15311111.74			
South Coast	2025	LDA	Aggregate	Aggregate	Plug-in Hybrid	159860.278	661022.2496	1174382.35	127.7161032	127716.1032		7487213.196			
South Coast	2025	LDT1	Aggregate	Aggregate	Gasoline	483367.514	2127610.282	0	708.9359688	708935.9688	709884.4736	17503198.77	17626287.18	**24.83**	**LDT1**
South Coast	2025	LDT1	Aggregate	Aggregate	Diesel	161.5260868	453.3891137	0	0.127085477	127.0854768		2967.035899			
South Coast	2025	LDT1	Aggregate	Aggregate	Electricity	1505.26458	7236.189381	25889.93818	0	0		67058.04036			
South Coast	2025	LDT1	Aggregate	Aggregate	Plug-in Hybrid	1033.948372	4275.376518	9086.363765	0.821419376	821.4193759		53063.32883			
South Coast	2025	LDT2	Aggregate	Aggregate	Gasoline	2528171.942	11891190.15	0	4341.426391	4341426.391	4373117.135	104543301.5	106927231	**24.45**	**LDT2**
South Coast	2025	LDT2	Aggregate	Aggregate	Diesel	8518.978579	40955.39339	0	11.53683826	11536.83826		366939.3838			
South Coast	2025	LDT2	Aggregate	Aggregate	Electricity	21565.05505	109850.7805	300027.449	0	0		777107.023			
South Coast	2025	LDT2	Aggregate	Aggregate	Plug-in Hybrid	25221.81395	104292.2007	204751.9727	20.15390552	20153.90552		1239883.058			
South Coast	2025	LHDT1	Aggregate	Aggregate	Gasoline	199655.4178	2974568.238	0	565.7929114	565792.9114	785253.6339	7899242.311	12579982.86	**16.02**	**LHDT1**
South Coast	2025	LHDT1	Aggregate	Aggregate	Diesel	107539.0383	1352705.817	0	219.4607225	219460.7225		4531936.528			
South Coast	2025	LHDT1	Aggregate	Aggregate	Electricity	2131.529069	29802.51665	83294.25907	0	0		148804.02			
South Coast	2025	LHDT2	Aggregate	Aggregate	Gasoline	30849.1838	459606.8733	0	93.96299335	93962.99335	208962.5987	1145449.689	3183322.084	**15.23**	**LHDT2**
South Coast	2025	LHDT2	Aggregate	Aggregate	Diesel	48016.98656	603993.2855	0	114.9996053	114999.6053		2001431.485			
South Coast	2025	LHDT2	Aggregate	Aggregate	Electricity	549.452873	7286.296511	20413.74678	0	0		36440.90994			
South Coast	2025	MCY	Aggregate	Aggregate	Gasoline	246317.3152	492634.6304	0	37.82728892	37827.28892	37827.28892	1575969.655	1575969.655	**41.66**	**MCY**
South Coast	2025	MDV	Aggregate	Aggregate	Gasoline	1582911.671	7327873.919	0	3124.528435	3124528.435	3169334.086	61244218.19	63579746.09	**20.06**	**MDV**
South Coast	2025	MDV	Aggregate	Aggregate	Diesel	19966.30161	93386.67778	0	32.96063764	32960.63764		783550.3632			
South Coast	2025	MDV	Aggregate	Aggregate	Electricity	23405.95686	119202.2123	325389.6809	0	0		842798.2408			
South Coast	2025	MDV	Aggregate	Aggregate	Plug-in Hybrid	15515.87163	64158.1292	115605.1765	11.8450132	11845.0132		709179.3041			
South Coast	2025	MH	Aggregate	Aggregate	Gasoline	28222.75742	2823.404652	0	55.89330175	55893.30175	67478.95091	271714.048	388622.5468	**5.76**	**MH**
South Coast	2025	MH	Aggregate	Aggregate	Diesel	11853.97154	1185.397154	0	11.58564916	11585.64916		116908.4988			
South Coast	2025	MHDT	Aggregate	Aggregate	Gasoline	24266.37368	485521.6046	0	246.6220886	246622.0886	803911.5702	1285729.87	6330495.207	**7.87**	**MHDT**
South Coast	2025	MHDT	Aggregate	Aggregate	Diesel	117076.634	1440705.231	0	548.3413637	548341.3637		4914316.485			
South Coast	2025	MHDT	Aggregate	Aggregate	Electricity	1030.710845	13697.48889	58527.95377	0	0		55891.50984			
South Coast	2025	MHDT	Aggregate	Aggregate	Natural Gas	1586.964447	14102.34275	0	8.94811801	8948.11801		74557.34189			
South Coast	2025	OBUS	Aggregate	Aggregate	Gasoline	5130.782804	102656.7023	0	38.98709136	38987.09136	75404.10956	199581.2481	465625.8692	**6.18**	**OBUS**
South Coast	2025	OBUS	Aggregate	Aggregate	Diesel	3078.572652	39272.27543	0	33.03961652	33039.61652		233905.0145			
South Coast	2025	OBUS	Aggregate	Aggregate	Electricity	29.09533983	582.1395594	2258.641236	0	0		2147.933443			
South Coast	2025	OBUS	Aggregate	Aggregate	Natural Gas	505.1478218	4495.815614	0	3.377401677	3377.401677		29991.67319			
South Coast	2025	SBUS	Aggregate	Aggregate	Gasoline	2812.998756	11251.99503	0	13.81627409	13816.27409	41147.02398	123623.802	268314.9981	**6.52**	**SBUS**
South Coast	2025	SBUS	Aggregate	Aggregate	Diesel	3181.542446	46068.73461	0	8.734797087	8734.797087		64276.54474			
South Coast	2025	SBUS	Aggregate	Aggregate	Electricity	47.38132065	537.5923668	1681.228052	0	0		1453.97051			
South Coast	2025	SBUS	Aggregate	Aggregate	Natural Gas	3209.535885	46474.07961	0	18.59595281	18595.95281		78960.68088			
South Coast	2025	UBUS	Aggregate	Aggregate	Gasoline	892.063682	3568.254728	0	13.80114714	13801.14714	198998.2045	96751.77026	697627.2588	**3.51**	**UBUS**
South Coast	2025	UBUS	Aggregate	Aggregate	Diesel	11.19759793	44.79039173	0	0.207460052	207.4600516		1417.05095			
South Coast	2025	UBUS	Aggregate	Aggregate	Electricity	163.9010308	655.6041234	34521.6162	0	0		16501.94536			
South Coast	2025	UBUS	Aggregate	Aggregate	Natural Gas	4881.393278	19525.57311	0	184.9895973	184989.5973		582956.4922			

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2027
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Trips	Energy Consumption	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	Total VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast	2027	HHDT	Aggregate	Aggregate	Gasoline	40.28314912	805.9852477	0	0.767657911	767.6579115	2042221.617	3339.950917	13030750.79	**6.38**	**HHDT**
South Coast	2027	HHDT	Aggregate	Aggregate	Diesel	99724.51475	1532346.192	0	1925.517809	1925517.809		12112029			
South Coast	2027	HHDT	Aggregate	Aggregate	Electricity	1815.182913	24117.07883	353642.0403	0	0		197135.0588			
South Coast	2027	HHDT	Aggregate	Aggregate	Natural Gas	11504.37358	74202.23146	0	115.9361498	115936.1498		718246.7834			
South Coast	2027	LDA	Aggregate	Aggregate	Gasoline	5149468.722	23919043.96	0	6578.02112	6578021.12	6718013.18	205049563.4	230916569.9	**34.37**	**LDA**
South Coast	2027	LDA	Aggregate	Aggregate	Diesel	11005.8002	46116.82703	0	7.807398304	7807.398304		334268.7493			
South Coast	2027	LDA	Aggregate	Aggregate	Electricity	372392.0628	1838277.252	6759312.784	0	0		17507429.58			
South Coast	2027	LDA	Aggregate	Aggregate	Plug-in Hybrid	176904.5969	731500.5084	1300384.941	132.1846615	132184.6615		8025308.157			
South Coast	2027	LDT1	Aggregate	Aggregate	Gasoline	469894.3348	2070623.671	0	656.9173629	656917.3629	658273.5364	16981744.77	17175186.38	**26.09**	**LDT1**
South Coast	2027	LDT1	Aggregate	Aggregate	Diesel	69.63523626	194.8904371	0	0.052860623	52.86062306		1288.249065			
South Coast	2027	LDT1	Aggregate	Aggregate	Electricity	2271.878338	11116.45433	40772.38208	0	0		105605.3523			
South Coast	2027	LDT1	Aggregate	Aggregate	Plug-in Hybrid	1740.909014	7198.658772	15140.03624	1.303312908	1303.312908		86548.00842			
South Coast	2027	LDT2	Aggregate	Aggregate	Gasoline	2629697.488	12359993.22	0	4189.976235	4189976.235	4226031.389	107853666.8	110930550.1	**26.25**	**LDT2**
South Coast	2027	LDT2	Aggregate	Aggregate	Diesel	9170.088396	43857.2365	0	11.44972218	11449.72218		387107.8121			
South Coast	2027	LDT2	Aggregate	Aggregate	Electricity	32331.21114	163193.5944	435132.8331	0	0		1127046.147			
South Coast	2027	LDT2	Aggregate	Aggregate	Plug-in Hybrid	33013.49223	136510.7904	264949.7399	24.60543175	24605.43175		1562729.397			
South Coast	2027	LHDT1	Aggregate	Aggregate	Gasoline	198536.9974	2957905.44	0	541.0382467	541038.2467	768440.7465	7858916.222	13042608.6	**16.97**	**LHDT1**
South Coast	2027	LHDT1	Aggregate	Aggregate	Diesel	113648.3223	1429552.925	0	227.4024997	227402.4997		4737175.566			
South Coast	2027	LHDT1	Aggregate	Aggregate	Electricity	6905.487675	96551.38485	250303.2443	0	0		446516.8142			
South Coast	2027	LHDT2	Aggregate	Aggregate	Gasoline	30300.67566	451434.9194	0	88.59547311	88595.47311	208579.7945	1119534.674	3344845.659	**16.04**	**LHDT2**
South Coast	2027	LHDT2	Aggregate	Aggregate	Diesel	51637.04874	649529.1138	0	119.9843214	119984.3214		2115300.231			
South Coast	2027	LHDT2	Aggregate	Aggregate	Electricity	1787.817346	23714.83275	61707.09546	0	0		110010.7541			
South Coast	2027	MCY	Aggregate	Aggregate	Gasoline	254352.3795	508704.7591	0	38.50086291	38500.86291	38500.86291	1612547.718	1612547.718	**41.88**	**MCY**
South Coast	2027	MDV	Aggregate	Aggregate	Gasoline	1609888.129	7458713.654	0	2967.894075	2967894.075	3013547.933	62054832.27	64942584.75	**21.55**	**MDV**
South Coast	2027	MDV	Aggregate	Aggregate	Diesel	20104.46799	93514.54731	0	30.92679582	30926.79582		773579.4555			
South Coast	2027	MDV	Aggregate	Aggregate	Electricity	34424.61585	173633.5336	462192.3612	0	0		1197133.566			
South Coast	2027	MDV	Aggregate	Aggregate	Plug-in Hybrid	20607.62061	85212.51124	154501.9744	14.72706175	14727.06175		917039.4609			
South Coast	2027	MH	Aggregate	Aggregate	Gasoline	26431.24216	2644.181466	0	53.35544863	53355.44863	65134.93612	259176.6344	377905.2284	**5.80**	**MH**
South Coast	2027	MH	Aggregate	Aggregate	Diesel	12106.54957	1210.654957	0	11.77948749	11779.48749		118728.594			
South Coast	2027	MHDT	Aggregate	Aggregate	Gasoline	23125.35331	462692.069	0	227.1878183	227187.8183	785355.2188	1205845.536	6410839.29	**8.16**	**MHDT**
South Coast	2027	MHDT	Aggregate	Aggregate	Diesel	120843.2094	1489042.484	0	548.6482566	548648.2566		4956414.582			
South Coast	2027	MHDT	Aggregate	Aggregate	Electricity	3198.510115	42230.82574	177199.9462	0	0		169021.3253			
South Coast	2027	MHDT	Aggregate	Aggregate	Natural Gas	1761.18484	15643.67577	0	9.519143947	9519.143947		79557.84684			
South Coast	2027	OBUS	Aggregate	Aggregate	Gasoline	4834.035861	96719.3895	0	34.6671741	34667.1741	70618.54618	181291.6239	453080.9689	**6.42**	**OBUS**
South Coast	2027	OBUS	Aggregate	Aggregate	Diesel	3217.534896	41483.13564	0	32.48835614	32488.35614		234787.415			
South Coast	2027	OBUS	Aggregate	Aggregate	Electricity	77.48879634	1550.395837	5818.328747	0	0		5538.597355			
South Coast	2027	OBUS	Aggregate	Aggregate	Natural Gas	547.5312338	4873.02798	0	3.463015949	3463.015949		31463.33258			
South Coast	2027	SBUS	Aggregate	Aggregate	Gasoline	2898.412278	11593.64911	0	14.0761327	14076.1327	41338.35039	126878.8282	272588.6299	**6.59**	**SBUS**
South Coast	2027	SBUS	Aggregate	Aggregate	Diesel	2945.753454	42654.51002	0	7.964806456	7964.806456		58990.42263			
South Coast	2027	SBUS	Aggregate	Aggregate	Electricity	130.5033137	1496.567643	4606.732332	0	0		3984.024029			
South Coast	2027	SBUS	Aggregate	Aggregate	Natural Gas	3435.083355	49740.00699	0	19.29741124	19297.41124		82735.35502			
South Coast	2027	UBUS	Aggregate	Aggregate	Gasoline	892.6839383	3570.735753	0	13.49194305	13491.94305	192954.1729	96836.14735	700433.311	**3.63**	**UBUS**
South Coast	2027	UBUS	Aggregate	Aggregate	Diesel	11.1150183	44.46007321	0	0.20687658	206.8765801		1410.894969			
South Coast	2027	UBUS	Aggregate	Aggregate	Electricity	328.1761756	1312.704703	69876.11388	0	0		33565.80617			
South Coast	2027	UBUS	Aggregate	Aggregate	Natural Gas	4740.545527	18962.18211	0	179.2553533	179255.3533		568620.4625			

APPENDIX C

AERMOD MODEL PRINTOUTS

Iron Lofts

Estimation of DPM Emissions Along EB SR-91

Cal Trans Vehicle Traffic - 2022

Segment	Back AADT	Total Trucks	LDA/LDT/MDT	% LDA/LDT/MDT	% Trucks	2 axle	2 axle % Trucks	3 axle	3 axle % Trucks	4+ axle	4+ Axle % Trucks
Riverside, JCT Rte 60, Rte 215 North, end of rte 91	219000	10950	208050	95.0%	5.0%	7556	69.0%	657	6.0%	2738	25.0%

Diesel Vehicle Disribution

Vehicle Mix
2 axle trucks = LHDT1 and LHDT2
3 axle trucks = MHDT
4+ axle trucks = HHDT

Adjusted Fleet Mix

	SCAB CalEEMod Fleet Mix	Adjusted Fleet Mix	Daily Trips
LDA	54.48	54.5%	113346
LDT1	4.52	4.5%	9404
LDT2	25.24	25.2%	52512
MDT	15.76	15.8%	32789
Total	100	100.0%	208050
LHDT1	79.61	79.6%	6015
LHDT2	20.39	20.4%	1541
Total	100	100.0%	7556
MHDT			657
HHDT			2738
Total - All Vehicles			219001

Diesel Vehicle Distribution (from EMFAC: 2027 in SCAQMD)

	% Diesel	Daily Diesel Vehicles
LDA	0.26%	295
LDT1	0.03%	3
LDT2	0.34%	179
MDV	1.24%	407
LHDT1	35.11%	2112
LHDT2	60.82%	937
MHDT	82.75%	544
HHDT	99.95%	2737

Vehicle Speed/Average DPM Emission Factor (2027) from EMFAC2021 for South Coast AB

	Speed (mph)	Emission Factor (g/mi)
LDA	70	0.017824002
LDT1	70	0.235580126
LDT2	70	0.003517293
MDV	60	0.004620004
LHD1	60	0.011801779
LHD2	60	0.012448994
T6	55	0.00868762
T7	55	0.02070

Vehicle Emissions

Vehicle Emissions = Emission Factor (g/mi) x Mile/Trip x Trip/Day

Length of Roadway Segment 729 meters or
0.453 miles

Assumption: over an annual period, traffic is assumed to be uniformly distributed during the day

	Daily Emissions (g/day)	Hourly Emissions (g/sec)		
LDA	2.4	2.75E-05		
LDT1	0.3	3.48E-06		
LDT2	0.3	3.29E-06		
MDV	0.9	9.85E-06		
LHD1	11.3	1.31E-04		
LHD2	5.3	6.11E-05		
T6	2.1	2.48E-05		
T7	25.7	2.97E-04		
			EB	
Total	48.2	5.58E-04		**2.79E-04**

Iron Lofts

Estimation of DPM Emissions Along WB SR-91

Cal Trans Vehicle Traffic - 2022

Segment	Back AADT	Total Trucks	LDA/LDT/MDT	% LDA/LDT/MDT	% Trucks	2 axle	2 axle % Trucks	3 axle	3 axle % Trucks	4+ axle	4+ Axle % Trucks
Riverside, JCT Rte 60, Rte 215 North, end of rte 91	219000	10950	208050	95.0%	5.0%	7556	69.0%	657	6.0%	2738	25.0%

Diesel Vehicle Disribution

Vehicle Mix
2 axle trucks = LHDT1 and LHDT2
3 axle trucks = MHDT
4+ axle trucks = HHDT

Adjusted Fleet Mix

	SCAB CalEEMod Fleet Mix	Adjusted Fleet Mix	Daily Trips
LDA	54.48	54.5%	113346
LDT1	4.52	4.5%	9404
LDT2	25.24	25.2%	52512
MDT	15.76	15.8%	32789
Total	100	100.0%	208050
LHDT1	79.61	79.6%	6015
LHDT2	20.39	20.4%	1541
Total	100	100.0%	7556
MHDT			657
HHDT			2738
Total - All Vehicles			219001

Diesel Vehicle Distribution (from EMFAC: 2027 in SCAQMD)

	% Diesel	Daily Diesel Vehicles
LDA	0.26%	295
LDT1	0.03%	3
LDT2	0.34%	179
MDV	1.24%	407
LHDT1	35.11%	2112
LHDT2	60.82%	937
MHDT	82.75%	544
HHDT	99.95%	2737

Vehicle Speed/Average DPM Emission Factor (2027) from EMFAC2021 for South Coast AB

	Speed (mph)	Emission Factor (g/mi)
LDA	70	0.017824002
LDT1	70	0.235580126
LDT2	70	0.003517293
MDV	60	0.004620004
LHD1	60	0.011801779
LHD2	60	0.012448994
T6	55	0.00868762
T7	55	0.02070

Vehicle Emissions

Vehicle Emissions = Emission Factor (g/mi) x Mile/Trip x Trip/Day

Length of Roadway Segment	705.6 meters or 0.438 miles		729	705.6

Assumption: over an annual period, traffic is assumed to be uniformly distributed during the day

	Daily Emissions (g/day)	Hourly Emissions (g/sec)		
LDA	2.3	2.66E-05		
LDT1	0.3	3.37E-06		
LDT2	0.3	3.19E-06		
MDV	0.8	9.53E-06		
LHD1	10.9	1.26E-04		
LHD2	5.1	5.92E-05		
T6	2.1	2.40E-05		
T7	24.8	2.87E-04		
			WB	
Total	46.6	5.40E-04		**2.70E-04**

Iron Lofts

Diesel (DPM) Train Emissions

Train Characteristics

Length of the Rail Link Analyzed:	1142.4	meters or	0.710 miles
Train Speed along link:	25	miles/hour	
Power Notch Setting	7		
Time each train spends on link:	0.028	hour per train over rail link	

Train Traffic in 2025

Number of daily trains

Passenger	9	
Freight	9	
Total	18	trains/day

Number of Locomotives per train

Passenger	1	for each passenger train
Freight	2	for each freight train
Number of daily locomotives	9	passenger
	18	freight
Total	27	locomotives/day

DPM Emissions

Notch power setting assumed:	6	
DPM Emission Factor for a EMD 12-710GE Passenger Locomotive	445.4	grams/hr
DPM Emission Factor for GE Dash 9 Freight locomotive:	445.1	grams/hr

Total Daily Emissions:

Passenger	113.8	grams/day assumed for the year 2006
Freight	227.4	grams/day assumed for the year 2006

Average Emissions:

Passenger	0.001317034	grams/sec for the year 2006
Freight	0.002632294	grams/sec for the year 2006

Source: Emission factor from ARB Health Risk Assessment for the BNSF Railway
San Bernardino Railyard (CARB 2008)
Based on use of California-Diesel Fuel
*CARB In-Use Locomotive regulation requires diesel-powered locomotives to be zero emissions starting in 2030
(source: https://ww2.arb.ca.gov/our-work/programs/reducing-rail-emissions-california/locomotive-fact-sheets)

Iron Lofts

Projection of Locomotive DPM Emissions

Based on the emission factor projections contained in USEPA Emission Factors for Locomotives
EPA-420-F-09-025, April 2009

Year	Line Haul PM10 Emission Factor (grams/gal)	Line Haul PM10 Emission Factor Relative to 2006	Line Haul Pm10 Emission Factor Line Haul @ Notch 6 (g/sec)	
2006	6.4	1	0.0026	
2007	6.3	0.984375	0.0026	
2008	5.1	0.796875	0.0021	
2009	4.9	0.765625	0.0020	
2010	4.7	0.734375	0.0019	
2011	4.4	0.6875	0.0018	
2012	4.1	0.640625	0.0017	
2013	3.8	0.59375	0.0016	
2014	3.6	0.5625	0.0015	
2015	3.4	0.53125	0.0014	
2016	3.1	0.484375	0.0013	
2017	2.9	0.453125	0.0012	
2018	2.7	0.421875	0.0011	
2019	2.5	0.390625	0.0010	
2020	2.3	0.359375	0.0009	
2021	2.2	0.34375	0.0009	
2022	2	0.3125	0.0008	
2023	1.9	0.296875	0.0008	
2024	1.7	0.265625	0.0007	
2025	1.6	0.25	0.0007	
2026	1.5	0.234375	0.0006	
2027	1.4	0.21875	0.0006	
2028	1.3	0.203125	0.0005	
2029	1.1	0.171875	0.0005	
2030	1	0.15625	0.0000	ZE required
2031	1	0.15625	0.0000	
2032	0.9	0.140625	0.0000	
2033	0.8	0.125	0.0000	
2034	0.7	0.109375	0.0000	
2035	0.7	0.109375	0.0000	
2036	0.6	0.09375	0.0000	
2037	0.6	0.09375	0.0000	
2038	0.5	0.078125	0.0000	
2039	0.5	0.078125	0.0000	
2040	0.4	0.0625	0.0000	
2041	0.4	0.0625	0.0000	
2042	0.4	0.0625	0.0000	
2043	0.4	0.0625	0.0000	
2044	0.4	0.0625	0.0000	
2045	0.4	0.0625	0.0000	
2046	0.4	0.0625	0.0000	
2047	0.4	0.0625	0.0000	
2048	0.4	0.0625	0.0000	
2049	0.4	0.0625	0.0000	
2050	0.4	0.0625	0.0000	
2051	0.4	0.0625	0.0000	
2052	0.4	0.0625	0.0000	
2053	0.4	0.0625	0.0000	
2054	0.4	0.0625	0.0000	
2055	0.4	0.0625	0.0000	
2056	0.4	0.0625	0.0000	
2057	0.4	0.0625	0.0000	
2058	0.4	0.0625	0.0000	
2059	0.4	0.0625	0.0000	
2060	0.4	0.0625	0.0000	
2061	0.4	0.0625	0.0000	
2062	0.4	0.0625	0.0000	
2063	0.4	0.0625	0.0000	
2064	0.4	0.0625	0.0000	
2065	0.4	0.0625	0.0000	
2066	0.4	0.0625	0.0000	
2067	0.4	0.0625	0.0000	
2068	0.4	0.0625	0.0000	
2069	0.4	0.0625	0.0000	
2070	0.4	0.0625	0.0000	
2071	0.4	0.0625	0.0000	
2072	0.4	0.0625	0.0000	
2073	0.4	0.0625	0.0000	
2074	0.4	0.0625	0.0000	
2075	0.4	0.0625	0.0000	
2076	0.4	0.0625	0.0000	
2077	0.4	0.0625	0.0000	
2078	0.4	0.0625	0.0000	
2079	0.4	0.0625	0.0000	
2080	0.4	0.0625	0.0000	
2081	0.4	0.0625	0.0000	
2082	0.4	0.0625	0.0000	
2083	0.4	0.0625	0.0000	
2084	0.4	0.0625	0.0000	
2085	0.4	0.0625	0.0000	
2086	0.4	0.0625	0.0000	
2087	0.4	0.0625	0.0000	
2088	0.4	0.0625	0.0000	
2089	0.4	0.0625	0.0000	

Average 2025 to 2089 **0.0000248**

Iron Lofts

Projection of Locomotive DPM Emissions

Based on the emission factor projections contained in USEPA Emission Factors for Locomotives
EPA-420-F-09-025, April 2009

Year	Passenger PM10 Emission Factc (grams/gal)	Passenger PM10 Emission Factor Relative to 2006	Passenger Pm10 Emission Factor '@ Notch 6 Relative to 2006 (g/sec)	
2006	6.5	1	0.001317	
2007	6.4	0.985	0.001297	
2008	5.1	0.785	0.001033	
2009	5	0.769	0.001013	
2010	4.8	0.738	0.000973	
2011	4.5	0.692	0.000912	
2012	4.2	0.646	0.000851	
2013	3.9	0.600	0.000790	
2014	3.6	0.554	0.000729	
2015	3.4	0.523	0.000689	
2016	3.1	0.477	0.000628	
2017	2.8	0.431	0.000567	
2018	2.6	0.400	0.000527	
2019	2.3	0.354	0.000466	
2020	2.1	0.323	0.000426	
2021	2	0.308	0.000405	
2022	1.8	0.277	0.000365	
2023	1.7	0.262	0.000344	
2024	1.5	0.231	0.000304	
2025	1.4	0.215	0.000284	
2026	1.2	0.185	0.000243	
2027	1.1	0.169	0.000223	
2028	1	0.154	0.000203	
2029	0.9	0.138	0.000182	
2030	0.8	0.123	0.000000	ZE required
2031	0.7	0.108	0.000000	
2032	0.7	0.108	0.000000	
2033	0.6	0.092	0.000000	
2034	0.6	0.092	0.000000	
2035	0.5	0.077	0.000000	
2036	0.5	0.077	0.000000	
2037	0.4	0.062	0.000000	
2038	0.4	0.062	0.000000	
2039	0.4	0.062	0.000000	
2040	0.3	0.046	0.000000	
2041	0.3	0.046	0.000000	
2042	0.3	0.046	0.000000	
2043	0.3	0.046	0.000000	
2044	0.3	0.046	0.000000	
2045	0.3	0.046	0.000000	
2046	0.3	0.046	0.000000	
2047	0.3	0.046	0.000000	
2048	0.3	0.046	0.000000	
2049	0.3	0.046	0.000000	
2050	0.3	0.046	0.000000	
2051	0.3	0.046	0.000000	
2052	0.3	0.046	0.000000	
2053	0.3	0.046	0.000000	
2054	0.3	0.046	0.000000	
2055	0.3	0.046	0.000000	
2056	0.3	0.046	0.000000	
2057	0.3	0.046	0.000000	
2058	0.3	0.046	0.000000	
2059	0.3	0.046	0.000000	
2060	0.3	0.046	0.000000	
2061	0.3	0.046	0.000000	
2062	0.3	0.046	0.000000	
2063	0.3	0.046	0.000000	
2064	0.3	0.046	0.000000	
2065	0.3	0.046	0.000000	
2066	0.3	0.046	0.000000	
2067	0.3	0.046	0.000000	
2068	0.3	0.046	0.000000	
2069	0.3	0.046	0.000000	
2070	0.3	0.046	0.000000	
2071	0.3	0.046	0.000000	
2072	0.3	0.046	0.000000	
2073	0.3	0.046	0.000000	
2074	0.3	0.046	0.000000	
2075	0.3	0.046	0.000000	
2076	0.3	0.046	0.000000	
2077	0.3	0.046	0.000000	
2078	0.3	0.046	0.000000	
2079	0.3	0.046	0.000000	
2080	0.3	0.046	0.000000	
2081	0.3	0.046	0.000000	
2082	0.3	0.046	0.000000	
2083	0.3	0.046	0.000000	
2084	0.3	0.046	0.000000	

Average (2025 to 2084)	0.0000105 g/sec

Total Emissions	
Passenger	0.0000105 g/sec
Freight	0.00002481 g/sec
Total	0.0000353 g/sec

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** Lakes Environmental AERMOD MPI
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** AERMOD Input Produced by:
** AERMOD View Ver. 13.0.0
** Lakes Environmental Software Inc.
** Date: 4/24/2025
** File: C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.ADI
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**
**
**************************************
** AERMOD Control Pathway
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**
**
CO STARTING
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   TITLETWO Freeway and rail DPM
   MODELOPT DFAULT CONC
   AVERTIME PERIOD
   URBANOPT 2189641 Riverside_County
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "19630 Iron Lofts.err"
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
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SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE1
** DESCRSRC Rail Lines
** PREFIX
** Length of Side = 10.00
** Configuration = Adjacent
** Emission Rate = 0.0000353
** Elevated
** Vertical Dimension = 20.00
** SZINIT = 4.65
** Nodes = 14
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** 466089.491, 3759937.682, 267.95, 0.00, 4.65
** 466140.494, 3760026.551, 267.87, 0.00, 4.65
** 466192.270, 3760119.285, 267.98, 0.00, 4.65
** 466232.455, 3760193.471, 267.77, 0.00, 4.65
** 466274.958, 3760272.295, 268.08, 0.00, 4.65
** 466307.414, 3760329.480, 268.73, 0.00, 4.65
** 466340.644, 3760381.256, 268.98, 0.00, 4.65
** 466362.282, 3760411.395, 268.76, 0.00, 4.65
** 466382.374, 3760437.669, 268.68, 0.00, 4.65
** 466444.196, 3760507.992, 269.02, 0.00, 4.65
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   LOCATION L0000283     VOLUME   465862.460 3759544.942 267.76
   LOCATION L0000284     VOLUME   465867.607 3759553.516 267.75
   LOCATION L0000285     VOLUME   465872.754 3759562.090 267.69
   LOCATION L0000286     VOLUME   465877.900 3759570.663 267.69
   LOCATION L0000287     VOLUME   465883.047 3759579.237 267.74
   LOCATION L0000288     VOLUME   465888.194 3759587.811 267.76
   LOCATION L0000289     VOLUME   465893.340 3759596.385 267.71
   LOCATION L0000290     VOLUME   465898.487 3759604.959 267.69
   LOCATION L0000291     VOLUME   465903.634 3759613.533 267.70
   LOCATION L0000292     VOLUME   465908.780 3759622.107 267.70
   LOCATION L0000293     VOLUME   465913.927 3759630.681 267.70
   LOCATION L0000294     VOLUME   465919.074 3759639.255 267.70
   LOCATION L0000295     VOLUME   465924.220 3759647.829 267.73
   LOCATION L0000296     VOLUME   465929.367 3759656.403 267.75
   LOCATION L0000297     VOLUME   465934.513 3759664.977 267.79
   LOCATION L0000298     VOLUME   465939.660 3759673.550 267.81
   LOCATION L0000299     VOLUME   465944.807 3759682.124 267.81
   LOCATION L0000300     VOLUME   465949.953 3759690.698 267.83
   LOCATION L0000301     VOLUME   465955.100 3759699.272 267.86
   LOCATION L0000302     VOLUME   465960.087 3759707.940 267.89
   LOCATION L0000303     VOLUME   465965.048 3759716.622 267.91
   LOCATION L0000304     VOLUME   465970.009 3759725.305 267.92
   LOCATION L0000305     VOLUME   465974.971 3759733.987 267.93
   LOCATION L0000306     VOLUME   465979.932 3759742.670 267.94
   LOCATION L0000307     VOLUME   465984.894 3759751.352 267.96
   LOCATION L0000308     VOLUME   465989.853 3759760.035 267.97
   LOCATION L0000309     VOLUME   465994.646 3759768.812 267.97
   LOCATION L0000310     VOLUME   465999.439 3759777.589 267.98
   LOCATION L0000311     VOLUME   466004.232 3759786.365 267.99
   LOCATION L0000312     VOLUME   466009.025 3759795.142 268.01
   LOCATION L0000313     VOLUME   466013.818 3759803.918 267.82
   LOCATION L0000314     VOLUME   466018.610 3759812.695 267.27
   LOCATION L0000315     VOLUME   466023.403 3759821.471 266.51
   LOCATION L0000316     VOLUME   466028.196 3759830.248 265.55
   LOCATION L0000317     VOLUME   466032.989 3759839.025 264.47
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LOCATION L0000318     VOLUME   466037.782 3759847.801 263.74
LOCATION L0000319     VOLUME   466042.575 3759856.578 263.49
LOCATION L0000320     VOLUME   466047.368 3759865.354 264.49
LOCATION L0000321     VOLUME   466052.311 3759874.046 265.92
LOCATION L0000322     VOLUME   466057.355 3759882.680 267.07
LOCATION L0000323     VOLUME   466062.400 3759891.315 267.92
LOCATION L0000324     VOLUME   466067.445 3759899.949 267.99
LOCATION L0000325     VOLUME   466072.490 3759908.583 267.94
LOCATION L0000326     VOLUME   466077.534 3759917.218 267.92
LOCATION L0000327     VOLUME   466082.579 3759925.852 267.91
LOCATION L0000328     VOLUME   466087.624 3759934.486 267.91
LOCATION L0000329     VOLUME   466092.626 3759943.145 267.95
LOCATION L0000330     VOLUME   466097.604 3759951.818 267.97
LOCATION L0000331     VOLUME   466102.582 3759960.491 267.92
LOCATION L0000332     VOLUME   466107.559 3759969.164 267.88
LOCATION L0000333     VOLUME   466112.537 3759977.837 267.85
LOCATION L0000334     VOLUME   466117.514 3759986.510 267.82
LOCATION L0000335     VOLUME   466122.492 3759995.184 267.72
LOCATION L0000336     VOLUME   466127.470 3760003.857 267.68
LOCATION L0000337     VOLUME   466132.447 3760012.530 267.70
LOCATION L0000338     VOLUME   466137.425 3760021.203 267.77
LOCATION L0000339     VOLUME   466142.363 3760029.898 267.87
LOCATION L0000340     VOLUME   466147.238 3760038.630 267.91
LOCATION L0000341     VOLUME   466152.113 3760047.361 267.90
LOCATION L0000342     VOLUME   466156.988 3760056.092 267.84
LOCATION L0000343     VOLUME   466161.863 3760064.823 267.81
LOCATION L0000344     VOLUME   466166.738 3760073.555 267.82
LOCATION L0000345     VOLUME   466171.613 3760082.286 267.78
LOCATION L0000346     VOLUME   466176.488 3760091.017 267.72
LOCATION L0000347     VOLUME   466181.363 3760099.749 267.72
LOCATION L0000348     VOLUME   466186.238 3760108.480 267.76
LOCATION L0000349     VOLUME   466191.113 3760117.211 267.78
LOCATION L0000350     VOLUME   466195.902 3760125.989 267.77
LOCATION L0000351     VOLUME   466200.665 3760134.782 267.74
LOCATION L0000352     VOLUME   466205.428 3760143.575 267.74
LOCATION L0000353     VOLUME   466210.191 3760152.368 267.75
LOCATION L0000354     VOLUME   466214.953 3760161.161 267.78
LOCATION L0000355     VOLUME   466219.716 3760169.954 267.83
LOCATION L0000356     VOLUME   466224.479 3760178.747 267.79
LOCATION L0000357     VOLUME   466229.242 3760187.540 267.77
LOCATION L0000358     VOLUME   466233.999 3760196.336 267.80
LOCATION L0000359     VOLUME   466238.746 3760205.138 267.83
LOCATION L0000360     VOLUME   466243.492 3760213.939 267.84
LOCATION L0000361     VOLUME   466248.238 3760222.741 267.83
LOCATION L0000362     VOLUME   466252.984 3760231.543 267.83
LOCATION L0000363     VOLUME   466257.730 3760240.345 267.85
LOCATION L0000364     VOLUME   466262.476 3760249.147 267.88
LOCATION L0000365     VOLUME   466267.222 3760257.949 267.92
LOCATION L0000366     VOLUME   466271.969 3760266.751 267.87
LOCATION L0000367     VOLUME   466276.785 3760275.514 267.78
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   LOCATION L0000368     VOLUME   466281.721 3760284.211 267.78
   LOCATION L0000369     VOLUME   466286.657 3760292.908 267.87
   LOCATION L0000370     VOLUME   466291.593 3760301.605 268.06
   LOCATION L0000371     VOLUME   466296.529 3760310.302 268.20
   LOCATION L0000372     VOLUME   466301.465 3760318.998 268.27
   LOCATION L0000373     VOLUME   466306.401 3760327.695 268.33
   LOCATION L0000374     VOLUME   466311.707 3760336.169 268.41
   LOCATION L0000375     VOLUME   466317.108 3760344.585 268.49
   LOCATION L0000376     VOLUME   466322.509 3760353.001 268.57
   LOCATION L0000377     VOLUME   466327.911 3760361.416 268.68
   LOCATION L0000378     VOLUME   466333.312 3760369.832 268.79
   LOCATION L0000379     VOLUME   466338.713 3760378.248 268.91
   LOCATION L0000380     VOLUME   466344.391 3760386.476 268.98
   LOCATION L0000381     VOLUME   466350.223 3760394.599 268.94
   LOCATION L0000382     VOLUME   466356.055 3760402.722 268.83
   LOCATION L0000383     VOLUME   466361.887 3760410.846 268.79
   LOCATION L0000384     VOLUME   466367.946 3760418.801 268.79
   LOCATION L0000385     VOLUME   466374.020 3760426.745 268.79
   LOCATION L0000386     VOLUME   466380.095 3760434.689 268.77
   LOCATION L0000387     VOLUME   466386.499 3760442.362 268.78
   LOCATION L0000388     VOLUME   466393.102 3760449.872 268.80
   LOCATION L0000389     VOLUME   466399.704 3760457.382 268.82
   LOCATION L0000390     VOLUME   466406.307 3760464.893 268.84
   LOCATION L0000391     VOLUME   466412.909 3760472.403 268.86
   LOCATION L0000392     VOLUME   466419.512 3760479.914 268.89
   LOCATION L0000393     VOLUME   466426.114 3760487.424 268.92
   LOCATION L0000394     VOLUME   466432.717 3760494.934 268.93
   LOCATION L0000395     VOLUME   466439.319 3760502.445 268.96
** End of LINE VOLUME Source ID = SLINE1
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC 91 freeway EB
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.000279
** Elevated
** Vertical Dimension = 7.00
** SZINIT = 1.63
** Nodes = 22
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** 465798.948, 3759969.742, 267.39, 3.50, 4.00
** 465820.586, 3759992.926, 265.60, 3.50, 4.00
** 465846.088, 3760017.655, 270.29, 3.50, 4.00
** 465883.182, 3760053.203, 269.58, 3.50, 4.00
** 465907.911, 3760078.705, 266.58, 3.50, 4.00
** 465938.822, 3760108.071, 271.16, 3.50, 4.00
** 465965.870, 3760135.119, 271.45, 3.50, 4.00
** 465991.372, 3760162.939, 271.65, 3.50, 4.00
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** 466073.288, 3760248.719, 271.97, 3.50, 4.00
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** 466115.018, 3760292.768, 272.70, 3.50, 4.00
** 466138.975, 3760328.316, 272.39, 3.50, 4.00
** 466154.430, 3760349.954, 270.04, 3.50, 4.00
** 466174.523, 3760383.184, 265.77, 3.50, 4.00
** 466191.524, 3760412.550, 265.96, 3.50, 4.00
** 466206.207, 3760438.825, 266.03, 3.50, 4.00
** 466220.117, 3760461.236, 267.68, 3.50, 4.00
** 466233.255, 3760485.192, 269.22, 3.50, 4.00
** 466239.437, 3760496.784, 270.37, 3.50, 4.00
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   LOCATION L0000116     VOLUME   465784.699 3759949.388 270.21
   LOCATION L0000117     VOLUME   465789.626 3759956.425 269.30
   LOCATION L0000118     VOLUME   465794.552 3759963.463 267.76
   LOCATION L0000119     VOLUME   465799.580 3759970.419 266.54
   LOCATION L0000120     VOLUME   465805.441 3759976.700 265.67
   LOCATION L0000121     VOLUME   465811.303 3759982.980 265.19
   LOCATION L0000122     VOLUME   465817.165 3759989.260 265.89
   LOCATION L0000123     VOLUME   465823.154 3759995.416 267.02
   LOCATION L0000124     VOLUME   465829.321 3760001.396 268.32
   LOCATION L0000125     VOLUME   465835.488 3760007.377 269.81
   LOCATION L0000126     VOLUME   465841.656 3760013.357 270.48
   LOCATION L0000127     VOLUME   465847.833 3760019.328 270.34
   LOCATION L0000128     VOLUME   465854.035 3760025.272 270.17
   LOCATION L0000129     VOLUME   465860.238 3760031.216 270.39
   LOCATION L0000130     VOLUME   465866.440 3760037.160 270.41
   LOCATION L0000131     VOLUME   465872.643 3760043.104 270.48
   LOCATION L0000132     VOLUME   465878.845 3760049.048 270.14
   LOCATION L0000133     VOLUME   465884.981 3760055.059 269.30
   LOCATION L0000134     VOLUME   465890.961 3760061.226 268.31
   LOCATION L0000135     VOLUME   465896.942 3760067.393 267.39
   LOCATION L0000136     VOLUME   465902.922 3760073.561 266.78
   LOCATION L0000137     VOLUME   465908.944 3760079.687 266.77
   LOCATION L0000138     VOLUME   465915.172 3760085.604 267.51
   LOCATION L0000139     VOLUME   465921.400 3760091.520 268.42
   LOCATION L0000140     VOLUME   465927.629 3760097.437 269.38
   LOCATION L0000141     VOLUME   465933.857 3760103.354 270.39
   LOCATION L0000142     VOLUME   465940.054 3760109.303 271.07
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   LOCATION L0000144     VOLUME   465952.203 3760121.452 270.64
   LOCATION L0000145     VOLUME   465958.278 3760127.527 270.79
   LOCATION L0000146     VOLUME   465964.353 3760133.602 271.18
   LOCATION L0000147     VOLUME   465970.225 3760139.870 271.35
   LOCATION L0000148     VOLUME   465976.030 3760146.203 271.23
   LOCATION L0000149     VOLUME   465981.835 3760152.535 271.25
   LOCATION L0000150     VOLUME   465987.640 3760158.868 271.40
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   LOCATION L0000151     VOLUME   465993.541 3760165.109 271.61
   LOCATION L0000152     VOLUME   465999.616 3760171.183 271.72
   LOCATION L0000153     VOLUME   466005.691 3760177.258 271.70
   LOCATION L0000154     VOLUME   466011.765 3760183.333 271.75
   LOCATION L0000155     VOLUME   466017.840 3760189.407 271.83
   LOCATION L0000156     VOLUME   466023.914 3760195.482 271.91
   LOCATION L0000157     VOLUME   466029.903 3760201.641 272.04
   LOCATION L0000158     VOLUME   466035.880 3760207.811 272.03
   LOCATION L0000159     VOLUME   466041.858 3760213.982 272.08
   LOCATION L0000160     VOLUME   466047.835 3760220.152 272.02
   LOCATION L0000161     VOLUME   466053.575 3760226.542 272.12
   LOCATION L0000162     VOLUME   466059.283 3760232.963 272.23
   LOCATION L0000163     VOLUME   466064.990 3760239.384 272.24
   LOCATION L0000164     VOLUME   466070.697 3760245.805 272.18
   LOCATION L0000165     VOLUME   466076.661 3760251.980 272.15
   LOCATION L0000166     VOLUME   466082.838 3760257.951 272.30
   LOCATION L0000167     VOLUME   466089.015 3760263.922 272.46
   LOCATION L0000168     VOLUME   466095.191 3760269.892 272.43
   LOCATION L0000169     VOLUME   466100.903 3760276.301 272.20
   LOCATION L0000170     VOLUME   466106.494 3760282.823 272.22
   LOCATION L0000171     VOLUME   466112.085 3760289.346 272.49
   LOCATION L0000172     VOLUME   466117.300 3760296.154 272.64
   LOCATION L0000173     VOLUME   466122.101 3760303.279 272.43
   LOCATION L0000174     VOLUME   466126.902 3760310.403 272.24
   LOCATION L0000175     VOLUME   466131.703 3760317.527 272.33
   LOCATION L0000176     VOLUME   466136.504 3760324.651 272.46
   LOCATION L0000177     VOLUME   466141.399 3760331.710 272.20
   LOCATION L0000178     VOLUME   466146.392 3760338.701 271.76
   LOCATION L0000179     VOLUME   466151.385 3760345.691 270.80
   LOCATION L0000180     VOLUME   466156.165 3760352.823 269.98
   LOCATION L0000181     VOLUME   466160.610 3760360.174 268.66
   LOCATION L0000182     VOLUME   466165.055 3760367.525 267.51
   LOCATION L0000183     VOLUME   466169.500 3760374.877 266.56
   LOCATION L0000184     VOLUME   466173.945 3760382.228 265.87
   LOCATION L0000185     VOLUME   466178.268 3760389.652 265.79
   LOCATION L0000186     VOLUME   466182.572 3760397.087 265.83
   LOCATION L0000187     VOLUME   466186.876 3760404.522 265.87
   LOCATION L0000188     VOLUME   466191.180 3760411.956 265.91
   LOCATION L0000189     VOLUME   466195.380 3760419.450 265.94
   LOCATION L0000190     VOLUME   466199.571 3760426.950 265.96
   LOCATION L0000191     VOLUME   466203.762 3760434.449 265.99
   LOCATION L0000192     VOLUME   466208.094 3760441.865 266.03
   LOCATION L0000193     VOLUME   466212.625 3760449.164 266.30
   LOCATION L0000194     VOLUME   466217.155 3760456.463 266.89
   LOCATION L0000195     VOLUME   466221.547 3760463.843 267.66
   LOCATION L0000196     VOLUME   466225.678 3760471.375 268.41
   LOCATION L0000197     VOLUME   466229.809 3760478.908 269.12
   LOCATION L0000198     VOLUME   466233.925 3760486.448 269.79
   LOCATION L0000199     VOLUME   466237.968 3760494.029 270.44
** End of LINE VOLUME Source ID = SLINE2
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE3
** DESCRSRC SR 91 WB
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00027
** Elevated
** Vertical Dimension = 7.00
** SZINIT = 1.63
** Nodes = 18
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** 465795.084, 3759994.472, 265.35, 3.50, 4.00
** 465818.267, 3760022.292, 268.02, 3.50, 4.00
** 465865.407, 3760066.341, 267.64, 3.50, 4.00
** 465917.957, 3760119.663, 269.58, 3.50, 4.00
** 465950.414, 3760152.893, 270.07, 3.50, 4.00
** 465972.825, 3760176.077, 270.51, 3.50, 4.00
** 466002.191, 3760206.988, 271.33, 3.50, 4.00
** 466034.648, 3760241.764, 271.32, 3.50, 4.00
** 466056.286, 3760265.720, 271.36, 3.50, 4.00
** 466077.924, 3760291.222, 270.71, 3.50, 4.00
** 466095.698, 3760315.951, 270.06, 3.50, 4.00
** 466115.018, 3760341.453, 270.68, 3.50, 4.00
** 466132.019, 3760369.274, 269.08, 3.50, 4.00
** 466154.430, 3760404.822, 265.59, 3.50, 4.00
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** 466217.799, 3760509.149, 270.98, 3.50, 4.00
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   LOCATION L0000202     VOLUME   465785.649 3759983.150 265.42
   LOCATION L0000203     VOLUME   465791.149 3759989.750 265.07
   LOCATION L0000204     VOLUME   465796.649 3759996.349 265.30
   LOCATION L0000205     VOLUME   465802.148 3760002.949 265.89
   LOCATION L0000206     VOLUME   465807.648 3760009.549 266.86
   LOCATION L0000207     VOLUME   465813.148 3760016.148 268.01
   LOCATION L0000208     VOLUME   465818.701 3760022.697 268.10
   LOCATION L0000209     VOLUME   465824.978 3760028.563 268.40
   LOCATION L0000210     VOLUME   465831.255 3760034.428 268.73
   LOCATION L0000211     VOLUME   465837.532 3760040.293 269.01
   LOCATION L0000212     VOLUME   465843.809 3760046.159 269.21
   LOCATION L0000213     VOLUME   465850.086 3760052.024 269.08
   LOCATION L0000214     VOLUME   465856.363 3760057.889 268.90
   LOCATION L0000215     VOLUME   465862.640 3760063.755 268.61
   LOCATION L0000216     VOLUME   465868.779 3760069.762 267.76
   LOCATION L0000217     VOLUME   465874.809 3760075.880 267.01
   LOCATION L0000218     VOLUME   465880.839 3760081.999 266.65
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LOCATION L0000219     VOLUME   465886.869 3760088.118 266.44
LOCATION L0000220     VOLUME   465892.899 3760094.237 266.62
LOCATION L0000221     VOLUME   465898.929 3760100.356 267.31
LOCATION L0000222     VOLUME   465904.959 3760106.474 268.49
LOCATION L0000223     VOLUME   465910.989 3760112.593 269.27
LOCATION L0000224     VOLUME   465917.020 3760118.712 269.44
LOCATION L0000225     VOLUME   465923.027 3760124.853 269.52
LOCATION L0000226     VOLUME   465929.029 3760130.999 269.79
LOCATION L0000227     VOLUME   465935.032 3760137.145 270.25
LOCATION L0000228     VOLUME   465941.035 3760143.290 270.33
LOCATION L0000229     VOLUME   465947.037 3760149.436 270.15
LOCATION L0000230     VOLUME   465953.026 3760155.595 270.19
LOCATION L0000231     VOLUME   465958.997 3760161.772 270.45
LOCATION L0000232     VOLUME   465964.968 3760167.949 270.93
LOCATION L0000233     VOLUME   465970.939 3760174.125 270.65
LOCATION L0000234     VOLUME   465976.873 3760180.337 270.50
LOCATION L0000235     VOLUME   465982.789 3760186.566 270.56
LOCATION L0000236     VOLUME   465988.706 3760192.794 270.85
LOCATION L0000237     VOLUME   465994.623 3760199.022 271.03
LOCATION L0000238     VOLUME   466000.540 3760205.251 270.75
LOCATION L0000239     VOLUME   466006.417 3760211.516 270.65
LOCATION L0000240     VOLUME   466012.279 3760217.797 270.78
LOCATION L0000241     VOLUME   466018.141 3760224.077 271.01
LOCATION L0000242     VOLUME   466024.002 3760230.357 271.04
LOCATION L0000243     VOLUME   466029.864 3760236.638 270.72
LOCATION L0000244     VOLUME   466035.707 3760242.936 270.64
LOCATION L0000245     VOLUME   466041.465 3760249.311 270.79
LOCATION L0000246     VOLUME   466047.223 3760255.686 270.82
LOCATION L0000247     VOLUME   466052.981 3760262.061 270.82
LOCATION L0000248     VOLUME   466058.654 3760268.511 270.59
LOCATION L0000249     VOLUME   466064.212 3760275.062 270.57
LOCATION L0000250     VOLUME   466069.771 3760281.612 270.66
LOCATION L0000251     VOLUME   466075.329 3760288.163 270.68
LOCATION L0000252     VOLUME   466080.597 3760294.940 270.60
LOCATION L0000253     VOLUME   466085.611 3760301.916 270.44
LOCATION L0000254     VOLUME   466090.624 3760308.892 270.47
LOCATION L0000255     VOLUME   466095.638 3760315.868 270.56
LOCATION L0000256     VOLUME   466100.824 3760322.717 270.57
LOCATION L0000257     VOLUME   466106.011 3760329.565 270.39
LOCATION L0000258     VOLUME   466111.199 3760336.412 270.37
LOCATION L0000259     VOLUME   466116.200 3760343.387 270.48
LOCATION L0000260     VOLUME   466120.680 3760350.718 270.51
LOCATION L0000261     VOLUME   466125.159 3760358.048 269.79
LOCATION L0000262     VOLUME   466129.639 3760365.378 268.81
LOCATION L0000263     VOLUME   466134.166 3760372.679 267.79
LOCATION L0000264     VOLUME   466138.748 3760379.946 266.72
LOCATION L0000265     VOLUME   466143.329 3760387.214 266.04
LOCATION L0000266     VOLUME   466147.911 3760394.481 265.88
LOCATION L0000267     VOLUME   466152.492 3760401.748 265.73
LOCATION L0000268     VOLUME   466157.126 3760408.982 265.65
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   LOCATION L0000269     VOLUME   466161.799 3760416.191 265.63
   LOCATION L0000270     VOLUME   466166.471 3760423.400 265.67
   LOCATION L0000271     VOLUME   466171.144 3760430.609 265.71
   LOCATION L0000272     VOLUME   466175.816 3760437.818 265.73
   LOCATION L0000273     VOLUME   466180.489 3760445.027 265.76
   LOCATION L0000274     VOLUME   466184.946 3760452.370 265.83
   LOCATION L0000275     VOLUME   466189.345 3760459.749 265.98
   LOCATION L0000276     VOLUME   466193.744 3760467.128 266.19
   LOCATION L0000277     VOLUME   466198.143 3760474.507 266.52
   LOCATION L0000278     VOLUME   466202.542 3760481.886 267.19
   LOCATION L0000279     VOLUME   466206.856 3760489.314 268.00
   LOCATION L0000280     VOLUME   466211.006 3760496.836 268.93
   LOCATION L0000281     VOLUME   466215.156 3760504.358 269.97
** End of LINE VOLUME Source ID = SLINE3
** Source Parameters **
** LINE VOLUME Source ID = SLINE1
   SRCPARAM L0000282     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000283     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000284     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000285     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000286     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000287     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000288     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000289     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000290     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000291     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000292     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000293     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000294     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000295     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000296     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000297     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000298     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000299     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000300     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000301     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000302     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000303     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000304     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000305     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000306     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000307     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000308     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000309     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000315     0.0000003096      0.00      4.65      4.65
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SRCPARAM L0000316     0.0000003096      0.00      4.65      4.65
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SRCPARAM L0000324     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000325     0.0000003096      0.00      4.65      4.65
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SRCPARAM L0000327     0.0000003096      0.00      4.65      4.65
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SRCPARAM L0000329     0.0000003096      0.00      4.65      4.65
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SRCPARAM L0000355     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000356     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000357     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000358     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000359     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000360     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000361     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000362     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000363     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000364     0.0000003096      0.00      4.65      4.65
SRCPARAM L0000365     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000366     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000368     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000369     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000375     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000376     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000377     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000378     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000382     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000392     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000394     0.0000003096      0.00      4.65      4.65
   SRCPARAM L0000395     0.0000003096      0.00      4.65      4.65
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   SRCPARAM L0000116     0.000003282      3.50      4.00      1.63
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   SRCPARAM L0000118     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000119     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000120     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000121     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000122     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000123     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000124     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000125     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000126     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000127     0.000003282      3.50      4.00      1.63
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   SRCPARAM L0000129     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000130     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000131     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000132     0.000003282      3.50      4.00      1.63
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SRCPARAM L0000133     0.000003282      3.50      4.00      1.63
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SRCPARAM L0000137     0.000003282      3.50      4.00      1.63
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SRCPARAM L0000139     0.000003282      3.50      4.00      1.63
SRCPARAM L0000140     0.000003282      3.50      4.00      1.63
SRCPARAM L0000141     0.000003282      3.50      4.00      1.63
SRCPARAM L0000142     0.000003282      3.50      4.00      1.63
SRCPARAM L0000143     0.000003282      3.50      4.00      1.63
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SRCPARAM L0000146     0.000003282      3.50      4.00      1.63
SRCPARAM L0000147     0.000003282      3.50      4.00      1.63
SRCPARAM L0000148     0.000003282      3.50      4.00      1.63
SRCPARAM L0000149     0.000003282      3.50      4.00      1.63
SRCPARAM L0000150     0.000003282      3.50      4.00      1.63
SRCPARAM L0000151     0.000003282      3.50      4.00      1.63
SRCPARAM L0000152     0.000003282      3.50      4.00      1.63
SRCPARAM L0000153     0.000003282      3.50      4.00      1.63
SRCPARAM L0000154     0.000003282      3.50      4.00      1.63
SRCPARAM L0000155     0.000003282      3.50      4.00      1.63
SRCPARAM L0000156     0.000003282      3.50      4.00      1.63
SRCPARAM L0000157     0.000003282      3.50      4.00      1.63
SRCPARAM L0000158     0.000003282      3.50      4.00      1.63
SRCPARAM L0000159     0.000003282      3.50      4.00      1.63
SRCPARAM L0000160     0.000003282      3.50      4.00      1.63
SRCPARAM L0000161     0.000003282      3.50      4.00      1.63
SRCPARAM L0000162     0.000003282      3.50      4.00      1.63
SRCPARAM L0000163     0.000003282      3.50      4.00      1.63
SRCPARAM L0000164     0.000003282      3.50      4.00      1.63
SRCPARAM L0000165     0.000003282      3.50      4.00      1.63
SRCPARAM L0000166     0.000003282      3.50      4.00      1.63
SRCPARAM L0000167     0.000003282      3.50      4.00      1.63
SRCPARAM L0000168     0.000003282      3.50      4.00      1.63
SRCPARAM L0000169     0.000003282      3.50      4.00      1.63
SRCPARAM L0000170     0.000003282      3.50      4.00      1.63
SRCPARAM L0000171     0.000003282      3.50      4.00      1.63
SRCPARAM L0000172     0.000003282      3.50      4.00      1.63
SRCPARAM L0000173     0.000003282      3.50      4.00      1.63
SRCPARAM L0000174     0.000003282      3.50      4.00      1.63
SRCPARAM L0000175     0.000003282      3.50      4.00      1.63
SRCPARAM L0000176     0.000003282      3.50      4.00      1.63
SRCPARAM L0000177     0.000003282      3.50      4.00      1.63
SRCPARAM L0000178     0.000003282      3.50      4.00      1.63
SRCPARAM L0000179     0.000003282      3.50      4.00      1.63
SRCPARAM L0000180     0.000003282      3.50      4.00      1.63
SRCPARAM L0000181     0.000003282      3.50      4.00      1.63
SRCPARAM L0000182     0.000003282      3.50      4.00      1.63
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   SRCPARAM L0000183     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000184     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000185     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000186     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000187     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000188     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000189     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000190     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000191     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000192     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000193     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000194     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000195     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000196     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000197     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000198     0.000003282      3.50      4.00      1.63
   SRCPARAM L0000199     0.000003282      3.50      4.00      1.63
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0000200     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000201     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000202     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000203     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000204     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000205     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000206     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000207     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000208     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000209     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000210     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000211     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000212     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000213     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000214     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000215     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000216     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000217     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000218     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000219     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000220     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000221     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000222     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000223     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000224     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000225     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000226     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000227     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000228     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000229     0.000003293      3.50      4.00      1.63
   SRCPARAM L0000230     0.000003293      3.50      4.00      1.63
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SRCPARAM L0000231     0.000003293      3.50      4.00      1.63
SRCPARAM L0000232     0.000003293      3.50      4.00      1.63
SRCPARAM L0000233     0.000003293      3.50      4.00      1.63
SRCPARAM L0000234     0.000003293      3.50      4.00      1.63
SRCPARAM L0000235     0.000003293      3.50      4.00      1.63
SRCPARAM L0000236     0.000003293      3.50      4.00      1.63
SRCPARAM L0000237     0.000003293      3.50      4.00      1.63
SRCPARAM L0000238     0.000003293      3.50      4.00      1.63
SRCPARAM L0000239     0.000003293      3.50      4.00      1.63
SRCPARAM L0000240     0.000003293      3.50      4.00      1.63
SRCPARAM L0000241     0.000003293      3.50      4.00      1.63
SRCPARAM L0000242     0.000003293      3.50      4.00      1.63
SRCPARAM L0000243     0.000003293      3.50      4.00      1.63
SRCPARAM L0000244     0.000003293      3.50      4.00      1.63
SRCPARAM L0000245     0.000003293      3.50      4.00      1.63
SRCPARAM L0000246     0.000003293      3.50      4.00      1.63
SRCPARAM L0000247     0.000003293      3.50      4.00      1.63
SRCPARAM L0000248     0.000003293      3.50      4.00      1.63
SRCPARAM L0000249     0.000003293      3.50      4.00      1.63
SRCPARAM L0000250     0.000003293      3.50      4.00      1.63
SRCPARAM L0000251     0.000003293      3.50      4.00      1.63
SRCPARAM L0000252     0.000003293      3.50      4.00      1.63
SRCPARAM L0000253     0.000003293      3.50      4.00      1.63
SRCPARAM L0000254     0.000003293      3.50      4.00      1.63
SRCPARAM L0000255     0.000003293      3.50      4.00      1.63
SRCPARAM L0000256     0.000003293      3.50      4.00      1.63
SRCPARAM L0000257     0.000003293      3.50      4.00      1.63
SRCPARAM L0000258     0.000003293      3.50      4.00      1.63
SRCPARAM L0000259     0.000003293      3.50      4.00      1.63
SRCPARAM L0000260     0.000003293      3.50      4.00      1.63
SRCPARAM L0000261     0.000003293      3.50      4.00      1.63
SRCPARAM L0000262     0.000003293      3.50      4.00      1.63
SRCPARAM L0000263     0.000003293      3.50      4.00      1.63
SRCPARAM L0000264     0.000003293      3.50      4.00      1.63
SRCPARAM L0000265     0.000003293      3.50      4.00      1.63
SRCPARAM L0000266     0.000003293      3.50      4.00      1.63
SRCPARAM L0000267     0.000003293      3.50      4.00      1.63
SRCPARAM L0000268     0.000003293      3.50      4.00      1.63
SRCPARAM L0000269     0.000003293      3.50      4.00      1.63
SRCPARAM L0000270     0.000003293      3.50      4.00      1.63
SRCPARAM L0000271     0.000003293      3.50      4.00      1.63
SRCPARAM L0000272     0.000003293      3.50      4.00      1.63
SRCPARAM L0000273     0.000003293      3.50      4.00      1.63
SRCPARAM L0000274     0.000003293      3.50      4.00      1.63
SRCPARAM L0000275     0.000003293      3.50      4.00      1.63
SRCPARAM L0000276     0.000003293      3.50      4.00      1.63
SRCPARAM L0000277     0.000003293      3.50      4.00      1.63
SRCPARAM L0000278     0.000003293      3.50      4.00      1.63
SRCPARAM L0000279     0.000003293      3.50      4.00      1.63
SRCPARAM L0000280     0.000003293      3.50      4.00      1.63
```

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   SRCPARAM L0000281     0.000003293      3.50      4.00      1.63
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "19630 Iron Lofts.rou"
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE "E:\New MET data\KRAL_V9_ADJU\KRAL_v9.SFC"
   PROFFILE "E:\New MET data\KRAL_V9_ADJU\KRAL_v9.PFL"
   SURFDATA 3171 2012
   UAIRDATA 3190 2012
   PROFBASE 245.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE PERIOD ALL "19630 Iron Lofts.AD\PE00GALL.PLT" 31
   SUMMFILE "19630 Iron Lofts.sum"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
```

```
             ***  NONE  ***


   ********   WARNING MESSAGES   ********
 ME W186     726       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
 ME W187     726       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 **********************************
 *** SETUP Finishes Successfully ***
 **********************************

 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                              ***       17:46:35
                                                                                                                  PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses URBAN Dispersion Algorithm for the SBL for   281 Source(s),
        for Total of    1 Urban Area(s):
   Urban Population =   2189641.0 ;  Urban Roughness Length =  1.000 m
      * Urban Roughness Length of 1.0 Meter Used.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
      * CCVR_Sub - Meteorological data includes CCVR substitutions
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: DPM

 **Model Calculates PERIOD Averages Only

 **This Run Includes:    281 Source(s);       1 Source Group(s); and     448 Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    281 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
```

```
               and:      0 RLINE/RLINEXT source(s)
               and:      0 OPENPIT source(s)
               and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
               and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  16216

 **Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   245.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                             ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.7 MB of RAM.

 **Input Runstream File:          aermod.inp
 **Output Print File:             aermod.out

 **Detailed Error/Message File:   19630 Iron Lofts.err
 **File for Summary of Results:   19630 Iron Lofts.sum
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc           ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                              ***       17:46:35
                                                                                                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                   BASE    RELEASE    INIT.    INIT.   URBAN  EMISSION RATE   AIRCRAFT
   SOURCE      PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ     SOURCE  SCALAR VARY
     ID        CATS.               (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 L0000282         0   0.30960E-06  465857.3 3759536.4   267.7     0.00     4.65     4.65     YES                   NO
 L0000283         0   0.30960E-06  465862.5 3759544.9   267.8     0.00     4.65     4.65     YES                   NO
 L0000284         0   0.30960E-06  465867.6 3759553.5   267.8     0.00     4.65     4.65     YES                   NO
 L0000285         0   0.30960E-06  465872.8 3759562.1   267.7     0.00     4.65     4.65     YES                   NO
 L0000286         0   0.30960E-06  465877.9 3759570.7   267.7     0.00     4.65     4.65     YES                   NO
 L0000287         0   0.30960E-06  465883.0 3759579.2   267.7     0.00     4.65     4.65     YES                   NO
 L0000288         0   0.30960E-06  465888.2 3759587.8   267.8     0.00     4.65     4.65     YES                   NO
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L0000289	0	0.30960E-06	465893.3	3759596.4	267.7	0.00	4.65	4.65	YES	NO
L0000290	0	0.30960E-06	465898.5	3759605.0	267.7	0.00	4.65	4.65	YES	NO
L0000291	0	0.30960E-06	465903.6	3759613.5	267.7	0.00	4.65	4.65	YES	NO
L0000292	0	0.30960E-06	465908.8	3759622.1	267.7	0.00	4.65	4.65	YES	NO
L0000293	0	0.30960E-06	465913.9	3759630.7	267.7	0.00	4.65	4.65	YES	NO
L0000294	0	0.30960E-06	465919.1	3759639.3	267.7	0.00	4.65	4.65	YES	NO
L0000295	0	0.30960E-06	465924.2	3759647.8	267.7	0.00	4.65	4.65	YES	NO
L0000296	0	0.30960E-06	465929.4	3759656.4	267.8	0.00	4.65	4.65	YES	NO
L0000297	0	0.30960E-06	465934.5	3759665.0	267.8	0.00	4.65	4.65	YES	NO
L0000298	0	0.30960E-06	465939.7	3759673.5	267.8	0.00	4.65	4.65	YES	NO
L0000299	0	0.30960E-06	465944.8	3759682.1	267.8	0.00	4.65	4.65	YES	NO
L0000300	0	0.30960E-06	465950.0	3759690.7	267.8	0.00	4.65	4.65	YES	NO
L0000301	0	0.30960E-06	465955.1	3759699.3	267.9	0.00	4.65	4.65	YES	NO
L0000302	0	0.30960E-06	465960.1	3759707.9	267.9	0.00	4.65	4.65	YES	NO
L0000303	0	0.30960E-06	465965.0	3759716.6	267.9	0.00	4.65	4.65	YES	NO
L0000304	0	0.30960E-06	465970.0	3759725.3	267.9	0.00	4.65	4.65	YES	NO
L0000305	0	0.30960E-06	465975.0	3759734.0	267.9	0.00	4.65	4.65	YES	NO
L0000306	0	0.30960E-06	465979.9	3759742.7	267.9	0.00	4.65	4.65	YES	NO
L0000307	0	0.30960E-06	465984.9	3759751.4	268.0	0.00	4.65	4.65	YES	NO
L0000308	0	0.30960E-06	465989.9	3759760.0	268.0	0.00	4.65	4.65	YES	NO
L0000309	0	0.30960E-06	465994.6	3759768.8	268.0	0.00	4.65	4.65	YES	NO
L0000310	0	0.30960E-06	465999.4	3759777.6	268.0	0.00	4.65	4.65	YES	NO
L0000311	0	0.30960E-06	466004.2	3759786.4	268.0	0.00	4.65	4.65	YES	NO
L0000312	0	0.30960E-06	466009.0	3759795.1	268.0	0.00	4.65	4.65	YES	NO
L0000313	0	0.30960E-06	466013.8	3759803.9	267.8	0.00	4.65	4.65	YES	NO
L0000314	0	0.30960E-06	466018.6	3759812.7	267.3	0.00	4.65	4.65	YES	NO
L0000315	0	0.30960E-06	466023.4	3759821.5	266.5	0.00	4.65	4.65	YES	NO
L0000316	0	0.30960E-06	466028.2	3759830.2	265.6	0.00	4.65	4.65	YES	NO
L0000317	0	0.30960E-06	466033.0	3759839.0	264.5	0.00	4.65	4.65	YES	NO
L0000318	0	0.30960E-06	466037.8	3759847.8	263.7	0.00	4.65	4.65	YES	NO
L0000319	0	0.30960E-06	466042.6	3759856.6	263.5	0.00	4.65	4.65	YES	NO
L0000320	0	0.30960E-06	466047.4	3759865.4	264.5	0.00	4.65	4.65	YES	NO
L0000321	0	0.30960E-06	466052.3	3759874.0	265.9	0.00	4.65	4.65	YES	NO

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY	AIRCRAFT
L0000322	0	0.30960E-06	466057.4	3759882.7	267.1	0.00	4.65	4.65	YES		NO
L0000323	0	0.30960E-06	466062.4	3759891.3	267.9	0.00	4.65	4.65	YES		NO
L0000324	0	0.30960E-06	466067.4	3759899.9	268.0	0.00	4.65	4.65	YES		NO
L0000325	0	0.30960E-06	466072.5	3759908.6	267.9	0.00	4.65	4.65	YES		NO

L0000326	0	0.30960E-06	466077.5	3759917.2	267.9	0.00	4.65	4.65	YES		NO
L0000327	0	0.30960E-06	466082.6	3759925.9	267.9	0.00	4.65	4.65	YES		NO
L0000328	0	0.30960E-06	466087.6	3759934.5	267.9	0.00	4.65	4.65	YES		NO
L0000329	0	0.30960E-06	466092.6	3759943.1	267.9	0.00	4.65	4.65	YES		NO
L0000330	0	0.30960E-06	466097.6	3759951.8	268.0	0.00	4.65	4.65	YES		NO
L0000331	0	0.30960E-06	466102.6	3759960.5	267.9	0.00	4.65	4.65	YES		NO
L0000332	0	0.30960E-06	466107.6	3759969.2	267.9	0.00	4.65	4.65	YES		NO
L0000333	0	0.30960E-06	466112.5	3759977.8	267.9	0.00	4.65	4.65	YES		NO
L0000334	0	0.30960E-06	466117.5	3759986.5	267.8	0.00	4.65	4.65	YES		NO
L0000335	0	0.30960E-06	466122.5	3759995.2	267.7	0.00	4.65	4.65	YES		NO
L0000336	0	0.30960E-06	466127.5	3760003.9	267.7	0.00	4.65	4.65	YES		NO
L0000337	0	0.30960E-06	466132.4	3760012.5	267.7	0.00	4.65	4.65	YES		NO
L0000338	0	0.30960E-06	466137.4	3760021.2	267.8	0.00	4.65	4.65	YES		NO
L0000339	0	0.30960E-06	466142.4	3760029.9	267.9	0.00	4.65	4.65	YES		NO
L0000340	0	0.30960E-06	466147.2	3760038.6	267.9	0.00	4.65	4.65	YES		NO
L0000341	0	0.30960E-06	466152.1	3760047.4	267.9	0.00	4.65	4.65	YES		NO
L0000342	0	0.30960E-06	466157.0	3760056.1	267.8	0.00	4.65	4.65	YES		NO
L0000343	0	0.30960E-06	466161.9	3760064.8	267.8	0.00	4.65	4.65	YES		NO
L0000344	0	0.30960E-06	466166.7	3760073.6	267.8	0.00	4.65	4.65	YES		NO
L0000345	0	0.30960E-06	466171.6	3760082.3	267.8	0.00	4.65	4.65	YES		NO
L0000346	0	0.30960E-06	466176.5	3760091.0	267.7	0.00	4.65	4.65	YES		NO
L0000347	0	0.30960E-06	466181.4	3760099.7	267.7	0.00	4.65	4.65	YES		NO
L0000348	0	0.30960E-06	466186.2	3760108.5	267.8	0.00	4.65	4.65	YES		NO
L0000349	0	0.30960E-06	466191.1	3760117.2	267.8	0.00	4.65	4.65	YES		NO
L0000350	0	0.30960E-06	466195.9	3760126.0	267.8	0.00	4.65	4.65	YES		NO
L0000351	0	0.30960E-06	466200.7	3760134.8	267.7	0.00	4.65	4.65	YES		NO
L0000352	0	0.30960E-06	466205.4	3760143.6	267.7	0.00	4.65	4.65	YES		NO
L0000353	0	0.30960E-06	466210.2	3760152.4	267.8	0.00	4.65	4.65	YES		NO
L0000354	0	0.30960E-06	466215.0	3760161.2	267.8	0.00	4.65	4.65	YES		NO
L0000355	0	0.30960E-06	466219.7	3760170.0	267.8	0.00	4.65	4.65	YES		NO
L0000356	0	0.30960E-06	466224.5	3760178.7	267.8	0.00	4.65	4.65	YES		NO
L0000357	0	0.30960E-06	466229.2	3760187.5	267.8	0.00	4.65	4.65	YES		NO
L0000358	0	0.30960E-06	466234.0	3760196.3	267.8	0.00	4.65	4.65	YES		NO
L0000359	0	0.30960E-06	466238.7	3760205.1	267.8	0.00	4.65	4.65	YES		NO
L0000360	0	0.30960E-06	466243.5	3760213.9	267.8	0.00	4.65	4.65	YES		NO
L0000361	0	0.30960E-06	466248.2	3760222.7	267.8	0.00	4.65	4.65	YES		NO

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY	AIRCRAFT
L0000362	0	0.30960E-06	466253.0	3760231.5	267.8	0.00	4.65	4.65	YES		NO

L0000363	0	0.30960E-06	466257.7	3760240.3	267.9	0.00	4.65	4.65	YES	NO
L0000364	0	0.30960E-06	466262.5	3760249.1	267.9	0.00	4.65	4.65	YES	NO
L0000365	0	0.30960E-06	466267.2	3760257.9	267.9	0.00	4.65	4.65	YES	NO
L0000366	0	0.30960E-06	466272.0	3760266.8	267.9	0.00	4.65	4.65	YES	NO
L0000367	0	0.30960E-06	466276.8	3760275.5	267.8	0.00	4.65	4.65	YES	NO
L0000368	0	0.30960E-06	466281.7	3760284.2	267.8	0.00	4.65	4.65	YES	NO
L0000369	0	0.30960E-06	466286.7	3760292.9	267.9	0.00	4.65	4.65	YES	NO
L0000370	0	0.30960E-06	466291.6	3760301.6	268.1	0.00	4.65	4.65	YES	NO
L0000371	0	0.30960E-06	466296.5	3760310.3	268.2	0.00	4.65	4.65	YES	NO
L0000372	0	0.30960E-06	466301.5	3760319.0	268.3	0.00	4.65	4.65	YES	NO
L0000373	0	0.30960E-06	466306.4	3760327.7	268.3	0.00	4.65	4.65	YES	NO
L0000374	0	0.30960E-06	466311.7	3760336.2	268.4	0.00	4.65	4.65	YES	NO
L0000375	0	0.30960E-06	466317.1	3760344.6	268.5	0.00	4.65	4.65	YES	NO
L0000376	0	0.30960E-06	466322.5	3760353.0	268.6	0.00	4.65	4.65	YES	NO
L0000377	0	0.30960E-06	466327.9	3760361.4	268.7	0.00	4.65	4.65	YES	NO
L0000378	0	0.30960E-06	466333.3	3760369.8	268.8	0.00	4.65	4.65	YES	NO
L0000379	0	0.30960E-06	466338.7	3760378.2	268.9	0.00	4.65	4.65	YES	NO
L0000380	0	0.30960E-06	466344.4	3760386.5	269.0	0.00	4.65	4.65	YES	NO
L0000381	0	0.30960E-06	466350.2	3760394.6	268.9	0.00	4.65	4.65	YES	NO
L0000382	0	0.30960E-06	466356.1	3760402.7	268.8	0.00	4.65	4.65	YES	NO
L0000383	0	0.30960E-06	466361.9	3760410.8	268.8	0.00	4.65	4.65	YES	NO
L0000384	0	0.30960E-06	466367.9	3760418.8	268.8	0.00	4.65	4.65	YES	NO
L0000385	0	0.30960E-06	466374.0	3760426.7	268.8	0.00	4.65	4.65	YES	NO
L0000386	0	0.30960E-06	466380.1	3760434.7	268.8	0.00	4.65	4.65	YES	NO
L0000387	0	0.30960E-06	466386.5	3760442.4	268.8	0.00	4.65	4.65	YES	NO
L0000388	0	0.30960E-06	466393.1	3760449.9	268.8	0.00	4.65	4.65	YES	NO
L0000389	0	0.30960E-06	466399.7	3760457.4	268.8	0.00	4.65	4.65	YES	NO
L0000390	0	0.30960E-06	466406.3	3760464.9	268.8	0.00	4.65	4.65	YES	NO
L0000391	0	0.30960E-06	466412.9	3760472.4	268.9	0.00	4.65	4.65	YES	NO
L0000392	0	0.30960E-06	466419.5	3760479.9	268.9	0.00	4.65	4.65	YES	NO
L0000393	0	0.30960E-06	466426.1	3760487.4	268.9	0.00	4.65	4.65	YES	NO
L0000394	0	0.30960E-06	466432.7	3760494.9	268.9	0.00	4.65	4.65	YES	NO
L0000395	0	0.30960E-06	466439.3	3760502.4	269.0	0.00	4.65	4.65	YES	NO
L0000115	0	0.32820E-05	465779.8	3759942.3	269.9	3.50	4.00	1.63	YES	NO
L0000116	0	0.32820E-05	465784.7	3759949.4	270.2	3.50	4.00	1.63	YES	NO
L0000117	0	0.32820E-05	465789.6	3759956.4	269.3	3.50	4.00	1.63	YES	NO
L0000118	0	0.32820E-05	465794.6	3759963.5	267.8	3.50	4.00	1.63	YES	NO
L0000119	0	0.32820E-05	465799.6	3759970.4	266.5	3.50	4.00	1.63	YES	NO
L0000120	0	0.32820E-05	465805.4	3759976.7	265.7	3.50	4.00	1.63	YES	NO

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY	AIRCRAFT

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L0000121         0   0.32820E-05  465811.3 3759983.0   265.2     3.50     4.00     1.63     YES                   NO
L0000122         0   0.32820E-05  465817.2 3759989.3   265.9     3.50     4.00     1.63     YES                   NO
L0000123         0   0.32820E-05  465823.2 3759995.4   267.0     3.50     4.00     1.63     YES                   NO
L0000124         0   0.32820E-05  465829.3 3760001.4   268.3     3.50     4.00     1.63     YES                   NO
L0000125         0   0.32820E-05  465835.5 3760007.4   269.8     3.50     4.00     1.63     YES                   NO
L0000126         0   0.32820E-05  465841.7 3760013.4   270.5     3.50     4.00     1.63     YES                   NO
L0000127         0   0.32820E-05  465847.8 3760019.3   270.3     3.50     4.00     1.63     YES                   NO
L0000128         0   0.32820E-05  465854.0 3760025.3   270.2     3.50     4.00     1.63     YES                   NO
L0000129         0   0.32820E-05  465860.2 3760031.2   270.4     3.50     4.00     1.63     YES                   NO
L0000130         0   0.32820E-05  465866.4 3760037.2   270.4     3.50     4.00     1.63     YES                   NO
L0000131         0   0.32820E-05  465872.6 3760043.1   270.5     3.50     4.00     1.63     YES                   NO
L0000132         0   0.32820E-05  465878.8 3760049.0   270.1     3.50     4.00     1.63     YES                   NO
L0000133         0   0.32820E-05  465885.0 3760055.1   269.3     3.50     4.00     1.63     YES                   NO
L0000134         0   0.32820E-05  465891.0 3760061.2   268.3     3.50     4.00     1.63     YES                   NO
L0000135         0   0.32820E-05  465896.9 3760067.4   267.4     3.50     4.00     1.63     YES                   NO
L0000136         0   0.32820E-05  465902.9 3760073.6   266.8     3.50     4.00     1.63     YES                   NO
L0000137         0   0.32820E-05  465908.9 3760079.7   266.8     3.50     4.00     1.63     YES                   NO
L0000138         0   0.32820E-05  465915.2 3760085.6   267.5     3.50     4.00     1.63     YES                   NO
L0000139         0   0.32820E-05  465921.4 3760091.5   268.4     3.50     4.00     1.63     YES                   NO
L0000140         0   0.32820E-05  465927.6 3760097.4   269.4     3.50     4.00     1.63     YES                   NO
L0000141         0   0.32820E-05  465933.9 3760103.4   270.4     3.50     4.00     1.63     YES                   NO
L0000142         0   0.32820E-05  465940.1 3760109.3   271.1     3.50     4.00     1.63     YES                   NO
L0000143         0   0.32820E-05  465946.1 3760115.4   270.7     3.50     4.00     1.63     YES                   NO
L0000144         0   0.32820E-05  465952.2 3760121.5   270.6     3.50     4.00     1.63     YES                   NO
L0000145         0   0.32820E-05  465958.3 3760127.5   270.8     3.50     4.00     1.63     YES                   NO
L0000146         0   0.32820E-05  465964.4 3760133.6   271.2     3.50     4.00     1.63     YES                   NO
L0000147         0   0.32820E-05  465970.2 3760139.9   271.4     3.50     4.00     1.63     YES                   NO
L0000148         0   0.32820E-05  465976.0 3760146.2   271.2     3.50     4.00     1.63     YES                   NO
L0000149         0   0.32820E-05  465981.8 3760152.5   271.2     3.50     4.00     1.63     YES                   NO
L0000150         0   0.32820E-05  465987.6 3760158.9   271.4     3.50     4.00     1.63     YES                   NO
L0000151         0   0.32820E-05  465993.5 3760165.1   271.6     3.50     4.00     1.63     YES                   NO
L0000152         0   0.32820E-05  465999.6 3760171.2   271.7     3.50     4.00     1.63     YES                   NO
L0000153         0   0.32820E-05  466005.7 3760177.3   271.7     3.50     4.00     1.63     YES                   NO
L0000154         0   0.32820E-05  466011.8 3760183.3   271.8     3.50     4.00     1.63     YES                   NO
L0000155         0   0.32820E-05  466017.8 3760189.4   271.8     3.50     4.00     1.63     YES                   NO
L0000156         0   0.32820E-05  466023.9 3760195.5   271.9     3.50     4.00     1.63     YES                   NO
L0000157         0   0.32820E-05  466029.9 3760201.6   272.0     3.50     4.00     1.63     YES                   NO
L0000158         0   0.32820E-05  466035.9 3760207.8   272.0     3.50     4.00     1.63     YES                   NO
L0000159         0   0.32820E-05  466041.9 3760214.0   272.1     3.50     4.00     1.63     YES                   NO
L0000160         0   0.32820E-05  466047.8 3760220.2   272.0     3.50     4.00     1.63     YES                   NO
*** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
*** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                              ***       17:46:35
                                                                                                                 PAGE   6
*** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                *** VOLUME SOURCE DATA ***
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SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY	AIRCRAFT
L0000161	0	0.32820E-05	466053.6	3760226.5	272.1	3.50	4.00	1.63	YES		NO
L0000162	0	0.32820E-05	466059.3	3760233.0	272.2	3.50	4.00	1.63	YES		NO
L0000163	0	0.32820E-05	466065.0	3760239.4	272.2	3.50	4.00	1.63	YES		NO
L0000164	0	0.32820E-05	466070.7	3760245.8	272.2	3.50	4.00	1.63	YES		NO
L0000165	0	0.32820E-05	466076.7	3760252.0	272.2	3.50	4.00	1.63	YES		NO
L0000166	0	0.32820E-05	466082.8	3760258.0	272.3	3.50	4.00	1.63	YES		NO
L0000167	0	0.32820E-05	466089.0	3760263.9	272.5	3.50	4.00	1.63	YES		NO
L0000168	0	0.32820E-05	466095.2	3760269.9	272.4	3.50	4.00	1.63	YES		NO
L0000169	0	0.32820E-05	466100.9	3760276.3	272.2	3.50	4.00	1.63	YES		NO
L0000170	0	0.32820E-05	466106.5	3760282.8	272.2	3.50	4.00	1.63	YES		NO
L0000171	0	0.32820E-05	466112.1	3760289.3	272.5	3.50	4.00	1.63	YES		NO
L0000172	0	0.32820E-05	466117.3	3760296.2	272.6	3.50	4.00	1.63	YES		NO
L0000173	0	0.32820E-05	466122.1	3760303.3	272.4	3.50	4.00	1.63	YES		NO
L0000174	0	0.32820E-05	466126.9	3760310.4	272.2	3.50	4.00	1.63	YES		NO
L0000175	0	0.32820E-05	466131.7	3760317.5	272.3	3.50	4.00	1.63	YES		NO
L0000176	0	0.32820E-05	466136.5	3760324.7	272.5	3.50	4.00	1.63	YES		NO
L0000177	0	0.32820E-05	466141.4	3760331.7	272.2	3.50	4.00	1.63	YES		NO
L0000178	0	0.32820E-05	466146.4	3760338.7	271.8	3.50	4.00	1.63	YES		NO
L0000179	0	0.32820E-05	466151.4	3760345.7	270.8	3.50	4.00	1.63	YES		NO
L0000180	0	0.32820E-05	466156.2	3760352.8	270.0	3.50	4.00	1.63	YES		NO
L0000181	0	0.32820E-05	466160.6	3760360.2	268.7	3.50	4.00	1.63	YES		NO
L0000182	0	0.32820E-05	466165.1	3760367.5	267.5	3.50	4.00	1.63	YES		NO
L0000183	0	0.32820E-05	466169.5	3760374.9	266.6	3.50	4.00	1.63	YES		NO
L0000184	0	0.32820E-05	466173.9	3760382.2	265.9	3.50	4.00	1.63	YES		NO
L0000185	0	0.32820E-05	466178.3	3760389.7	265.8	3.50	4.00	1.63	YES		NO
L0000186	0	0.32820E-05	466182.6	3760397.1	265.8	3.50	4.00	1.63	YES		NO
L0000187	0	0.32820E-05	466186.9	3760404.5	265.9	3.50	4.00	1.63	YES		NO
L0000188	0	0.32820E-05	466191.2	3760412.0	265.9	3.50	4.00	1.63	YES		NO
L0000189	0	0.32820E-05	466195.4	3760419.4	265.9	3.50	4.00	1.63	YES		NO
L0000190	0	0.32820E-05	466199.6	3760426.9	266.0	3.50	4.00	1.63	YES		NO
L0000191	0	0.32820E-05	466203.8	3760434.4	266.0	3.50	4.00	1.63	YES		NO
L0000192	0	0.32820E-05	466208.1	3760441.9	266.0	3.50	4.00	1.63	YES		NO
L0000193	0	0.32820E-05	466212.6	3760449.2	266.3	3.50	4.00	1.63	YES		NO
L0000194	0	0.32820E-05	466217.2	3760456.5	266.9	3.50	4.00	1.63	YES		NO
L0000195	0	0.32820E-05	466221.5	3760463.8	267.7	3.50	4.00	1.63	YES		NO
L0000196	0	0.32820E-05	466225.7	3760471.4	268.4	3.50	4.00	1.63	YES		NO
L0000197	0	0.32820E-05	466229.8	3760478.9	269.1	3.50	4.00	1.63	YES		NO
L0000198	0	0.32820E-05	466233.9	3760486.4	269.8	3.50	4.00	1.63	YES		NO
L0000199	0	0.32820E-05	466238.0	3760494.0	270.4	3.50	4.00	1.63	YES		NO
L0000200	0	0.32930E-05	465774.6	3759970.0	267.1	3.50	4.00	1.63	YES		NO

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY	AIRCRAFT
L0000201	0	0.32930E-05	465780.1	3759976.6	266.3	3.50	4.00	1.63	YES		NO
L0000202	0	0.32930E-05	465785.6	3759983.1	265.4	3.50	4.00	1.63	YES		NO
L0000203	0	0.32930E-05	465791.1	3759989.8	265.1	3.50	4.00	1.63	YES		NO
L0000204	0	0.32930E-05	465796.6	3759996.3	265.3	3.50	4.00	1.63	YES		NO
L0000205	0	0.32930E-05	465802.1	3760002.9	265.9	3.50	4.00	1.63	YES		NO
L0000206	0	0.32930E-05	465807.6	3760009.5	266.9	3.50	4.00	1.63	YES		NO
L0000207	0	0.32930E-05	465813.1	3760016.1	268.0	3.50	4.00	1.63	YES		NO
L0000208	0	0.32930E-05	465818.7	3760022.7	268.1	3.50	4.00	1.63	YES		NO
L0000209	0	0.32930E-05	465825.0	3760028.6	268.4	3.50	4.00	1.63	YES		NO
L0000210	0	0.32930E-05	465831.3	3760034.4	268.7	3.50	4.00	1.63	YES		NO
L0000211	0	0.32930E-05	465837.5	3760040.3	269.0	3.50	4.00	1.63	YES		NO
L0000212	0	0.32930E-05	465843.8	3760046.2	269.2	3.50	4.00	1.63	YES		NO
L0000213	0	0.32930E-05	465850.1	3760052.0	269.1	3.50	4.00	1.63	YES		NO
L0000214	0	0.32930E-05	465856.4	3760057.9	268.9	3.50	4.00	1.63	YES		NO
L0000215	0	0.32930E-05	465862.6	3760063.8	268.6	3.50	4.00	1.63	YES		NO
L0000216	0	0.32930E-05	465868.8	3760069.8	267.8	3.50	4.00	1.63	YES		NO
L0000217	0	0.32930E-05	465874.8	3760075.9	267.0	3.50	4.00	1.63	YES		NO
L0000218	0	0.32930E-05	465880.8	3760082.0	266.7	3.50	4.00	1.63	YES		NO
L0000219	0	0.32930E-05	465886.9	3760088.1	266.4	3.50	4.00	1.63	YES		NO
L0000220	0	0.32930E-05	465892.9	3760094.2	266.6	3.50	4.00	1.63	YES		NO
L0000221	0	0.32930E-05	465898.9	3760100.4	267.3	3.50	4.00	1.63	YES		NO
L0000222	0	0.32930E-05	465905.0	3760106.5	268.5	3.50	4.00	1.63	YES		NO
L0000223	0	0.32930E-05	465911.0	3760112.6	269.3	3.50	4.00	1.63	YES		NO
L0000224	0	0.32930E-05	465917.0	3760118.7	269.4	3.50	4.00	1.63	YES		NO
L0000225	0	0.32930E-05	465923.0	3760124.9	269.5	3.50	4.00	1.63	YES		NO
L0000226	0	0.32930E-05	465929.0	3760131.0	269.8	3.50	4.00	1.63	YES		NO
L0000227	0	0.32930E-05	465935.0	3760137.1	270.2	3.50	4.00	1.63	YES		NO
L0000228	0	0.32930E-05	465941.0	3760143.3	270.3	3.50	4.00	1.63	YES		NO
L0000229	0	0.32930E-05	465947.0	3760149.4	270.2	3.50	4.00	1.63	YES		NO
L0000230	0	0.32930E-05	465953.0	3760155.6	270.2	3.50	4.00	1.63	YES		NO
L0000231	0	0.32930E-05	465959.0	3760161.8	270.4	3.50	4.00	1.63	YES		NO
L0000232	0	0.32930E-05	465965.0	3760167.9	270.9	3.50	4.00	1.63	YES		NO
L0000233	0	0.32930E-05	465970.9	3760174.1	270.7	3.50	4.00	1.63	YES		NO
L0000234	0	0.32930E-05	465976.9	3760180.3	270.5	3.50	4.00	1.63	YES		NO
L0000235	0	0.32930E-05	465982.8	3760186.6	270.6	3.50	4.00	1.63	YES		NO
L0000236	0	0.32930E-05	465988.7	3760192.8	270.9	3.50	4.00	1.63	YES		NO
L0000237	0	0.32930E-05	465994.6	3760199.0	271.0	3.50	4.00	1.63	YES		NO
L0000238	0	0.32930E-05	466000.5	3760205.3	270.8	3.50	4.00	1.63	YES		NO
L0000239	0	0.32930E-05	466006.4	3760211.5	270.7	3.50	4.00	1.63	YES		NO
L0000240	0	0.32930E-05	466012.3	3760217.8	270.8	3.50	4.00	1.63	YES		NO

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY	AIRCRAFT
L0000241	0	0.32930E-05	466018.1	3760224.1	271.0	3.50	4.00	1.63	YES		NO
L0000242	0	0.32930E-05	466024.0	3760230.4	271.0	3.50	4.00	1.63	YES		NO
L0000243	0	0.32930E-05	466029.9	3760236.6	270.7	3.50	4.00	1.63	YES		NO
L0000244	0	0.32930E-05	466035.7	3760242.9	270.6	3.50	4.00	1.63	YES		NO
L0000245	0	0.32930E-05	466041.5	3760249.3	270.8	3.50	4.00	1.63	YES		NO
L0000246	0	0.32930E-05	466047.2	3760255.7	270.8	3.50	4.00	1.63	YES		NO
L0000247	0	0.32930E-05	466053.0	3760262.1	270.8	3.50	4.00	1.63	YES		NO
L0000248	0	0.32930E-05	466058.7	3760268.5	270.6	3.50	4.00	1.63	YES		NO
L0000249	0	0.32930E-05	466064.2	3760275.1	270.6	3.50	4.00	1.63	YES		NO
L0000250	0	0.32930E-05	466069.8	3760281.6	270.7	3.50	4.00	1.63	YES		NO
L0000251	0	0.32930E-05	466075.3	3760288.2	270.7	3.50	4.00	1.63	YES		NO
L0000252	0	0.32930E-05	466080.6	3760294.9	270.6	3.50	4.00	1.63	YES		NO
L0000253	0	0.32930E-05	466085.6	3760301.9	270.4	3.50	4.00	1.63	YES		NO
L0000254	0	0.32930E-05	466090.6	3760308.9	270.5	3.50	4.00	1.63	YES		NO
L0000255	0	0.32930E-05	466095.6	3760315.9	270.6	3.50	4.00	1.63	YES		NO
L0000256	0	0.32930E-05	466100.8	3760322.7	270.6	3.50	4.00	1.63	YES		NO
L0000257	0	0.32930E-05	466106.0	3760329.6	270.4	3.50	4.00	1.63	YES		NO
L0000258	0	0.32930E-05	466111.2	3760336.4	270.4	3.50	4.00	1.63	YES		NO
L0000259	0	0.32930E-05	466116.2	3760343.4	270.5	3.50	4.00	1.63	YES		NO
L0000260	0	0.32930E-05	466120.7	3760350.7	270.5	3.50	4.00	1.63	YES		NO
L0000261	0	0.32930E-05	466125.2	3760358.0	269.8	3.50	4.00	1.63	YES		NO
L0000262	0	0.32930E-05	466129.6	3760365.4	268.8	3.50	4.00	1.63	YES		NO
L0000263	0	0.32930E-05	466134.2	3760372.7	267.8	3.50	4.00	1.63	YES		NO
L0000264	0	0.32930E-05	466138.7	3760379.9	266.7	3.50	4.00	1.63	YES		NO
L0000265	0	0.32930E-05	466143.3	3760387.2	266.0	3.50	4.00	1.63	YES		NO
L0000266	0	0.32930E-05	466147.9	3760394.5	265.9	3.50	4.00	1.63	YES		NO
L0000267	0	0.32930E-05	466152.5	3760401.7	265.7	3.50	4.00	1.63	YES		NO
L0000268	0	0.32930E-05	466157.1	3760409.0	265.7	3.50	4.00	1.63	YES		NO
L0000269	0	0.32930E-05	466161.8	3760416.2	265.6	3.50	4.00	1.63	YES		NO
L0000270	0	0.32930E-05	466166.5	3760423.4	265.7	3.50	4.00	1.63	YES		NO
L0000271	0	0.32930E-05	466171.1	3760430.6	265.7	3.50	4.00	1.63	YES		NO
L0000272	0	0.32930E-05	466175.8	3760437.8	265.7	3.50	4.00	1.63	YES		NO
L0000273	0	0.32930E-05	466180.5	3760445.0	265.8	3.50	4.00	1.63	YES		NO
L0000274	0	0.32930E-05	466184.9	3760452.4	265.8	3.50	4.00	1.63	YES		NO
L0000275	0	0.32930E-05	466189.3	3760459.7	266.0	3.50	4.00	1.63	YES		NO
L0000276	0	0.32930E-05	466193.7	3760467.1	266.2	3.50	4.00	1.63	YES		NO
L0000277	0	0.32930E-05	466198.1	3760474.5	266.5	3.50	4.00	1.63	YES		NO
L0000278	0	0.32930E-05	466202.5	3760481.9	267.2	3.50	4.00	1.63	YES		NO
L0000279	0	0.32930E-05	466206.9	3760489.3	268.0	3.50	4.00	1.63	YES		NO

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 L0000280         0   0.32930E-05  466211.0 3760496.8   268.9     3.50     4.00     1.63     YES                    NO
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                               ***       17:46:35
                                                                                                                    PAGE   9

 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                              *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.    INIT.   URBAN  EMISSION RATE   AIRCRAFT
  SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ     SOURCE  SCALAR VARY
    ID         CATS.                (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)             BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 L0000281         0   0.32930E-05  466215.2 3760504.4   270.0     3.50     4.00     1.63     YES                    NO
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                               ***       17:46:35
                                                                                                                    PAGE  10

 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                         *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID                                          SOURCE IDs
 -----------                                          ----------

  ALL        L0000282    , L0000283    , L0000284    , L0000285    , L0000286    , L0000287    , L0000288    , L0000289    ,
             L0000290    , L0000291    , L0000292    , L0000293    , L0000294    , L0000295    , L0000296    , L0000297    ,
             L0000298    , L0000299    , L0000300    , L0000301    , L0000302    , L0000303    , L0000304    , L0000305    ,
             L0000306    , L0000307    , L0000308    , L0000309    , L0000310    , L0000311    , L0000312    , L0000313    ,
             L0000314    , L0000315    , L0000316    , L0000317    , L0000318    , L0000319    , L0000320    , L0000321    ,
             L0000322    , L0000323    , L0000324    , L0000325    , L0000326    , L0000327    , L0000328    , L0000329    ,
             L0000330    , L0000331    , L0000332    , L0000333    , L0000334    , L0000335    , L0000336    , L0000337    ,
             L0000338    , L0000339    , L0000340    , L0000341    , L0000342    , L0000343    , L0000344    , L0000345    ,
             L0000346    , L0000347    , L0000348    , L0000349    , L0000350    , L0000351    , L0000352    , L0000353    ,
             L0000354    , L0000355    , L0000356    , L0000357    , L0000358    , L0000359    , L0000360    , L0000361    ,
             L0000362    , L0000363    , L0000364    , L0000365    , L0000366    , L0000367    , L0000368    , L0000369    ,
             L0000370    , L0000371    , L0000372    , L0000373    , L0000374    , L0000375    , L0000376    , L0000377    ,
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID — SOURCE IDs

L0000378 , L0000379 , L0000380 , L0000381 , L0000382 , L0000383 , L0000384 , L0000385 ,
L0000386 , L0000387 , L0000388 , L0000389 , L0000390 , L0000391 , L0000392 , L0000393 ,
L0000394 , L0000395 , L0000115 , L0000116 , L0000117 , L0000118 , L0000119 , L0000120 ,
L0000121 , L0000122 , L0000123 , L0000124 , L0000125 , L0000126 , L0000127 , L0000128 ,
L0000129 , L0000130 , L0000131 , L0000132 , L0000133 , L0000134 , L0000135 , L0000136 ,
L0000137 , L0000138 , L0000139 , L0000140 , L0000141 , L0000142 , L0000143 , L0000144 ,
L0000145 , L0000146 , L0000147 , L0000148 , L0000149 , L0000150 , L0000151 , L0000152 ,
L0000153 , L0000154 , L0000155 , L0000156 , L0000157 , L0000158 , L0000159 , L0000160 ,
L0000161 , L0000162 , L0000163 , L0000164 , L0000165 , L0000166 , L0000167 , L0000168 ,
L0000169 , L0000170 , L0000171 , L0000172 , L0000173 , L0000174 , L0000175 , L0000176 ,
L0000177 , L0000178 , L0000179 , L0000180 , L0000181 , L0000182 , L0000183 , L0000184 ,
L0000185 , L0000186 , L0000187 , L0000188 , L0000189 , L0000190 , L0000191 , L0000192 ,
L0000193 , L0000194 , L0000195 , L0000196 , L0000197 , L0000198 , L0000199 , L0000200 ,
L0000201 , L0000202 , L0000203 , L0000204 , L0000205 , L0000206 , L0000207 , L0000208 ,
L0000209 , L0000210 , L0000211 , L0000212 , L0000213 , L0000214 , L0000215 , L0000216 ,
L0000217 , L0000218 , L0000219 , L0000220 , L0000221 , L0000222 , L0000223 , L0000224 ,
L0000225 , L0000226 , L0000227 , L0000228 , L0000229 , L0000230 , L0000231 , L0000232 ,
L0000233 , L0000234 , L0000235 , L0000236 , L0000237 , L0000238 , L0000239 , L0000240 ,
L0000241 , L0000242 , L0000243 , L0000244 , L0000245 , L0000246 , L0000247 , L0000248 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	2189641.	L0000282 , L0000283 , L0000284 , L0000285 , L0000286 , L0000287 , L0000288 , L0000289 ,
		L0000290 , L0000291 , L0000292 , L0000293 , L0000294 , L0000295 , L0000296 , L0000297 ,
		L0000298 , L0000299 , L0000300 , L0000301 , L0000302 , L0000303 , L0000304 , L0000305 ,
		L0000306 , L0000307 , L0000308 , L0000309 , L0000310 , L0000311 , L0000312 , L0000313 ,
		L0000314 , L0000315 , L0000316 , L0000317 , L0000318 , L0000319 , L0000320 , L0000321 ,
		L0000322 , L0000323 , L0000324 , L0000325 , L0000326 , L0000327 , L0000328 , L0000329 ,
		L0000330 , L0000331 , L0000332 , L0000333 , L0000334 , L0000335 , L0000336 , L0000337 ,
		L0000338 , L0000339 , L0000340 , L0000341 , L0000342 , L0000343 , L0000344 , L0000345 ,
		L0000346 , L0000347 , L0000348 , L0000349 , L0000350 , L0000351 , L0000352 , L0000353 ,
		L0000354 , L0000355 , L0000356 , L0000357 , L0000358 , L0000359 , L0000360 , L0000361 ,
		L0000362 , L0000363 , L0000364 , L0000365 , L0000366 , L0000367 , L0000368 , L0000369 ,
		L0000370 , L0000371 , L0000372 , L0000373 , L0000374 , L0000375 , L0000376 , L0000377 ,
		L0000378 , L0000379 , L0000380 , L0000381 , L0000382 , L0000383 , L0000384 , L0000385 ,
		L0000386 , L0000387 , L0000388 , L0000389 , L0000390 , L0000391 , L0000392 , L0000393 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

L0000394 , L0000395 , L0000115 , L0000116 , L0000117 , L0000118 , L0000119 , L0000120 ,

L0000121 , L0000122 , L0000123 , L0000124 , L0000125 , L0000126 , L0000127 , L0000128 ,

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L0000145 , L0000146 , L0000147 , L0000148 , L0000149 , L0000150 , L0000151 , L0000152 ,

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L0000169 , L0000170 , L0000171 , L0000172 , L0000173 , L0000174 , L0000175 , L0000176 ,

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L0000265 , L0000266 , L0000267 , L0000268 , L0000269 , L0000270 , L0000271 , L0000272 ,

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            L0000273    , L0000274    , L0000275    , L0000276    , L0000277    , L0000278    , L0000279    , L0000280    ,

            L0000281    ,
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                               ***       17:46:35
                                                                                                                   PAGE  14
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                     *** GRIDDED RECEPTOR NETWORK SUMMARY ***

                                  *** NETWORK ID: UCART1   ;  NETWORK TYPE: GRIDCART ***

                                        *** X-COORDINATES OF GRID ***
                                                  (METERS)

      465884.5,  465909.5,  465934.5,  465959.5,  465984.5,  466009.5,  466034.5,  466059.5,  466084.5,  466109.5,
      466134.5,  466159.5,  466184.5,  466209.5,  466234.5,  466259.5,  466284.5,  466309.5,  466334.5,  466359.5,
      466384.5,

                                        *** Y-COORDINATES OF GRID ***
                                                  (METERS)

     3759882.3, 3759907.3, 3759932.3, 3759957.3, 3759982.3, 3760007.3, 3760032.3, 3760057.3, 3760082.3, 3760107.3,
     3760132.3, 3760157.3, 3760182.3, 3760207.3, 3760232.3, 3760257.3, 3760282.3, 3760307.3, 3760332.3, 3760357.3,
     3760382.3,
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                               ***       17:46:35
                                                                                                                   PAGE  15
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                  *** NETWORK ID: UCART1   ;  NETWORK TYPE: GRIDCART ***

                                        * ELEVATION HEIGHTS IN METERS *

    Y-COORD  |                                          X-COORD (METERS)
    (METERS) |    465884.45    465909.45    465934.45    465959.45    465984.45    466009.45    466034.45    466059.45    466084.45
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  3760382.33 |       262.60       262.70       262.90       263.20       263.40       263.80       264.00       264.20       264.60
  3760357.33 |       262.70       262.80       263.00       263.20       263.50       263.80       264.10       264.30       265.50
  3760332.33 |       262.90       263.00       263.10       263.30       263.50       263.80       264.10       265.00       267.60
  3760307.33 |       263.00       263.20       263.40       263.40       263.60       263.90       264.70       266.90       269.80
  3760282.33 |       263.00       263.30       263.60       263.70       263.80       264.50       266.50       269.40       271.60
  3760257.33 |       263.20       263.50       263.70       264.00       264.50       266.40       269.40       271.40       272.30
  3760232.33 |       263.40       263.70       263.90       264.30       266.40       269.50       271.30       272.30       271.80
  3760207.33 |       263.70       264.00       264.30       266.30       269.20       271.10       272.00       271.80       269.30
  3760182.33 |       263.80       264.30       266.00       268.80       270.90       271.70       271.40       269.60       267.20
  3760157.33 |       264.10       265.50       268.30       270.70       271.30       271.00       269.40       267.20       266.10
  3760132.33 |       264.60       267.60       270.30       271.00       270.40       269.00       267.00       265.90       266.10
```

3760107.33	265.30	269.30	270.90	269.70	267.80	266.40	265.80	265.80	266.00
3760082.33	266.70	267.00	267.60	266.80	266.30	265.90	265.80	266.00	266.20
3760057.33	269.10	266.70	265.80	265.60	265.80	265.80	266.00	266.20	266.40
3760032.33	268.70	266.10	265.20	265.30	265.70	265.90	266.20	266.40	266.60
3760007.33	266.30	265.20	265.20	265.40	265.80	266.00	266.30	266.60	266.90
3759982.33	264.90	265.00	265.30	265.70	266.00	266.20	266.50	266.80	267.20
3759957.33	263.70	264.60	265.40	265.90	266.20	266.40	266.60	267.00	267.60
3759932.33	262.80	262.50	263.40	264.80	266.00	266.50	266.90	267.40	267.90
3759907.33	263.70	263.00	262.40	262.70	264.00	265.60	266.80	267.70	268.00
3759882.33	265.20	264.90	263.50	262.30	262.40	263.70	265.50	267.20	267.90

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	466109.45	466134.45	466159.45	466184.45	466209.45	466234.45	466259.45	466284.45	466309.45
3760382.33	265.60	266.30	266.10	265.90	266.20	266.80	267.50	267.90	268.30
3760357.33	268.30	270.20	269.10	267.00	266.40	267.00	267.60	267.90	268.30
3760332.33	270.50	272.00	270.30	267.40	266.60	267.10	267.50	267.80	268.40
3760307.33	271.90	271.90	269.30	267.10	266.80	267.10	267.30	267.80	268.50
3760282.33	272.20	270.40	267.60	266.60	267.00	267.10	267.30	267.90	268.60
3760257.33	271.20	268.10	266.50	266.70	267.00	267.20	267.70	268.30	268.70
3760232.33	268.70	266.60	266.60	267.00	267.00	267.30	268.00	268.50	268.70
3760207.33	266.90	266.40	266.70	266.90	267.10	267.60	268.20	268.50	268.70
3760182.33	266.30	266.70	266.90	266.90	267.30	268.00	268.30	268.50	268.70
3760157.33	266.40	266.90	267.00	267.10	267.60	268.20	268.40	268.50	268.80
3760132.33	266.60	266.90	267.00	267.40	268.00	268.30	268.50	268.70	268.80
3760107.33	266.40	266.70	267.10	267.70	268.20	268.30	268.70	268.90	268.90
3760082.33	266.50	266.90	267.50	268.00	268.20	268.40	268.70	268.90	269.00
3760057.33	266.60	267.30	267.90	268.20	268.20	268.30	268.60	268.80	269.00
3760032.33	266.90	267.60	268.10	268.20	268.10	268.30	268.60	268.90	269.10
3760007.33	267.30	267.80	268.20	268.20	268.20	268.40	268.70	269.00	269.20
3759982.33	267.70	268.10	268.20	268.20	268.30	268.50	268.90	269.20	269.40
3759957.33	268.10	268.20	268.30	268.40	268.50	268.70	269.10	269.40	269.70
3759932.33	268.10	268.30	268.40	268.60	268.70	268.90	269.30	269.70	269.90
3759907.33	268.10	268.40	268.70	268.80	268.90	269.10	269.50	269.90	270.20
3759882.33	268.20	268.60	269.00	269.00	269.00	269.30	269.70	270.10	270.40

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)		
	466334.45	466359.45	466384.45
3760382.33	268.90	269.10	269.00
3760357.33	268.80	268.90	268.90
3760332.33	268.80	268.90	269.00
3760307.33	268.80	269.00	269.20
3760282.33	268.80	269.10	269.30
3760257.33	268.80	269.20	269.50
3760232.33	269.00	269.30	269.50
3760207.33	269.00	269.30	269.60
3760182.33	269.00	269.30	269.70
3760157.33	269.00	269.30	269.60
3760132.33	269.00	269.30	269.50
3760107.33	269.00	269.10	269.40
3760082.33	269.20	269.40	269.60
3760057.33	269.30	269.60	269.80
3760032.33	269.40	269.70	270.10
3760007.33	269.50	269.90	270.20
3759982.33	269.70	270.00	270.50
3759957.33	269.90	270.30	270.60
3759932.33	270.20	270.60	270.90
3759907.33	270.50	270.90	271.20
3759882.33	270.80	271.10	271.50

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	465884.45	465909.45	465934.45	465959.45	465984.45	466009.45	466034.45	466059.45	466084.45
3760382.33	262.60	262.70	262.90	263.20	263.40	263.80	264.00	264.20	272.20
3760357.33	262.70	262.80	263.00	263.20	263.50	263.80	264.10	272.20	272.80
3760332.33	262.90	263.00	263.10	263.30	263.50	263.80	272.00	272.80	272.20
3760307.33	263.00	263.20	263.40	263.40	263.60	271.90	272.70	272.70	272.00
3760282.33	263.00	263.30	263.60	263.70	271.80	272.60	271.90	271.90	271.60
3760257.33	263.20	263.50	263.70	270.90	271.90	271.80	269.40	271.40	272.30
3760232.33	263.40	263.70	270.90	271.90	271.90	270.70	271.30	272.30	271.80
3760207.33	263.70	270.90	271.70	271.70	270.90	271.10	272.00	271.80	272.60
3760182.33	263.80	271.50	271.50	270.90	270.90	271.70	271.40	272.30	272.60

3760157.33	270.70	271.50	270.70	270.70	271.30	271.00	271.80	272.30	272.30
3760132.33	271.20	270.70	270.30	271.00	270.40	269.00	271.80	271.80	266.10
3760107.33	271.20	270.10	270.90	269.70	271.50	270.80	265.80	265.80	266.00
3760082.33	271.10	271.20	271.20	271.20	266.30	265.90	265.80	266.00	266.20
3760057.33	269.10	270.10	271.20	271.20	265.80	265.80	266.00	266.20	266.40
3760032.33	270.10	271.10	270.10	265.30	265.70	265.90	266.20	266.40	266.60
3760007.33	271.10	270.10	265.20	265.40	265.80	266.00	266.30	266.60	266.90
3759982.33	271.10	265.00	265.30	265.70	266.00	266.20	266.50	266.80	267.20
3759957.33	263.70	264.60	265.40	265.90	266.20	266.40	266.60	267.00	267.60
3759932.33	262.80	262.50	265.60	264.80	266.00	266.50	266.90	267.40	267.90
3759907.33	263.70	263.00	262.40	266.20	266.20	265.60	266.80	267.70	268.00
3759882.33	265.20	264.90	266.00	266.00	262.40	267.20	267.20	267.20	267.90

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS)								
	466109.45	466134.45	466159.45	466184.45	466209.45	466234.45	466259.45	466284.45	466309.45
3760382.33	272.80	272.80	272.80	271.10	266.20	266.80	267.50	267.90	268.30
3760357.33	272.20	270.20	271.10	272.80	266.40	267.00	267.60	267.90	268.30
3760332.33	272.20	272.00	272.80	272.80	266.60	267.10	267.50	267.80	268.40
3760307.33	271.90	271.90	272.80	272.80	266.80	267.10	267.30	267.80	268.50
3760282.33	272.20	272.80	272.80	272.80	267.00	267.10	267.30	267.90	268.60
3760257.33	271.20	272.80	272.80	266.70	267.00	267.20	267.70	268.30	268.70
3760232.33	272.70	272.80	266.60	267.00	267.00	267.30	268.00	268.50	268.70
3760207.33	272.70	271.40	266.70	266.90	267.10	267.60	268.20	268.50	268.70
3760182.33	271.20	266.70	266.90	266.90	267.30	268.00	268.30	268.50	268.70
3760157.33	266.40	266.90	267.00	267.10	267.60	268.20	268.40	268.50	268.80
3760132.33	266.60	266.90	267.00	267.40	268.00	268.30	268.50	268.70	268.80
3760107.33	266.40	266.70	267.10	267.70	268.20	268.30	268.70	268.90	268.90
3760082.33	266.50	266.90	267.50	268.00	268.20	268.40	268.70	268.90	269.00
3760057.33	266.60	267.30	267.90	268.20	268.20	268.30	268.60	268.80	269.00
3760032.33	266.90	267.60	268.10	268.20	268.10	268.30	268.60	268.90	269.10
3760007.33	267.30	267.80	268.20	268.20	268.20	268.40	268.70	269.00	269.20
3759982.33	267.70	268.10	268.20	268.20	268.30	268.50	268.90	269.20	269.40
3759957.33	268.10	268.20	268.30	268.40	268.50	268.70	269.10	269.40	269.70
3759932.33	268.10	268.30	268.40	268.60	268.70	268.90	269.30	269.70	269.90
3759907.33	268.10	268.40	268.70	268.80	268.90	269.10	269.50	269.90	270.20
3759882.33	268.20	268.60	269.00	269.00	269.00	269.30	269.70	270.10	270.40

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* HILL HEIGHT SCALES IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 466334.45	466359.45	466384.45
3760382.33	268.90	269.10	269.00
3760357.33	268.80	268.90	268.90
3760332.33	268.80	268.90	269.00
3760307.33	268.80	269.00	269.20
3760282.33	268.80	269.10	269.30
3760257.33	268.80	269.20	269.50
3760232.33	269.00	269.30	269.50
3760207.33	269.00	269.30	269.60
3760182.33	269.00	269.30	269.70
3760157.33	269.00	269.30	269.60
3760132.33	269.00	269.30	269.50
3760107.33	269.00	269.10	269.40
3760082.33	269.20	269.40	269.60
3760057.33	269.30	269.60	269.80
3760032.33	269.40	269.70	270.10
3760007.33	269.50	269.90	270.20
3759982.33	269.70	270.00	270.50
3759957.33	269.90	270.30	270.60
3759932.33	270.20	270.60	270.90
3759907.33	270.50	270.90	271.20
3759882.33	270.80	271.10	271.50

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(466271.3, 3760139.1, 268.5, 268.5, 0.0); (466245.4, 3760095.2, 268.4, 268.4, 0.0);
(466275.2, 3760065.4, 268.8, 268.8, 0.0); (466220.9, 3760051.5, 268.1, 268.1, 0.0);
(466191.5, 3760003.2, 268.2, 268.2, 0.0); (466208.6, 3759955.8, 268.5, 268.5, 0.0);
(466229.6, 3759933.0, 268.9, 268.9, 0.0);

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0000321	466059.5	3759882.3	0.94
L0000322	466059.5	3759882.3	-7.87
L0000323	466059.5	3759882.3	-0.54
L0000324	466059.5	3759907.3	0.88
L0000327	466084.5	3759932.3	-3.25
L0000328	466084.5	3759932.3	-6.16
L0000331	466109.5	3759957.3	-2.44
L0000333	466109.5	3759982.3	-4.55
L0000334	466109.5	3759982.3	-0.91
L0000336	466134.5	3760007.3	-2.20
L0000337	466134.5	3760007.3	-4.43
L0000339	466134.5	3760032.3	-1.72
L0000342	466159.5	3760057.3	-7.24
L0000343	466159.5	3760057.3	-2.13
L0000347	466184.5	3760107.3	-1.81
L0000348	466184.5	3760107.3	-7.87
L0000351	466209.5	3760132.3	-0.88
L0000353	466209.5	3760157.3	-4.98
L0000354	466209.5	3760157.3	-3.29
L0000356	466234.5	3760182.3	0.60
L0000357	466234.5	3760182.3	-2.63
L0000359	466234.5	3760207.3	-5.17
L0000362	466259.5	3760232.3	-3.48
L0000363	466259.5	3760232.3	-1.80
L0000364	466259.5	3760257.3	-1.27
L0000365	466259.5	3760257.3	-2.20
L0000367	466284.5	3760282.3	0.26
L0000368	466284.5	3760282.3	-6.68
L0000369	466284.5	3760282.3	0.81
L0000370	466284.5	3760307.3	-0.84
L0000373	466309.5	3760332.3	-4.45
L0000374	466309.5	3760332.3	-5.54
L0000377	466334.5	3760357.3	-2.29
L0000379	466334.5	3760382.3	-4.10
L0000380	466334.5	3760382.3	0.77
L0000133	465884.5	3760057.3	-6.27
L0000134	465884.5	3760057.3	-1.01
L0000137	465909.5	3760082.3	-5.91
L0000138	465909.5	3760082.3	-2.01
L0000141	465934.5	3760107.3	-4.58

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
  LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
L0000142	465934.5	3760107.3	-2.66
L0000145	465959.5	3760132.3	-3.66
L0000146	465959.5	3760132.3	-3.53
L0000149	465984.5	3760157.3	-3.14
L0000150	465984.5	3760157.3	-5.06
L0000153	466009.5	3760182.3	-2.29
L0000154	466009.5	3760182.3	-6.08
L0000157	466034.5	3760207.3	-1.32
L0000158	466034.5	3760207.3	-7.09
L0000161	466059.5	3760232.3	-0.35
L0000162	466059.5	3760232.3	-7.95
L0000163	466059.5	3760232.3	0.37
L0000165	466084.5	3760257.3	0.85
L0000166	466084.5	3760257.3	-6.87
L0000167	466084.5	3760257.3	-0.58
L0000170	466109.5	3760282.3	-5.60
L0000171	466109.5	3760282.3	-1.11
L0000174	466134.5	3760307.3	-0.45
L0000176	466134.5	3760332.3	-0.65
L0000177	466134.5	3760332.3	-1.62
L0000180	466159.5	3760357.3	-3.02
L0000181	466159.5	3760357.3	-5.53
L0000185	466184.5	3760382.3	0.98
L0000218	465884.5	3760082.3	-4.97
L0000219	465884.5	3760082.3	-2.33
L0000222	465909.5	3760107.3	-4.03
L0000223	465909.5	3760107.3	-3.12
L0000226	465934.5	3760132.3	-3.02
L0000227	465934.5	3760132.3	-3.75
L0000230	465959.5	3760157.3	-1.95
L0000231	465959.5	3760157.3	-4.13
L0000234	465984.5	3760182.3	-0.77
L0000235	465984.5	3760182.3	-4.05
L0000238	466009.5	3760207.3	0.55
L0000239	466009.5	3760207.3	-3.43
L0000243	466034.5	3760232.3	-2.31
L0000247	466059.5	3760257.3	-0.59
L0000249	466059.5	3760282.3	0.09
L0000253	466084.5	3760307.3	-3.06
L0000254	466084.5	3760307.3	-2.23

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 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                                        ***        17:46:35
                                                                                                                            PAGE  24
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
                      LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL


                            SOURCE          - - RECEPTOR LOCATION - -         DISTANCE
                              ID           XR (METERS)   YR (METERS)         (METERS)
                          - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

                           L0000257           466109.5     3760332.3           -4.19
                           L0000258           466109.5     3760332.3           -4.16
                           L0000261           466134.5     3760357.3            0.72
                           L0000262           466134.5     3760357.3            0.78
                           L0000264           466134.5     3760382.3           -3.69
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc           ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                                        ***        17:46:35
                                                                                                                            PAGE  25
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                                 *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                                  (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.



                                         *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                                (METERS/SEC)

                                                       1.54,   3.09,   5.14,   8.23,  10.80,
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc           ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                                        ***        17:46:35
                                                                                                                            PAGE  26
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                           *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

   Surface file:   E:\New MET data\KRAL_V9_ADJU\KRAL_v9.SFC                                          Met Version:  16216
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  Profile file:   E:\New MET data\KRAL_V9_ADJU\KRAL_v9.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:     3171                 Upper air station no.:     3190
                Name: UNKNOWN                                    Name: UNKNOWN
                Year:   2012                                     Year:   2012

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 12 01 01   1 01  -25.6  0.266 -9.000 -9.000 -999.  330.     77.9  0.15   2.40   1.00    2.93   55.   10.1  288.1    2.0
 12 01 01   1 02  -26.8  0.277 -9.000 -9.000 -999.  351.     84.7  0.15   2.40   1.00    3.05   55.   10.1  287.0    2.0
 12 01 01   1 03  -21.5  0.221 -9.000 -9.000 -999.  250.     53.5  0.15   2.40   1.00    2.45   74.   10.1  284.2    2.0
 12 01 01   1 04  -22.0  0.227 -9.000 -9.000 -999.  260.     56.8  0.15   2.40   1.00    2.52   77.   10.1  285.9    2.0
 12 01 01   1 05  -20.0  0.206 -9.000 -9.000 -999.  225.     46.8  0.15   2.40   1.00    2.30   80.   10.1  285.4    2.0
 12 01 01   1 06  -14.4  0.171 -9.000 -9.000 -999.  170.     32.1  0.15   2.40   1.00    1.93   79.   10.1  287.0    2.0
 12 01 01   1 07  -14.9  0.174 -9.000 -9.000 -999.  174.     33.2  0.15   2.40   1.00    1.96   77.   10.1  284.2    2.0
 12 01 01   1 08  -11.9  0.169 -9.000 -9.000 -999.  167.     36.1  0.15   2.40   0.53    1.89   77.   10.1  288.1    2.0
 12 01 01   1 09   40.4  0.234  0.359  0.006   40.  272.    -28.1  0.15   2.40   0.31    2.10   81.   10.1  289.2    2.0
 12 01 01   1 10  112.6  0.246  0.742  0.005  129.  293.    -11.8  0.15   2.40   0.24    1.99  101.   10.1  296.4    2.0
 12 01 01   1 11  161.0  0.402  1.188  0.005  369.  611.    -35.6  0.15   2.40   0.21    3.68   78.   10.1  298.8    2.0
 12 01 01   1 12  184.7  0.337  1.516  0.005  668.  473.    -18.4  0.15   2.40   0.20    2.89   68.   10.1  300.4    2.0
 12 01 01   1 13  183.9  0.310  1.809  0.005 1139.  414.    -14.2  0.15   2.40   0.20    2.57   64.   10.1  302.5    2.0
 12 01 01   1 14  156.6  0.374  1.852  0.005 1434.  549.    -29.5  0.15   2.40   0.22    3.37   63.   10.1  303.1    2.0
 12 01 01   1 15  104.3  0.382  1.658  0.005 1546.  567.    -47.2  0.15   2.40   0.25    3.59   62.   10.1  302.5    2.0
 12 01 01   1 16   31.8  0.374  1.123  0.005 1573.  550.   -145.8  0.15   2.40   0.34    3.76   69.   10.1  300.9    2.0
 12 01 01   1 17  -23.3  0.276 -9.000 -9.000 -999.  354.     84.0  0.15   2.40   0.62    3.03   59.   10.1  297.5    2.0
 12 01 01   1 18  -21.5  0.229 -9.000 -9.000 -999.  264.     57.8  0.15   2.40   1.00    2.54   54.   10.1  295.4    2.0
 12 01 01   1 19  -19.3  0.204 -9.000 -9.000 -999.  221.     45.6  0.15   2.40   1.00    2.27   79.   10.1  292.0    2.0
 12 01 01   1 20  -20.7  0.218 -9.000 -9.000 -999.  244.     52.2  0.15   2.40   1.00    2.42   79.   10.1  292.5    2.0
 12 01 01   1 21  -19.7  0.206 -9.000 -9.000 -999.  225.     46.9  0.15   2.40   1.00    2.30   95.   10.1  290.9    2.0
 12 01 01   1 22  -17.6  0.190 -9.000 -9.000 -999.  199.     39.8  0.15   2.40   1.00    2.13   78.   10.1  290.4    2.0
 12 01 01   1 23  -20.3  0.211 -9.000 -9.000 -999.  233.     49.0  0.15   2.40   1.00    2.35   52.   10.1  289.2    2.0
 12 01 01   1 24  -16.4  0.183 -9.000 -9.000 -999.  189.     37.0  0.15   2.40   1.00    2.06   75.   10.1  288.8    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 12 01 01 01   10.1 1   55.    2.93   288.2   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc          ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                              ***       17:46:35
                                                                                                                  PAGE  27
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                            *** THE PERIOD ( 43848 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL      ***
                                INCLUDING SOURCE(S):     L0000282    , L0000283    , L0000284    , L0000285    , L0000286    ,
                L0000287    , L0000288    , L0000289    , L0000290    , L0000291    , L0000292    , L0000293    , L0000294    ,
                L0000295    , L0000296    , L0000297    , L0000298    , L0000299    , L0000300    , L0000301    , L0000302    ,
```

L0000303 , L0000304 , L0000305 , L0000306 , L0000307 , L0000308 , L0000309 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	465884.45	465909.45	465934.45	465959.45	465984.45	466009.45	466034.45	466059.45	466084.45
3760382.33	0.00540	0.00600	0.00672	0.00761	0.00873	0.01021	0.01222	0.01520	0.02018
3760357.33	0.00598	0.00669	0.00755	0.00861	0.00999	0.01183	0.01442	0.01839	0.02594
3760332.33	0.00665	0.00750	0.00853	0.00983	0.01152	0.01386	0.01730	0.02326	0.03690
3760307.33	0.00744	0.00846	0.00973	0.01133	0.01351	0.01663	0.02176	0.03242	0.04596
3760282.33	0.00837	0.00963	0.01123	0.01332	0.01623	0.02092	0.03016	0.04772	0.06904
3760257.33	0.00952	0.01111	0.01317	0.01605	0.02048	0.02905	0.04991	0.06511	0.05033
3760232.33	0.01099	0.01305	0.01586	0.02012	0.02842	0.04835	0.06564	0.05211	0.04799
3760207.33	0.01294	0.01576	0.01993	0.02797	0.04665	0.05874	0.05968	0.05051	0.03161
3760182.33	0.01561	0.01982	0.02754	0.04526	0.05871	0.06025	0.05144	0.03277	0.02340
3760157.33	0.01970	0.02720	0.04421	0.05800	0.06037	0.05180	0.03323	0.02384	0.01880
3760132.33	0.02685	0.04374	0.05751	0.06051	0.05239	0.03357	0.02411	0.01899	0.01593
3760107.33	0.04203	0.05720	0.06052	0.05237	0.03326	0.02418	0.01916	0.01599	0.01377
3760082.33	0.05488	0.05787	0.05129	0.03321	0.02443	0.01932	0.01604	0.01378	0.01213
3760057.33	0.05905	0.04986	0.03258	0.02417	0.01927	0.01597	0.01368	0.01201	0.01080
3760032.33	0.04966	0.03178	0.02346	0.01880	0.01570	0.01344	0.01180	0.01058	0.00974
3760007.33	0.03060	0.02255	0.01810	0.01512	0.01302	0.01142	0.01025	0.00940	0.00894
3759982.33	0.02127	0.01707	0.01432	0.01237	0.01090	0.00979	0.00897	0.00846	0.00844
3759957.33	0.01528	0.01308	0.01144	0.01017	0.00919	0.00844	0.00794	0.00778	0.00851
3759932.33	0.01118	0.00988	0.00901	0.00834	0.00778	0.00735	0.00715	0.00746	0.00738
3759907.33	0.00859	0.00787	0.00727	0.00685	0.00659	0.00648	0.00664	0.00730	0.00769
3759882.33	0.00686	0.00649	0.00612	0.00583	0.00571	0.00584	0.00652	0.00586	0.00597

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE PERIOD (43848 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0000282 , L0000283 , L0000284 , L0000285 , L0000286 ,
L0000287 , L0000288 , L0000289 , L0000290 , L0000291 , L0000292 , L0000293 , L0000294 ,
L0000295 , L0000296 , L0000297 , L0000298 , L0000299 , L0000300 , L0000301 , L0000302 ,
L0000303 , L0000304 , L0000305 , L0000306 , L0000307 , L0000308 , L0000309 , . . . ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF DPM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)								
	466109.45	466134.45	466159.45	466184.45	466209.45	466234.45	466259.45	466284.45	466309.45

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 3760382.33 |       0.03068      0.04923      0.06281      0.04986      0.03281      0.02217      0.01659      0.01334      0.01160
 3760357.33 |       0.04481      0.05165      0.04935      0.03916      0.02567      0.01895      0.01501      0.01269      0.01204
 3760332.33 |       0.05057      0.05459      0.04816      0.02925      0.02109      0.01661      0.01381      0.01241      0.01099
 3760307.33 |       0.06623      0.05194      0.03416      0.02334      0.01807      0.01488      0.01297      0.01223      0.01119
 3760282.33 |       0.05292      0.04008      0.02586      0.01947      0.01592      0.01362      0.01262      0.01059      0.00967
 3760257.33 |       0.04489      0.02822      0.02076      0.01682      0.01427      0.01277      0.01166      0.01092      0.00869
 3760232.33 |       0.03001      0.02179      0.01758      0.01485      0.01303      0.01243      0.01087      0.00950      0.00794
 3760207.33 |       0.02267      0.01811      0.01526      0.01330      0.01222      0.01203      0.01052      0.00851      0.00730
 3760182.33 |       0.01853      0.01562      0.01354      0.01218      0.01200      0.01040      0.00914      0.00772      0.00675
 3760157.33 |       0.01582      0.01372      0.01223      0.01151      0.01075      0.00996      0.00816      0.00706      0.00625
 3760132.33 |       0.01380      0.01225      0.01128      0.01148      0.01039      0.00865      0.00737      0.00649      0.00580
 3760107.33 |       0.01220      0.01112      0.01076      0.01019      0.00929      0.00769      0.00671      0.00598      0.00539
 3760082.33 |       0.01097      0.01036      0.01100      0.01029      0.00805      0.00691      0.00613      0.00551      0.00500
 3760057.33 |       0.01004      0.01002      0.00938      0.00851      0.00712      0.00625      0.00561      0.00508      0.00464
 3760032.33 |       0.00941      0.00974      0.00925      0.00736      0.00637      0.00567      0.00513      0.00469      0.00430
 3760007.33 |       0.00925      0.00846      0.00766      0.00647      0.00572      0.00516      0.00470      0.00432      0.00399
 3759982.33 |       0.00831      0.00815      0.00659      0.00574      0.00515      0.00469      0.00430      0.00397      0.00368
 3759957.33 |       0.00814      0.00675      0.00576      0.00512      0.00465      0.00426      0.00393      0.00365      0.00340
 3759932.33 |       0.00704      0.00577      0.00507      0.00458      0.00419      0.00387      0.00360      0.00335      0.00314
 3759907.33 |       0.00582      0.00501      0.00450      0.00410      0.00379      0.00352      0.00328      0.00308      0.00290
 3759882.33 |       0.00496      0.00440      0.00400      0.00369      0.00343      0.00320      0.00300      0.00283      0.00268
*** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc           ***        04/24/25
*** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                               ***       17:46:35
                                                                                                                  PAGE  29

*** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                          *** THE PERIOD ( 43848 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL      ***
                              INCLUDING SOURCE(S):     L0000282    , L0000283    , L0000284    , L0000285    , L0000286    ,
               L0000287    , L0000288    , L0000289    , L0000290    , L0000291    , L0000292    , L0000293    , L0000294    ,
               L0000295    , L0000296    , L0000297    , L0000298    , L0000299    , L0000300    , L0000301    , L0000302    ,
               L0000303    , L0000304    , L0000305    , L0000306    , L0000307    , L0000308    , L0000309    ,  . . .      ,

                               *** NETWORK ID: UCART1   ;  NETWORK TYPE: GRIDCART ***

                                    ** CONC OF DPM      IN MICROGRAMS/M**3                        **

   Y-COORD  |                                          X-COORD (METERS)
   (METERS) |     466334.45    466359.45    466384.45
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 3760382.33 |       0.01041      0.00974      0.00754
 3760357.33 |       0.01064      0.00855      0.00705
 3760332.33 |       0.00970      0.00784      0.00666
 3760307.33 |       0.00869      0.00730      0.00632
 3760282.33 |       0.00797      0.00685      0.00601
 3760257.33 |       0.00739      0.00645      0.00571
 3760232.33 |       0.00688      0.00607      0.00542
 3760207.33 |       0.00642      0.00572      0.00515
 3760182.33 |       0.00600      0.00539      0.00488
 3760157.33 |       0.00561      0.00507      0.00462
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  3760132.33 |       0.00524      0.00477      0.00436
  3760107.33 |       0.00490      0.00448      0.00412
  3760082.33 |       0.00457      0.00420      0.00388
  3760057.33 |       0.00427      0.00394      0.00365
  3760032.33 |       0.00397      0.00368      0.00343
  3760007.33 |       0.00369      0.00344      0.00322
  3759982.33 |       0.00343      0.00320      0.00302
  3759957.33 |       0.00318      0.00299      0.00282
  3759932.33 |       0.00295      0.00279      0.00262
  3759907.33 |       0.00274      0.00259      0.00243
  3759882.33 |       0.00253      0.00239      0.00227
```



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*** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                          *** THE PERIOD ( 43848 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL      ***
                              INCLUDING SOURCE(S):     L0000282    , L0000283    , L0000284    , L0000285    , L0000286    ,
                L0000287    , L0000288    , L0000289    , L0000290    , L0000291    , L0000292    , L0000293    , L0000294    ,
                L0000295    , L0000296    , L0000297    , L0000298    , L0000299    , L0000300    , L0000301    , L0000302    ,
                L0000303    , L0000304    , L0000305    , L0000306    , L0000307    , L0000308    , L0000309    ,  . . .      ,

                                     *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                  ** CONC OF DPM      IN MICROGRAMS/M**3                        **

      X-COORD (M)   Y-COORD (M)        CONC                      X-COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        466271.27    3760139.12        0.00709                     466245.41    3760095.21        0.00688
        466275.17    3760065.43        0.00541                     466220.91    3760051.55        0.00652
        466191.49    3760003.21        0.00612                     466208.64    3759955.76        0.00463
        466229.58    3759933.01        0.00394
```



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*** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                     *** THE SUMMARY OF MAXIMUM PERIOD ( 43848 HRS) RESULTS ***


                                  ** CONC OF DPM      IN MICROGRAMS/M**3                        **

                                                                                                    NETWORK
GROUP ID                      AVERAGE CONC              RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL       1ST HIGHEST VALUE IS      0.06904 AT (  466084.45,  3760282.33,   271.60,   271.60,    0.00)  GC  UCART1
          2ND HIGHEST VALUE IS      0.06623 AT (  466109.45,  3760307.33,   271.90,   271.90,    0.00)  GC  UCART1
          3RD HIGHEST VALUE IS      0.06564 AT (  466034.45,  3760232.33,   271.30,   271.30,    0.00)  GC  UCART1
          4TH HIGHEST VALUE IS      0.06511 AT (  466059.45,  3760257.33,   271.40,   271.40,    0.00)  GC  UCART1
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          5TH HIGHEST VALUE IS       0.06281 AT (  466159.45,  3760382.33,   266.10,   272.80,    0.00)  GC  UCART1
          6TH HIGHEST VALUE IS       0.06052 AT (  465934.45,  3760107.33,   270.90,   270.90,    0.00)  GC  UCART1
          7TH HIGHEST VALUE IS       0.06051 AT (  465959.45,  3760132.33,   271.00,   271.00,    0.00)  GC  UCART1
          8TH HIGHEST VALUE IS       0.06037 AT (  465984.45,  3760157.33,   271.30,   271.30,    0.00)  GC  UCART1
          9TH HIGHEST VALUE IS       0.06025 AT (  466009.45,  3760182.33,   271.70,   271.70,    0.00)  GC  UCART1
         10TH HIGHEST VALUE IS       0.05968 AT (  466034.45,  3760207.33,   272.00,   272.00,    0.00)  GC  UCART1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 23132  ***   *** C:\Lakes\AERMOD View\19630 Iron Lofts\19630 Iron Lofts.isc           ***        04/24/25
 *** AERMET - VERSION  16216 ***   *** Freeway and rail DPM                                               ***       17:46:35
                                                                                                                   PAGE  32
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of         1638 Informational Message(s)

 A Total of        43848 Hours Were Processed

 A Total of         1039 Calm Hours Identified

 A Total of          599 Missing Hours Identified (  1.37 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186     726       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used          0.50
 ME W187     726       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

    ***********************************
    *** AERMOD Finishes Successfully ***
    ***********************************
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EMFAC2021 for South Coast AQMD PM2.5 Running Exhaust

Area	Season	Veh	Fuel	MdlYr	Speed (Miles/hr)	2027 (gms/mile)	2028 (gms/mile)	2029 (gms/mile)	2030 (gms/mile)	2031 (gms/mile)	2032 (gms/mile)	2033 (gms/mile)	2034 (gms/mile)	2035 (gms/mile)
South Coast AQMD	Annual	LDA	GAS	AllMYr	70	0.0011	0.001039	0.000981	0.000926	0.000873	0.000822	0.000774	0.000728	0.000685
South Coast AQMD	Annual	LDA	DSL	AllMYr	70	0.017824	0.013424	0.010196	0.007024	0.006151	0.004207	0.00387	0.003542	0.003182
South Coast AQMD	Annual	LDT1	GAS	AllMYr	70	0.001672	0.001558	0.001445	0.001334	0.001224	0.001126	0.001039	0.000951	0.000879
South Coast AQMD	Annual	LDT1	DSL	AllMYr	70	0.23558	0.210995	0.185063	0.115363	0.058891	0.017807	0.015792	0.013979	0.012583
South Coast AQMD	Annual	LDT2	GAS	AllMYr	70	0.001117	0.001051	0.000989	0.000933	0.000879	0.00083	0.000783	0.000739	0.000698
South Coast AQMD	Annual	LDT2	DSL	AllMYr	70	0.003517	0.003329	0.003274	0.003212	0.003198	0.003156	0.003156	0.003157	0.003158
South Coast AQMD	Annual	LHDT1	GAS	AllMYr	60	0.000986	0.000984	0.000976	0.000966	0.000956	0.00095	0.000947	0.000942	0.000938
South Coast AQMD	Annual	LHDT1	DSL	AllMYr	60	0.011802	0.011173	0.01067	0.010271	0.009965	0.009767	0.009633	0.009567	0.009509
South Coast AQMD	Annual	LHDT2	GAS	AllMYr	60	0.000881	0.00088	0.00088	0.000881	0.000881	0.000882	0.000886	0.000891	0.000893
South Coast AQMD	Annual	LHDT2	DSL	AllMYr	60	0.012449	0.011995	0.011658	0.011413	0.011211	0.011064	0.010963	0.010922	0.010853
South Coast AQMD	Annual	MDV	GAS	AllMYr	60	0.000912	0.000856	0.000804	0.000759	0.000717	0.000679	0.000644	0.00061	0.00058
South Coast AQMD	Annual	MDV	DSL	AllMYr	60	0.00462	0.003907	0.003353	0.00286	0.002424	0.002201	0.002001	0.001783	0.001594
South Coast AQMD	Annual	MHDT	GAS	AllMYr	55	0.000704	0.000708	0.000712	0.000717	0.000723	0.000728	0.000733	0.000737	0.000741
South Coast AQMD	Annual	MHDT	DSL	AllMYr	55	0.008688	0.007965	0.007364	0.006865	0.006434	0.006073	0.005762	0.005506	0.005276
South Coast AQMD	Annual	HHDT	GAS	AllMYr	55	0.000928	0.000888	0.000836	0.000743	0.000729	0.000735	0.000741	0.000741	0.000742
South Coast AQMD	Annual	HHDT	DSL	AllMYr	55	0.020704	0.020591	0.02047	0.020347	0.020212	0.020057	0.019896	0.01973	0.019588

		2027			
LDA	70	0.017824			
LDT1	70	0.23558013			
LDT2	70	0.00351729			
MDV	60	0.00462			
LHDT1	60	0.01180178			
LHDT2	60	0.01244899			
MHDT	55	0.008688			
HHDT	55	0.020704			

2036 (gms/mile)	2037 (gms/mile)	2038 (gms/mile)	2039 (gms/mile)	2040 (gms/mile)	2041 (gms/mile)	2042 (gms/mile)	2043 (gms/mile)	2044 (gms/mile)	2045 (gms/mile)	2046 (gms/mile)	2047 (gms/mile)	2048 (gms/mile)	2049 (gms/mile)	2050 (gms/mile)	2051 (gms/mile)	2052 (gms/mile)
0.000646	0.000612	0.000582	0.000556	0.000533	0.000515	0.0005	0.000488	0.000478	0.00047	0.000464	0.000459	0.000455	0.000452	0.00045	0.00045	0.00045
0.002706	0.002321	0.002064	0.001847	0.001605	0.001432	0.001285	0.001153	0.001037	0.000954	0.000883	0.000808	0.000741	0.000702	0.00065	0.00065	0.00065
0.000822	0.000772	0.000724	0.00068	0.00064	0.000615	0.000591	0.000569	0.00055	0.000533	0.000519	0.000506	0.000497	0.000491	0.000485	0.000485	0.000485
0.003094	0.003116	0.003135	0.003153	0.00317	0.003186	0.0032	0.003213	0.00322	0.003228	0.003236	0.003239	0.003248	0.003255	0.003262	0.003262	0.003262
0.000661	0.000628	0.000599	0.000573	0.000551	0.000534	0.000519	0.000507	0.000496	0.000486	0.000478	0.000472	0.000466	0.000463	0.000461	0.000461	0.000461
0.003155	0.003154	0.003159	0.003163	0.003167	0.003171	0.003174	0.003176	0.003179	0.003181	0.003184	0.003186	0.003188	0.00319	0.003189	0.003189	0.003189
0.000939	0.00094	0.00094	0.00094	0.00094	0.000942	0.000944	0.000945	0.000946	0.000947	0.000947	0.000947	0.000947	0.00095	0.000952	0.000952	0.000952
0.009461	0.009384	0.009302	0.009221	0.009131	0.009056	0.008967	0.008894	0.008803	0.008723	0.008635	0.008561	0.008487	0.00839	0.008309	0.008309	0.008309
0.000898	0.000903	0.000909	0.000913	0.000918	0.000924	0.000929	0.000933	0.000937	0.000941	0.000944	0.000946	0.000948	0.000951	0.000953	0.000953	0.000953
0.010905	0.010913	0.010902	0.010863	0.010845	0.010843	0.010838	0.010841	0.010801	0.010756	0.010693	0.010636	0.010561	0.010417	0.010179	0.010179	0.010179
0.000554	0.00053	0.000509	0.000487	0.000468	0.000453	0.000441	0.000429	0.000419	0.000409	0.0004	0.000391	0.000384	0.00038	0.000377	0.000377	0.000377
0.001451	0.001292	0.001196	0.0011	0.001024	0.000961	0.000908	0.000866	0.000829	0.000801	0.000779	0.000761	0.000747	0.000734	0.000674	0.000674	0.000674
0.000746	0.00075	0.000753	0.000756	0.000758	0.00076	0.000762	0.000764	0.000765	0.000767	0.000768	0.000769	0.00077	0.000771	0.000772	0.000772	0.000772
0.005103	0.004953	0.004822	0.004713	0.004606	0.004511	0.004415	0.004325	0.004245	0.004189	0.00414	0.004094	0.004052	0.004017	0.003985	0.003985	0.003985
0.00075	0.000756	0.000758	0.000762	0.000765	0.000767	0.000769	0.00077	0.000771	0.000771	0.000772	0.000772	0.000773	0.000773	0.000774	0.000774	0.000774
0.019473	0.019372	0.019284	0.019207	0.019141	0.019084	0.019037	0.019001	0.018976	0.018959	0.01895	0.018944	0.01894	0.018939	0.018938	0.018938	0.018938

EMFAC2021 only has up to 2050 used 2050 for 2051 & 2052.

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