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Madera at Citrus Trail Residential Project

Air Quality and Health Risk Assessment Report

June 2023

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List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	**Full Phrase or Description**
AB	Assembly Bill
ACC	Advanced Clean Cars
AMSL	Above Mean Sea Level
APN	Assessor Parcel Number
AQ	Air Quality
AQMP	Air Quality Management Plan
AREA	Area Source
ARLN	Area Line Source
Basin	South Coast Air Basin
CAA	Clean Air Act
Cal-EPA	California Environmental Protection Agency
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CAFE	Corporate Average Fuel Economy
CAS	Chemical Abstract Service
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CERP	Community Emissions Reduction Plan
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
GHG	Greenhouse Gas(es)
GVWR	Gross Vehicle Weight Rating
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutants
HI	Hazard Index
HHDT	Heavy Heavy-Duty Truck
HR	Hour
HRA	Health Risk Assessment
HVAC	Heating, Ventilation, and Air Conditioning
IPCC	Intergovernmental Panel on Climate Change
KBtu	Thousand British Thermal Units
LDA	Light Duty Auto

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	**Full Phrase or Description**
LDT	Light Duty Truck
LHDT	Light Heavy-Duty Truck
LST	Localized Significance Threshold
m^3	Cubic Meter
MATES IV	Multiple Air Toxics Exposure Study in the South Coast Air Basin
MEIR	Maximally Exposed Individual Resident
MESR	Maximally Exposed Student Receptor
MG	Milligrams
MHDT	Medium Heavy-Duty Truck
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO	Nitric Oxide
NOx	Oxides of Nitrogen
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
PPB	Parts Per Billion
PPM	Parts Per Million
PM	Particulate Matter
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	Coarse Particulate Matter
PMI	Point of Maximum Impact
PRC	Public Resources Code
Q_{tpy}	Emissions Rate (tons per year)
ROG	Reactive Organic Gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfates
SRA	Source Receptor Area

List of Acronyms, Abbreviations, and Symbols	
Acronym / Abbreviation	**Full Phrase or Description**
TAC	Toxic Air Contaminants
U.S.	United States
U.S. EPA	United States Environmental Protection Agency
V.	Version
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compounds
VOL	Volume Source
µg	Micrograms
§	Section
° F	Degrees Fahrenheit

EXECUTIVE SUMMARY

This Air Quality and Health Risk Assessment Report (Report) evaluates and documents the potential air quality and health risk impacts associated with the construction and operation of the proposed Madera at Citrus Trail Project (proposed Project) located at the northwest corner of the Colton Avenue / Wabash Avenue intersection in the City of Redlands, California.

This Report is consistent with the guidance and recommendations contained in the South Coast Air Quality Management District's (SCAQMD) California Environmental Quality Act (CEQA) *Air Quality Handbook*, as amended and supplemented (SCAQMD, 2018). This Report is intended to assist the CEQA Lead Agency (City of Redlands) with its review of potential Project-related air quality and health risk impacts in compliance with the State CEQA Statutes and Guidelines, particularly in respect to the air quality issues identified in Appendix G of the State CEQA Guidelines. This Report does not make determinations of significance pursuant to CEQA because such determinations are solely the purview of the CEQA Lead Agency.

S.1 PROPOSED PROJECT DESCRIPTION

Soni 2012 Irrevocable Trusts is proposing to construct 103 new single-family residential buildings with approximately 216,567 square feet of gross building space, on approximately 9.01 acres in the City of Redlands. The proposed residential buildings would be located on a rectangular property at Colton Avenue and Wabash Avenue, approximately 1.4 miles northeast of Interstate 10 (I-10) and approximately 1.3 miles south of Redlands Municipal Airport.

The Project site is currently undeveloped, there are no active operations at the site.

S.2 POTENTIAL CONSTRUCTION AIR QUALITY IMPACTS

The proposed Project's construction emissions were estimated using the California Emissions Estimator Model (CalEEMod), Version (V.) 2022.1.1. CalEEMod is a computer program recommended for use by the SCAQMD for use in preparing emission estimates for land use and development projects. The modeling indicates maximum daily emissions during construction activities would be below all applicable SCAQMD regional and local thresholds for regulated air pollutants.

S.3 POTENTIAL OPERATIONAL AIR QUALITY IMPACTS

The proposed Project would generate criteria air pollutant and fugitive dust from a variety of sources during operation, including area, energy, and mobile sources. The emissions from these sources were quantified using CalEEMod. The operational air quality impact analysis indicates the proposed Project would not generate criteria air pollutant or fugitive dust emissions that exceed the SCAQMD's recommended regional CEQA thresholds of significance.

S.4 HEALTH RISK ASSESSMENT

A health risk assessment (HRA) was prepared to evaluate potential cancerogenic and non-cancerogenic health effects that could result from receptor exposure to diesel particulate matter (DPM). Construction activities associated with the proposed Project would require the use of heavy-duty, off-road, diesel-powered equipment (e.g., loaders, tractors, backhoes, bulldozers, etc.) that would generate DPM during the combustion of fuel. The construction HRA was prepared in accordance with applicable guidelines from the California Office of Environmental Health Hazard Assessment (OEHHA) and shows that the proposed Project would not result in potentially significant effects after the implementation of recommended Mitigation Measure AIR-1.

S.5 ODORS

The proposed Project would involve construction and operational activities that could generate odors typical of many construction and residential land use operations. These types of odors (e.g., exhaust) are typical of the area and would be quick to disperse. The proposed Project would not result in the creation of objectionable odors that would affect a substantial number of people.

S.6 RECOMMENDED MITIGATION MEASURES

The following mitigation measure is necessary to ensure the proposed Project does not generate TAC emissions that have the potential to result in substantial adverse health effects at receptor locations near the proposed Project:

Mitigation Measure AIR-1: Reduce DPM Emissions. To reduce potential short-term adverse health risks associated with PM_{10} exhaust emissions, including emissions of diesel particulate matter (DPM), generated during project construction activities, the City shall require the Applicant and/or its designated contractors, contractor's representatives, or other appropriate personnel to comply with the following construction equipment restriction for the Project:

- All construction equipment with a rated power-output of 50 horsepower or greater shall meet U.S. EPA and CARB Tier IV Interim Emission Standards and be equipped with Level 3 Diesel Particulate Matter Filters. This may be achieved via the use of equipment with engines that have been certified to meet Tier IV Interim emission standards, or through the use of equipment that has been retrofitted with a CARB-verified diesel emission control strategy (e.g., oxidation catalyst, particulate filter) capable of reducing exhaust PM_{10} emissions to levels that meet Tier IV standards.

As an alternative to using Tier IV Interim Emissions Standards for off-road equipment with a rated power-output of 50 horsepower or greater, the Applicant may prepare and submit a refined construction health risk assessment to the City once additional Project-specific construction information is known (e.g., specific construction equipment type, quantity, engine tier, and runtime by phase). The refined health risk assessment shall demonstrate and identify any measures necessary such that the proposed Project's incremental cancerogenic health risk at nearby sensitive receptor locations is below the applicable SCAQMD threshold of 10 cancers in a million.

The above measure would ensure construction emissions associated with equipment operation do not generate diesel particulate emissions that expose sensitive receptors to substantial pollutant concentrations (i.e., exceed applicable SCAQMD thresholds).

1 INTRODUCTION

Soni 2012 Irrevocable Trusts has applied for a Conditional Use Permit (CUP) from the City of Redlands for its Madera at Citrus Trail Residential Project (proposed Project). The proposed Project would be located at the northwest corner of Colton Avenue and Wabash Avenue intersection, in the eastern part portion of Redlands, and include the development of 103 single-family homes and a small community park.

MIG, Inc. (MIG) has prepared this Air Quality and Health Risk Assessment Report (Report) to evaluate the potential construction- and operations-related air quality and health risk impacts of the proposed Project using project-specific information contained in the Site Plan for the proposed Project, as well as the Redlands Madera at Citrus Trail Traffic Impact Analysis prepared by Ganddini Group (Ganddini Group 2023). Where necessary, MIG has supplemented available information with standardized sources of information, such as model assumptions pertaining to construction equipment activity levels. In general, this Report evaluates the potential "worst-case" conditions associated with the proposed Project's construction and operational emissions levels to ensure a conservative (i.e., likely to overestimate) assessment of potential air quality and health risk impacts is presented.

This Report is intended for use by the Lead Agency to assess the potential air quality impacts of the proposed Project in compliance with the California Environmental Quality Act (CEQA; PRC §21000 et seq.) and the State CEQA Guidelines (14 CCR §15000 et seq.), particularly in respect to the air quality issues identified in Appendix G of the State CEQA Guidelines.

1.1 REPORT ORGANIZATION

This Report is organized as follows:

- **Chapter 1, Introduction,** explains the contents of this Report and its intended use.
- **Chapter 2, Proposed Project Description**, provides an overview of the construction and operational activities associated with the proposed Project.
- **Chapter 3, Air Quality Setting and Regulatory Framework,** provides pertinent background information on the air quality, describes the existing air quality setting of the proposed Project, and provides information on the federal, state, and local regulations that govern the proposed Project's air quality setting and potential air quality impacts.
- **Chapter 4, Air Quality Impact and Health Risk Assessment,** discloses the methodology the potential construction and operational air quality impacts of the proposed Project, including the methodology and results of the project's construction and operational health risk assessment, and evaluates these effects in accordance with Appendix G of the State CEQA Guidelines.
- **Chapter 5, Report Preparers and References,** list the individuals involved, and the references used, in the preparation of this Report.

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2 PROPOSED PROJECT DESCRIPTION

The proposed Project would consist of the construction and operation of 103 new single-family residential buildings, consisting of approximately 216,567 square feet of gross building space, and an approximately 0.63-acre community park in the City of Redlands.

2.1 PROJECT LOCATION

The proposed Project would be located at the northwest corner of Colton Avenue and Wabash Avenue in the City of Redlands, approximately 1.4 miles northeast of Interstate 10 (I-10) and approximately 1.3 miles south of Redlands Municipal Airport. The site consists of a single, undeveloped parcel of land totaling approximately 9.01-acres of land (Assessor's Parcel Number 0168-291-02; see Figure 2-1). The site is classified single-family residential by the City's Zoning Code and designated as low density residential land by the City's General Plan (City of Redlands, 2017).

2.1.1 SURROUNDING LAND USES

In general, the proposed Project site is surrounded by single-family residential land uses to the north and west, industrial land uses to the east (across Wabash Avenue), and a mobile home park and the Orange Blossom Trail to the south (across Colton Avenue). The site is bound by Wabash Avenue to the east and Colton Avenue to the south. The Redlands Ranch single-family residential neighborhood is west of the site and single-family residential land uses are north of the site, along Mendocino Way. The underlying land use zoning and General Plan designations for the Project area are similar to those of the Project site, generally consisting of single-family residential areas to the north, west, south, with industrial areas to the east and northeast. The following schools and parks are located within 1,000 feet of the Project site:

- Orange Blossom Trail head, approximately 80 feet south of the Project site.
- Crafton Park, approximately 350 feet south of the Project site.
- Crafton Elementary School, approximately 960 feet south of the Project site.

2.2 EXISTING SITE DESCRIPTION AND OPERATIONS

The Project site consists of an undeveloped field with some ruderal vegetation. There are no active operations at the site.

Figure 2-1 Aerial View of the Project Site

2.3 PROPOSED SITE DEVELOPMENT AND OPERATIONS

The proposed Project would involve the construction of a new single-family residential development, consisting of approximately 103 units totaling approximately 216,567 square feet of gross building space. The entire approximately 9.01-acre site would be graded; the portions of the site not developed with the residential buildings would either be hardscaped (e.g., parking or sidewalks) or landscaped. The site plan for the proposed Project is shown in Figure 2-2.

In addition to the residential units, the project would include approximately 206 garage parking stalls and 63 guest parking stalls for a total of 269 parking stalls. Approximately 65,470 square feet of the site would be landscaped, and approximately 20,100 square feet of the site would be impervious surface for sidewalks.

2.3.1 SITE LAYOUT

The proposed Project includes a central block of residential buildings and landscaped common area surrounded by residential buildings along the northern, western, and southern sides of the block. The block's eastern side would be located adjacent to Wabash Avenue, while common area parking stalls would be present on the western side of the block. The Project site's interior driveway would be located along the western portion of the site and provide access to the site via a northern driveway and southeastern driveway onto Wabash Avenue, and a southwestern driveway onto Colton Avenue.

2.3.2 NEW RESIDENTIAL BUILDING DESCRIPTIONS

As discussed above, the Project will include 103 buildings with each building having a height of two (2) stories (CA Engineering Inc, 2023). The floor area sizes for the dwelling units are planned to range from approximately 1,544 square feet to approximately 1,858 square feet.

2.3.3 OPERATIONAL TRIP GENERATION ESTIMATES

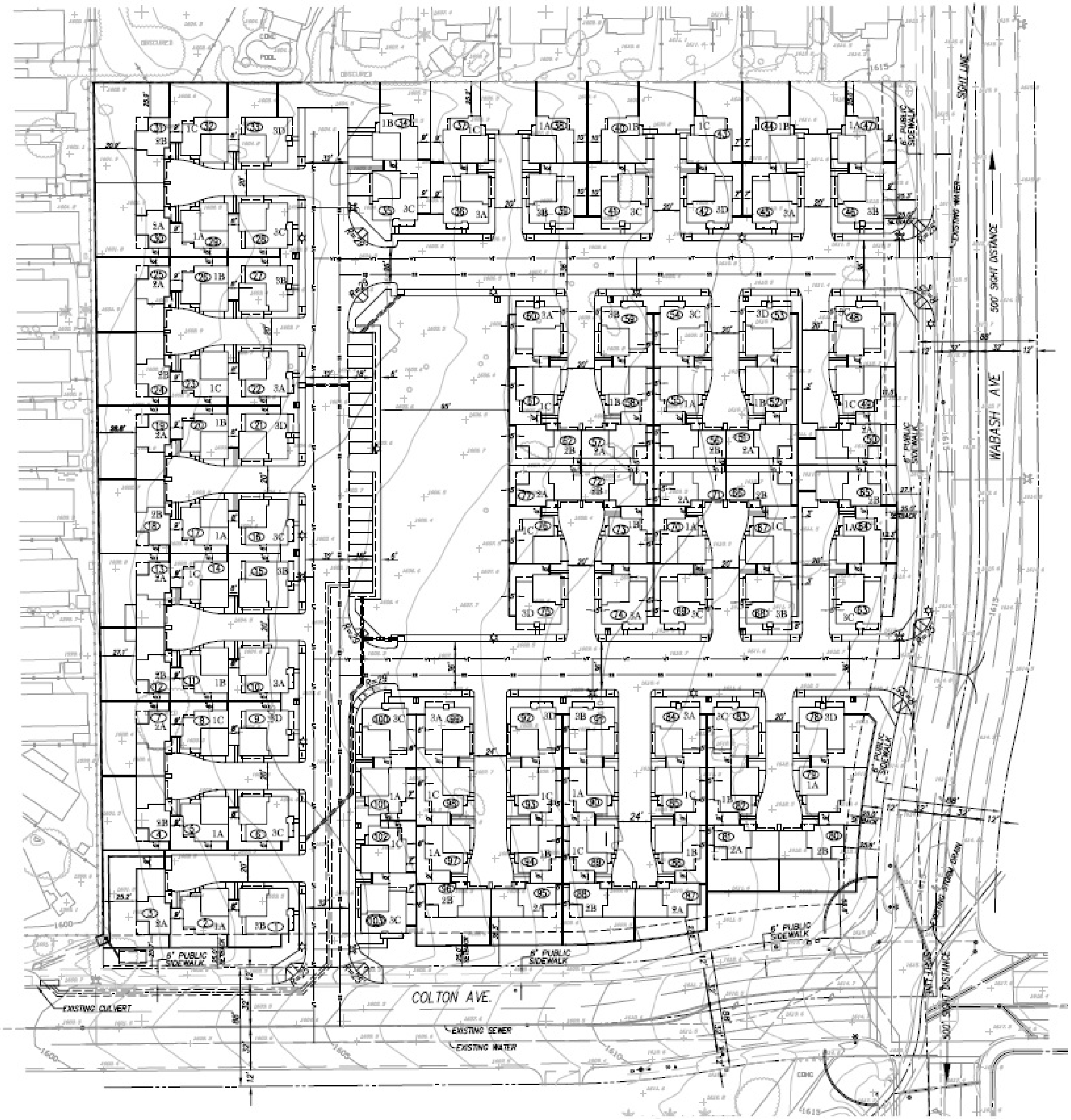
Once operational, the proposed Project would generate trips to and from the site. The proposed Project's trip generation potential is summarized in Table 2-1 (Ganddini Group, 2023).

Table 2-1: Project Trip Generation Rates

Land Use	Quantity	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Single-family housing	103	18	49	67	55	33	88	918

Source: Gandinni Group, 2023 modified by MIG

Figure 2-2 Site Plan



Source: CA Engineering Inc, 2023

2.3.4 PROJECT CONSTRUCTION

The proposed Project would involve the construction of approximately 216,567 square feet of gross building space on approximately 9.01 acres of land. Construction phasing associated with the proposed Project is anticipated to include site preparation, grading, building construction, paving, and architectural coating. The Project will require the import of approximately 7,631 cubic yards of soil. Construction activities are assumed to begin in early-2024 and last approximately 14 months based on default assumptions generated by the California Emissions Estimator Model (CalEEMod), which was used to estimate emissions associated with the proposed Project, and information provided by the Applicant. The proposed Project is anticipated to require varying types of equipment throughout the different construction phases including, but not limited to: bulldozers, backhoes, loaders, graders, cranes and forklifts. Table 2-2 summarizes the proposed Project's construction phasing and the typical pieces of heavy-duty, off-road construction equipment that would be required during each phase.

Table 2-2: Construction Activity, Duration, and Typical Equipment

Construction Activity	Duration (Days)[(A)]	Typical Equipment Used[(B)]
Site Preparation	10	Dozer, Tractor/Loader/Backhoe
Grading	20	Excavator, Grader, Dozer, Backhoe
Building Construction	230	Crane, Forklift, Backhoe, Generator, Welder
Paving	20	Paver, Roller, Paving Equipment
Architectural Coating	20	Air Compressor

Source: MIG, 2023 (See Appendix A).
(A) Days refers to total active workdays in the construction phase, not calendar days.
(B) The typical equipment list does not reflect all equipment that would be used during the construction phase. Not all equipment would operate eight hours per day each workday.

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3 AIR QUALITY SETTING AND REGULATORY FRAMEWORK

This chapter provides information on the environmental and regulatory air quality setting of the proposed Project. Information on existing air quality conditions, federal and state ambient air quality standards, and pollutants of concern was obtained from the U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and South Coast Air Quality Management District (SCAQMD).

3.1 REGIONAL ENVIRONMENTAL SETTING

Air quality is a function of pollutant emissions and topographic and meteorological influences. The amount of pollutants emitted into the air and the physical features and atmospheric conditions of a geographic region interact to affect the movement and dispersion of pollutants and determine the quality of its air.

The U.S. EPA and CARB are the federal and state agencies charged with maintaining air quality in the nation and state, respectively. The U.S. EPA delegates much of its authority over air quality to CARB. CARB has geographically divided the state into 15 air basins for the purposes of managing air quality on a regional basis. An air basin is a CARB-designated management unit with similar meteorological and geographic conditions. The proposed Project is located in the County of San Bernardino, within the South Coast Air Basin (Basin). The Basin includes Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties.

3.1.1 REGULATED AIR POLLUTANTS

The U.S. EPA has established National Ambient Air Quality Standards (NAAQS) for six common air pollutants: ozone (O_3), particulate matter (PM), which consists of "inhalable coarse" PM (particles with an aerodynamic diameter between 2.5 and 10 microns in diameter, or PM_{10}) and "fine" PM (particles with an aerodynamic diameter smaller than 2.5 microns, or $PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. The U.S. EPA refers to these six common pollutants as "criteria" pollutants because the agency regulates the pollutants on the basis of human health and/or environmentally-based criteria. CARB has established California Ambient Air Quality Standards (CAAQS) for the six common air pollutants regulated by the federal Clean Air Act (the CAAQS are more stringent than the NAAQS) plus the following additional air pollutants: hydrogen sulfide (H_2S), sulfates (SO_X), vinyl chloride, and visibility reducing particles. A description of the regulated air pollutants associated with the proposed Project is provided below.

- **Ground-level ozone**, or smog, is not emitted directly into the atmosphere. It is created from chemical reactions between oxides of nitrogen (NO_X) and volatile organic compounds (VOCs), also called reactive organic gases (ROG), in the presence of sunlight (U.S. EPA, 2017a). Thus, ozone formation is typically highest on hot sunny days in urban areas with NO_X and ROG pollution. Ozone irritates the nose, throat, and air pathways and can cause or aggravate shortness of breath, coughing, asthma attacks, and lung diseases such as emphysema and bronchitis.
  - **ROG** is a CARB term defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and includes several low-reactive organic compounds which have been exempted by the U.S. EPA (CARB, 2004).

  - **VOC** is a U.S. EPA term defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. The term exempts organic compounds of carbon which have been determined to have negligible photochemical reactivity such as methane, ethane, and methylene chloride (CARB, 2004).
- **Particulate matter (PM)**, also known as particle pollution, is a mixture of extremely small solid and liquid particles made up of a variety of components such as organic chemicals, metals, and soil and dust particles (U.S. EPA, 2016a).
  - PM_{10}, also known as inhalable coarse, respirable, or suspended PM_{10}, consists of particles less than or equal to 10 micrometers in diameter (approximately 1/7th the thickness of a human hair). These particles can be inhaled deep into the lungs and possibly enter the blood stream, causing health effects that include, but are not limited to, increased respiratory symptoms (e.g., irritation, coughing), decreased lung capacity, aggravated asthma, irregular heartbeats, heart attacks, and premature death in people with heart or lung disease (U.S. EPA, 2016a).
  - $PM_{2.5}$, also known as fine PM, consists of particles less than or equal to 2.5 micrometers in diameter (approximately 1/30th the thickness of a human hair). These particles pose an increased risk because they can penetrate the deepest parts of the lung, leading to and exacerbating heart and lung health effects (U.S. EPA, 2016a).
- **Carbon Monoxide (CO)** is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Motor vehicles are the single largest source of carbon monoxide in the Basin. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can aggravate cardiovascular disease and cause headaches, dizziness, unconsciousness, and even death (U.S. EPA, 2016b).
- **Nitrogen Dioxide (NO_2)** is a by-product of combustion. NO_2 is not directly emitted but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to ozone formation. NO_2 also contributes to the formation of particulate matter. NO_2 can cause breathing difficulties at high concentrations (U.S. EPA, 2016c).
- **Sulfur Dioxide (SO_2)** is one of a group of highly reactive gases known as oxides of sulfur (SO_X). Fossil fuel combustion in power plants and industrial facilities are the largest emitters of SO_2. Short-term effects of SO_2 exposure can include adverse respiratory effects such as asthma symptoms. SO_2 and other SO_X can react to form PM (U.S. EPA, 2016d).
- **Sulfates (SO_4^{2-})** are the fully oxidized ionic form of sulfur. SO_4^{2-} are primarily produced from fuel combustion. Sulfur compounds in the fuel are oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. Sulfate exposure can increase risks of respiratory disease (CARB, 2009).

In addition to criteria air pollutants, the U.S. EPA and CARB have classified certain pollutants as hazardous air pollutants (HAPs) or toxic air contaminants (TACs), respectively. These pollutants can cause severe health effects at very low concentrations, and many are suspected or confirmed carcinogens. The U.S. EPA has identified 187 HAPs, including such substances as arsenic and chlorine; CARB considers all U.S. EPA designated HAPs, as well as particulate emissions from diesel-fueled engines (DPM) and other substances, to be a TAC. Since CARB's list of TACs references and includes U.S. EPA's list of HAPs, this document uses the term TAC when referring to HAPs and TACs. A description of the TACs associated with the proposed Project and its vicinity is provided below.

- **Gasoline-Powered Mobile Sources.** According to the SCAQMD's *Multiple Air Toxics Exposure Study in the South Coast Air Basin* (SCAQMD, 2015), or MATES IV, gasoline-powered vehicles emit TACs, such as benzene, which can have adverse health risks. Gasoline-powered sources emit TACs in much smaller amounts than diesel-powered vehicles. The MATES IV study identifies that diesel emissions account for between 68% to 80% of the total air toxics and cancer risk in the Basin.
- **Diesel Particulate Matter (DPM).** Diesel engines emit both gaseous and solid material; the solid material is known as DPM. Almost all DPM is less than 1 micrometer (μm) in diameter, and thus is a subset of $PM_{2.5}$. DPM is typically composed of carbon particles and numerous organic compounds. Diesel exhaust also contains gaseous pollutants, including VOCs and NO_x. The primary sources of diesel emissions are ships, trains, trucks, rail yards and heavily traveled roadways. These sources are often located near highly populated areas, resulting in greater DPM related health consequences in urban areas. The majority of DPM is small enough to be inhaled into the lungs and what particles are not exhaled can be deposited on the lung surface and in the deepest regions of the lungs where the lung is most susceptible to injury. In 1998, CARB identified DPM as a toxic air contaminant based on evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure (CARB 2016a).

Common criteria air pollutants, such as ozone precursors, SO_2, and PM, are emitted by a large number of sources and have effects on a regional basis (i.e., throughout the Basin); other pollutants, such as HAPs, TACs, and fugitive dust, are generally not as prevalent and/or emitted by fewer and more specific sources. As such, these pollutants have much greater effects on local air quality conditions and local receptors.

3.1.2 REGIONAL AIR POLLUTANT EMISSIONS LEVELS

CARB's estimate of the amount of emissions generated within the Basin in 2012, the most recent year for which data is available, is summarized in Table 3-1.

3.1.3 SOUTH COAST AIR BASIN CLIMATE, TOPOGRAPHY, AND METEOROLOGY

Southwestern San Bernardino County and the broader Los Angeles Basin are defined by a semi-arid, Mediterranean climate with mild winters and warm summers. The San Gabriel, San Bernardino, and San Jacinto Mountains bound the Basin to the north and east trap ambient air and pollutants within the Los Angeles and Inland Empire valleys below. The climate of the greater Los Angeles region is classified as Mediterranean, but weather conditions within the Basin are dependent on local topography and proximity to the Pacific Ocean. The climate is dominated by the Pacific high-pressure system that results in generally mild, dry summers and mild, wet winters. This temperate climate is occasionally interrupted by extremely hot temperatures during the summer, Santa Ana winds during the fall, and storms from the Pacific northwest during the winter. In addition to the basin's topography and geographic location, El Niño and La Niña patterns also have large effects on weather and rainfall received between November and March.

Table 3-1: South Coast Air Basin Emissions Summary

Emissions Source	2017 Pollutant Emissions (Tons Per Day)						
	ROG	NO_X	$PM_{2.5}$	PM_{10}	PM	CO	SO_X
Stationary(A)	87	42	13	18	26	85	8
Area-wide(B)	130	20	32	117	221	53	0
Mobile(C)	185	298	17	30	31	1650	5
Total(D)	529	367	72	179	292	1893.1	15
Emissions Source	**2017 Pollutant Emissions (Tons Per Year)**						
	ROG	NO_X	$PM_{2.5}$	PM_{10}	PM	CO	SO_X
Stationary(A)	31,675	15,217	4,595	6,526	9,432	30,901	2,982
Area-wide(B)	47,395	7,420	11,519	42,661	80,815	19,436	128
Mobile(C)	67,598	108,901	6,074	11,081	11,344	602,261	1,796
Total(D)	193,300	690,989	26,246	65,196	106,722	690,989	5,636

Source: CARB 2022, modified by MIG.

(A) Stationary sources include fuel combustion in stationary equipment or a specific type of facility such as printing and metals processing facilities. Concrete batching is a subset of stationary source emissions.

(B) Mobile sources include automobiles, trucks, and other vehicles intended for “on-road” travel and other self-propelled machines such as construction equipment and all-terrain vehicles intended for “off-road” travel.

(C) Area-wide sources include solvent evaporation (e.g., consumer products, painting, and asphalt paving) and miscellaneous processes such as residential space heating, fugitive windblown dust, and cooking.

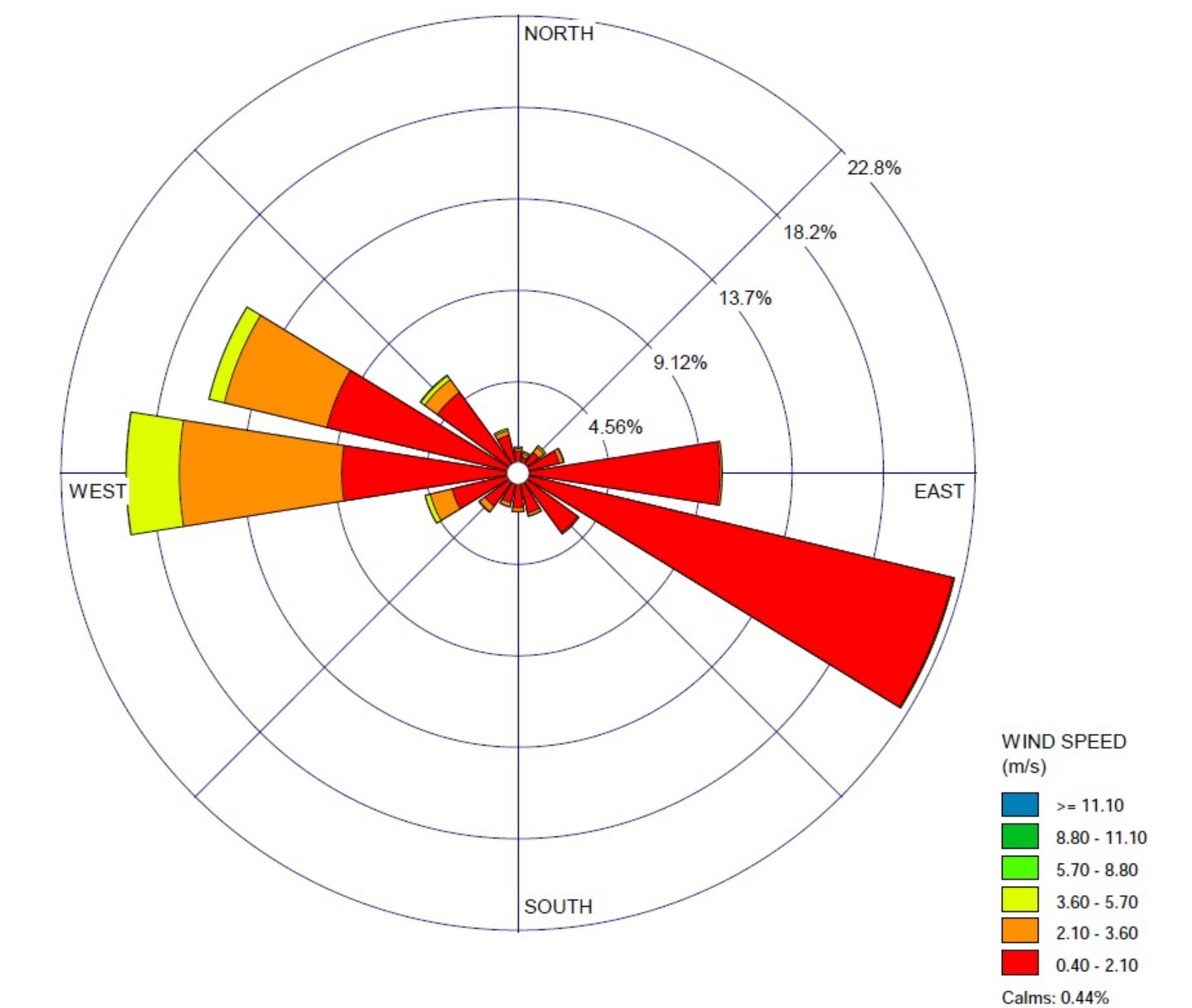
(D) Totals may not equal due to rounding.

The Pacific high-pressure system drives the prevailing winds in the Basin. The winds tend to blow onshore in the daytime and offshore at night. In the summer, an inversion layer is created over the coastal areas and increases ozone levels. A temperature inversion is created when a layer of cool air is overlain by a layer of warmer air; this can occur over coastal areas when cool, dense air that originates over the ocean is blown onto land and flows underneath the warmer, drier air that is present over land. In the winter, areas throughout the Basin often experience a shallow inversion layer that prevents the dispersion of surface level air pollutants, resulting in higher concentrations of criteria air pollutants such as CO and NO_X.

The City’s average temperatures range from a high of 94 degrees Fahrenheit (F) in July and August to a low of 39 degrees Fahrenheit in December and January. Annual precipitation is approximately 13.56 inches, falling mostly from November through April (WRCC 2016).

The SCAQMD maintains publicly meteorological data for use in air quality analyses. The closest meteorological station with data representative of those at the Project site is from the Redlands Meteorological Station, approximately 0.4 miles southwest of the Project site. The wind rose for the Redlands Meteorological Station, shown in Figure 3-1, indicates the prevailing wind near the Project site is from the east-southeast.

Figure 3-1 Wind Rose for the Redlands Meteorological Station (Blowing From)



Source: SCAQMD, 2018a

3.1.4 REGIONAL AIR QUALITY CONDITIONS AND ATTAINMENT STATUS

As described in Section 3.1.1 and shown in Table 3-2, the federal and state governments have established emission standards and limits for air pollutants which may reasonably be anticipated to endanger public health or welfare. These standards typically take one of two forms: standards or requirements that are applicable to specific types of facilities or equipment (e.g., petroleum refining, metal smelting), or concentration-based standards that are applicable to overall ambient air quality. Air quality conditions are best described and understood in the context of these standards; areas that meet, or attain, concentration-based ambient air quality standards are considered to have levels of pollutants in the ambient air that, based on the latest scientific knowledge, do not endanger public health or welfare.

The U.S. EPA, CARB, and the SCAQMD assess the air quality of an area by measuring and monitoring the amount of pollutants in the ambient air and comparing pollutant levels against NAAQS and CAAQS. Based on these comparisons, regions are classified into one of the following categories:

- **Attainment.** A region is "in attainment" if monitoring shows ambient concentrations of a specific pollutant are less than or equal to NAAQS or CAAQS. In addition, an area that has been re-designated from nonattainment to attainment is classified as a "maintenance area" for 10 years to ensure that the air quality improvements are sustained.
- **Nonattainment.** If the NAAQS or CAAQS are exceeded for a pollutant, the region is designated as nonattainment for that pollutant. It is important to note that some NAAQS and CAAQS require multiple exceedances of the standard in order for a region to be classified as nonattainment. Federal and state laws require nonattainment areas to develop strategies, plans, and control measures to reduce pollutant concentrations to levels that meet, or attain, standards.
- **Unclassified.** An area is unclassified if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment.

Table 3-2 summarizes the Basin's attainment status for criteria pollutants. The Basin is currently in nonattainment for state and federal ozone, state PM_{10}, and state and federal $PM_{2.5}$ standards.

Pollution problems in the Basin are caused by emissions within the area and the specific meteorology that promotes pollutant concentrations. Emissions sources vary widely from smaller sources such as individual residential water heaters and short-term grading activities to extensive operational sources including long-term operation of electrical power plants and other intense industrial use. Pollutants in the Basin are blown inward from coastal areas by sea breezes from the Pacific Ocean and are prevented from horizontally dispersing due to the surrounding mountains. This is further complicated by atmospheric temperature inversions that create inversion layers. The inversion layer in Southern California refers to the warm layer of air that lies over the cooler air from the Pacific Ocean. This is strongest in the summer and prevents ozone and other pollutants from dispersing upward. A ground-level surface inversion commonly occurs during winter nights and traps carbon monoxide emitted during the morning rush hour.

3.2 LOCAL ENVIRONMENTAL SETTING

The proposed Project is located in the City of Redlands, in the eastern part of San Bernardino County. To the west and north of the Project site are other single-family residential uses. To the south are residential uses (mobile home neighborhood) and a park, and to the east commercial and industrial uses. The site is also located approximately 1.3 miles south of Redlands Municipal Airport. The existing industrial / commercial uses, as well as vehicles on the local roadways, and overhead aircraft all contribute to the local air quality conditions in proximity to the Project site.

Table 3-2: Summary of Ambient Air Quality Standards and Attainment Status

Pollutant	Averaging Time(B)	California Standards(A)		National Standards(A)	
		Standard(C)	Attainment Status(D)	Standard(C)	Attainment Status(D)
Ozone	1-Hour (1979)	--	--	240 μg/m³	Nonattainment
	1-Hour (Current)	180 μg/m³	Nonattainment	--	--
	8-Hour (1997)	--	--	160 μg/m³	Nonattainment
	8-Hour (2008)	--	--	147 μg/m³	Nonattainment
	8-Hour (Current)	137 μg/m³	Nonattainment	137 μg/m³	Nonattainment
PM_{10}	24-Hour	50 μg/m³	Nonattainment	150 μg/m³	Attainment
	Annual Average	20 μg/m³	Nonattainment	--	--
$PM_{2.5}$	24-Hour	--	--	35 μg/m³	Nonattainment
	Annual Average (1997)	--	--	15 μg/m³	Attainment
	Annual Average (Current)	12 μg/m³	Nonattainment	12 μg/m³	Nonattainment
Carbon Monoxide	1-Hour	23,000 μg/m³	Attainment	40,000 μg/m³	Attainment
	8-Hour	10,000 μg/m³	Attainment	10,000 μg/m³	Attainment
Nitrogen Dioxide	1-Hour	339 μg/m³	Attainment	188 μg/m³	Unclassifiable/ Attainment
	Annual Average	57 μg/m³	Attainment	100 μg/m³	Attainment
Sulfur Dioxide	1-Hour	655 μg/m³	Attainment	196 μg/m³	Attainment
	24-Hour	105 μg/m³	--	367 μg/m³	Unclassifiable/ Attainment
	Annual Average	--	--	79 μg/m³	Unclassifiable/ Attainment
Lead	3-Months Rolling	--	--	0.15 μg/m³	Nonattainment (Partial)
Hydrogen Sulfide	1-Hour	42 μg/m³	Attainment	--	
Sulfates	24-Hour	25 μg/m³	Attainment	--	
Vinyl Chloride	24-Hour	26 μg/m³	Attainment	--	

Source: SCAQMD 2018b, modified by MIG.

(A) This table summarizes the CAAQS and NAAQS and the Basin's attainments status. This table does not prevent comprehensive information regarding the CAAQS and NAAQS. Each CAAQS and NAAQS has its own averaging time, standard unit of measurement, measurement method, and statistical test for determining if a specific standard has been exceeded. Standards are not presented for visibility reducing particles, which are not concentration-based. The Basin is unclassified for visibility reducing particles.

(B) Ambient air standards have changed over time. This table presents information on the standards previously used by the U.S. EPA for which the Basin does not meet attainment.

(C) All standards are shown in terms of micrograms per cubic meter (μg/m³) rounded to the nearest whole number for comparison purposes (with the exception of lead, which has a standard less than 1 μg/m³). The actual CAAQS and NAAQS standards specify units for each pollutant measurement.

(D) A= Attainment, N= Nonattainment, U=Unclassifiable.

3.2.1 LOCAL AIR QUALITY CONDITIONS

Air pollution levels are measured at monitoring stations located throughout the Basin. The Project site is located in SCAQMD Source Receptor Area (SRA) 35 – East San Bernardino Valley; The East San Bernardino Valley monitoring station is closest to the Project site, approximately 0.4 miles southwest of the Project site, and monitors O_3 and PM_{10}. This monitoring station represents the best approximation of the air quality conditions near the Project site. Table 3-3 summarizes the published monitoring data from the East San Bernardino Valley monitoring station from 2019 to 2021, the three most recent years for which verified, published data was available from the SCAQMD at the time this Report was prepared. Table 3-3 shows that air quality standards at this location have been exceeded for PM_{10} and O_3. This is consistent with the entire Basin's classification as non-attainment for PM_{10} and O_3. As shown in Table 3-3:

- The maximum 1-hour and 8-hour O_3 concentration, as well as the number of days exceeding O_3 standards, generally increased from 2019 to 2020, but decreased from 2020 to 2021.
- The maximum 24-hour PM_{10} concentration increased during the 2019 to 2020 period, but decreased from 2020 to 2021. while the average annual PM_{10} concentration decreased. The State PM_{10} 24-hour standard was exceeded only once (in 2020) over the 2019 to 2021 timeframe.

Table 3-3: 2019-2021 Local Air Quality Data for East San Bernardino Valley

Pollutant	Ambient Air Standard	Year		
		2019	2020	2021
Ozone (O_3)				
Maximum 1-hour Concentration (ppm)		0.137	0.173	0.145
Maximum 8-hr Concentration (ppm)		0.117	0.136	0.119
Number of Days Exceeding State 1-hr Standard	>180 µg/m3	73	104	74
Number of Days Exceeding State 8-hr Standard	>137 µg/m3	109	141	118
Days Exceeding Federal 1-hr Standard	>0.124 ppm	8	16	7
Days Exceeding Federal 8-hr Standard	>0.070 ppm	109	141	114
Suspended Particulate Matter (PM_{10})^(A)				
Maximum 24-hr Concentration (µg/m^3)		44	57	44
Annual Arithmetic Mean (µg/m^3)		21.2	23.4	23.2
Samples Exceeding State 24-hr Standard	>50 µg/m^3	0	1	0
Samples Exceeding Federal 24-hr Standard	>150 µg/m^3	0	0	0

Source: SCAQMD, 2023a, 2023b, 2023c
(A) PM_{10} data were collected for 59, 40, and 59 days in 2019, 2020, and 2021, respectively.

3.2.2 SENSITIVE AIR QUALITY RECEPTORS

Some people are more affected by air pollution than others. Sensitive air quality receptors include specific subsets of the general population that are susceptible to poor air quality and the potential adverse health effects associated with poor air quality. Both CARB and the SCAQMD consider residences, schools, parks and playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes to be sensitive air quality land uses and receptors (SCAQMD, 2017a; CARB, 2005). The sensitive air quality receptors in proximity of the proposed Project include:

- Single-family residences north of the site along Mendocino Way, south of the site along Orchard Drive, and west of the site as part of the Redlands Ranch neighborhood.

- Individuals at the Crafton Park, approximately 350 feet south of the Project site.
- Students at the Crafton Elementary School, approximately 960 feet south of the Project site;

3.2.3 EXISTING HEALTH RISKS AND DISADVANTAGED COMMUNITIES

The existing sensitive air quality receptors located adjacent or in close proximity to the Project site, are exposed to air pollution associated with motor vehicles operating on the roadways (e.g., Wabash Avenue, Colton Avenue), industrial facilities in proximity of the site, and overhead aircraft. The following subsections identify existing sources of information that attempt to quantify community health risks based on the sources of pollution to which they are exposed.

3.2.3.1 SCAQMD MATES IV Carcinogenic Risk Map

According to the SCAQMD's MATES IV Carcinogenic Risk Map, the existing carcinogenic risk in the vicinity of the Project is approximately 567 incremental cancer cases per million population (SCAQMD, 2018c).[1] This estimate reflects regional modeling efforts that largely do not account for site specific emission rates and dispersion characteristics that typically result in refined and substantially lower health risk estimates.

3.2.3.2 CalEnviroScreen and Disadvantaged Communities (Senate Bill 535)

CalEnviroScreen is a mapping tool that helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects. While CalEnviroScreen was originally developed as part of Senate Bill (SB) 535 and used to identify disadvantaged communities for the purposes of allocating funding from the State's Cap-and-Trade regulation, its application and scope have expanded over the years. The tool uses environmental, health, and socioeconomic information to produce scores for every census tract in the state. The CalEnviroScreen model is made up of four components – two pollution burden components (exposures and environmental effects) and two population characteristics components (sensitive populations and socioeconomic factors). The four components are further divided into 20 indicators. An indicator is a measure of either environmental conditions, in the case of pollution burden indicators, or health and vulnerability factors, in the case of population characteristic indicators.

- **Exposure** indicators are based on the measurements of different types of pollution that people may come into contact with. Exposure indicators include:
  - Air Quality: Ozone
  - Air Quality: $PM_{2.5}$
  - Children's Lead Risk from Housing
  - Diesel Particular Matter
  - Drinking Water Contaminants
  - Pesticide Use

[1] The potential cancer risk for a given substance is expressed as the incremental number of potential cancer cases that could be developed per million people, assuming that the population is exposed to the substance at a constant annual average concentration over a presumed 70-year lifetime. These risks are usually presented in chances per million. For example, if the cancer risks were estimated to be 100 per million, the probability of an individual developing cancer due to a lifetime of exposure would be one hundred in a million, or one in ten thousand. In other words, this predicts an additional 100 cases of cancer in a population of a million people over a 70-year lifetime (SCAQMD, 2021c).

  - Toxic Releases from Facilities
  - Traffic Density
- **Environmental effects** indicators are based on the locations of toxic chemicals in or near communities. Environmental effects indicators include:
  - Cleanup Sites
  - Groundwater Threats
  - Hazardous Waste Generators and Facilities
  - Impaired Water Bodies
  - Solid Waste Sites and Facilities
- **Sensitive population** indicators measure the number of people in a community who may be more severely affected by pollution because of their age or health. Sensitive population indicators include:
  - Asthma
  - Cardiovascular Disease
  - Low Birth Weight Infants
- **Socioeconomic factor** indicators are conditions that may increase people's stress or make healthy living difficult and cause them to be more sensitive to pollution's effects (OEHHA 2018). Socioeconomic factors include:
  - Educational Attainment
  - Housing Burden
  - Linguistic Isolation
  - Poverty
  - Unemployment

Each census tract receives scores for as many of the 20 indicators as possible, and the scores are then mapped so that different communities can be compared. Percentiles are assigned to each census tract based on the census tract's score in relation to the rest of the state. An area with a high percentile is one that experiences a much higher pollution burden than areas with low scores. For example, if a census tract has an indicator in the 40th percentile, it means that indicator's percentile is higher than 40 percent of the census tracts in the state. CalEnviroScreen also provides a total (or cumulative) score, which is the product of multiplying the 10 pollution burden components by the 10 population characteristics. This total / cumulative score helps contextualize how multiple contaminants from multiple sources affect people, while taking into account their living conditions (e.g., nonchemical factors such as socioeconomic and health status). Communities that are within the top 25th percentile for total CalEnviroScreen scores are considered disadvantaged communities pursuant to SB 535 (OEHHA, 2017a and 2017b).

According to the Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0 Map, the proposed Project is in the census tract north of East Citrus Avenue, between Wabash Avenue and Judson Street (census tract: 6071008402). This census tract includes student receptors at Crafton Elementary School and Crafton Park, and shows an average pollution indicator percentile of 41% based on the CalEnviroScreen indicators (e.g., exposure, environmental effects, population characteristics, socioeconomic factors) (OEHHA, 2018). Table 3-4 summarizes the CalEnviroScreen indicators for census tract 6071008402.

Table 3-4: CalEnviroScreen Health Risk Information	
Indicator	**Census Tract Indicator Values**
	Tract 6071008402
Exposure Indicators	
Air Quality: Ozone	100
Air Quality: $PM_{2.5}$	55
Children's Lead Risk from Housing	12
Diesel Particulate Matter	39
Drinking Water Contamination	61
Pesticide Use	78
Toxic Releases from Facilities	42
Traffic Density	9
Environmental Effect Indicators	
Cleanup Sites	0
Groundwater Threats	0
Hazardous Waste Generators and Facilities	17
Impaired Water Bodies	0
Solid Waste Sites and Facilities	0
Sensitive Population Indicators	
Asthma	61
Cardiovascular Disease	57
Low Birth Weight Infants	84
Socioeconomic Factor Indicators	
Educational Attainment	30
Housing Burden	14
Linguistic Isolation	22
Poverty	30
Unemployment	67
Cumulative Percentiles	
Pollution Burden Percentile	27
Population Characteristics Percentile	50
CalEnviroScreen Percentile (Total)	**41**
SB 535 Disadvantaged Community?	**No**
Source: OEHHA, 2021	

As shown in Table 3-4, census tract 6071008402 is within the bottom 50% of total CalEnviroScreen percentiles throughout the State. Though it is not substantially burdened by exposure to most pollution and socioeconomic factors as described in Table 3-4, this census tract was at the highest 100% score for air quality ozone exposure, which puts this community in the highest percentile for exposure to ozone levels compared with the rest of California. However, since this census tract is not within the top 25% in total scoring, according to the CalEnviroScreen methodology, it is not considered a disadvantaged community pursuant to SB 535.

3.2.4 EXISTING SITE OPERATIONS AND EMISSIONS ESTIMATES

The proposed Project site is currently undeveloped, this analysis assumes no emissions are generated at the site.

3.3 FEDERAL, STATE, AND LOCAL AIR QUALITY REGULATIONS

3.3.1 FEDERAL AIR QUALITY REGULATIONS

In 1975, Congress enacted the Federal Energy and Policy Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration (NHTSA) is responsible for establishing additional vehicle standards.

3.3.1.1 Federal Air Quality Regulations

The Federal Clean Air Act (CAA) defines the U.S. EPA's responsibilities for protecting and improving the United States air quality and ozone layer. Key components of the CAA include reducing ambient concentrations of air pollutants that cause health and aesthetic problems, reducing emission of toxic air pollutants, and stopping production and use of chemicals that destroy the ozone.

Federal clean air laws require areas with unhealthy levels of ozone, inhalable particulate matter, Carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop State Implementation Plans (SIPs); comprehensive documents that identify how an area will attain NAAQS. Deadlines for attainment were established in the 1990 amendments to the CAA based on the severity of an area's air pollution problem. Failure to meet air quality deadlines can result in sanctions against the State or the EPA taking over enforcement of the CAA in the affected area. SIPs are a compilation of new and previously submitted plans, programs, district rules, and State and Federal regulations. The SCAQMD implements the required provisions of an applicable SIP through its Air Quality Management Plan (AQMP). Currently, SCAQMD implements the 2012 Lead SIP for the Los Angeles County portion of Basin through the 2012 AQMP, and the 8-hr Ozone, 1-hr Ozone, 24-hr $PM_{2.5}$, and annual $PM_{2.5}$ SIPs through the 2016 AQMP. The Draft 2022 AQMP was published in May 2022.

3.3.1.2 Safe Affordable Fuel-Efficient Rule

On September 27, 2019, the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) published the SAFE Vehicles Rule Part One: One National Program." (84 Fed. Reg. 51,310 (Sept. 27, 2019)). The Part One Rule revoked California's authority to set its own greenhouse gas emissions standards and set zero emission vehicle mandates in California. As a result of the loss of the zero emission vehicles (ZEV) sales requirements in California, there may be fewer ZEVs sold and thus additional gasoline-fueled vehicles sold in future years (CARB 2019).

In April 2020, the U.S. EPA and NHTSA issued the SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (Final SAFE Rule) that relaxed federal greenhouse gas emissions and fuel economy standards. The Final SAFE Rule relaxed federal greenhouse gas emissions and Corporate Average Fuel Economy (CAFE) standards to approximately 1.5 percent (%) per year from model year (MY) 2020 levels over MYs 2021–2026. The previously established emission standards and related "augural" fuel economy standards would have achieved approximately 4% per year improvements through MY 2025. The Final SAFE Rule affects both upstream (production and delivery) and downstream (tailpipe exhaust) carbon dioxide (CO_2) emissions (CARB, 2020).

3.3.2 STATE AIR QUALITY REGULATIONS

3.3.2.1 California Clean Air Act

In addition to being subject to Federal requirements, air quality in the State is also governed by more stringent regulations under the California Clean Air Act, which was enacted in 1988 to develop plans and strategies for attaining the California Ambient Air Quality Standards. CARB, which is part of the California Environmental Protection Agency (Cal-EPA), develops Statewide air quality regulations, including industry-specific limits on criteria, toxic, and nuisance pollutants. The California Clean Air Act is more stringent than Federal Law in a number of ways, including revised standards for PM_{10} and ozone and for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

In California, both the Federal and State Clean Air acts are administered by CARB. It sets all air quality standards including emission standards for vehicles, fuels, and consumer goods as well as monitors air quality and sets control measures for toxic air contaminants. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional level.

3.3.2.2 Air Toxics "Hot Spots" Program

State requirements specifically address air toxic issues through Assembly Bill (AB) 1807 (known as the Tanner Bill) that established the State air toxics program and the Air Toxics Hot Spots Information and Assessment Act (AB 2588). Under the: "Hot Spots" Program, stationary sources of emissions are required to report the types and quantities of certain substances that their facilities routinely release into the air.

3.3.2.3 In-Use Off-Road Diesel Equipment Program

CARB's In-Use Off-Road Diesel Equipment regulation is intended to reduce emissions of NO_x and PM from off-road diesel vehicles, including construction equipment, operating within California. The regulation imposes limits on idling; requires reporting equipment and engine information and labeling all vehicles reported; restricts adding older vehicles to fleets; and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing exhaust retrofits for PM. The requirements and compliance dates of the off-road regulation vary by fleet size, and large fleets (fleets with more than 5,000 horsepower) must meet average targets or comply with Best Available Control Technology (BACT) requirements beginning in 2014. CARB has off-road anti-idling regulations affecting self-propelled diesel-fueled vehicles of 25 horsepower and up. The off-road anti-idling regulations limit idling on applicable equipment to no more than five minutes, unless exempted due to safety, operation, or maintenance requirements.

3.3.2.4 On-road Heavy-Duty Vehicles (In-Use) Regulation

CARB's In-Use Heavy-Duty Diesel-Fueled regulation (also known as the Truck and Bus Regulation) is intended to reduce emissions of NO_x, PM, and other criteria pollutants generated from existing on-road diesel vehicles operating in California. The regulation applies to nearly all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds that are privately or federally owned, and for privately and publicly owned school buses. Heavier trucks and buses with a GVWR greater than 26,000 pounds must comply with a schedule by engine model year or owners can report to show compliance with more flexible options. Fleets complying with the heavier trucks and buses schedule must install the best available PM filter on 1996 model year and newer engines, and replace the vehicle 8 years later. Trucks with 1995 model year and older engines had to be replaced starting in 2015. Replacements with a 2010 model year or newer engine meet the final requirements, but owners can also replace the equipment with used trucks that have a future compliance date (as specified in regulation). By 2023, all trucks and buses must have at least 2010 model year engines, with few exceptions.

3.3.2.5 CARB Air Quality and Land Use Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines as a TAC. CARB's Air Quality and Land Use Handbook is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process (CARB, 2005). The CARB Handbook recommends that planning agencies consider proximity to air pollution sources when considering new locations for "sensitive" land uses, such as residences, medical facilities, daycare centers, schools, and playgrounds. Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the Handbook relative to the Project Area include taking steps to consider or avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day;
- Within 300 feet of gasoline fueling stations; or
- Within 300 feet of dry-cleaning operations (dry cleaning with TACs is being phased out and will be prohibited in 2023). The SCAQMD (Regulation 14, Rule 21) has established emission controls for the use of perchloroethylene, the most common dry-cleaning solvent.

3.3.2.6 Assembly Bill 617: Community Air Protection Program

Adopted in 2017, AB 617 requires CARB and air districts to develop and implement additional emissions reporting, monitoring, reduction plans and measures in an effort to reduce air pollution exposure in disadvantaged communities. The bill recognizes that while California has seen tremendous improvement in regional air quality, some communities are still disproportionately impacted by local sources. Major local sources of air pollution in environmental justice communities include mobile sources (trucks, trains, ships, etc.) and industrial facilities. AB 617 deviates from prior legislation in that it requires local air districts to work in partnership with residents and community stakeholders to develop and implement community emissions reduction and/or community monitoring plans for the designated communities (as opposed to air districts unilaterally developing plans and strategies for addressing air pollution).

3.3.2.7 California Building Industry Association vs. Bay Area Air Quality Management District

The California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District*, 62 Cal.4th 369 (2015) ruled that CEQA review is focused on a project's impact on the environment "and not the environment's impact on the project." The opinion also holds that when a project has "potentially significant exacerbating effects on existing environmental hazards" those impacts are properly within the scope of CEQA because they can be viewed as impacts of the project on "existing conditions" rather than impacts of the environment on the project. The Supreme Court provided the example of a project that threatens to disperse existing buried environmental contaminants that would otherwise remain undisturbed. The Court concluded that it is proper under CEQA to undertake an analysis of the dispersal of existing contaminants because such an analysis would be focused on how the project "would worsen existing conditions." The court also found that the limited number of express CEQA provisions that require analysis of the impacts of the existing environment on a project – such as impacts associated with school siting and airports – should be viewed as specific statutory exceptions to the general rule that such impacts are not properly within CEQA's scope.

3.3.3 REGIONAL AIR QUALITY REGULATIONS

3.3.3.1 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a Joint Powers Authority under California State Law, established as an association of local governments and agencies that voluntarily convene as a forum to address regional issues. SCAG encompasses the counties of Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial.

SCAG is designated as a Metropolitan Planning Organization (MPO) and as a Regional Transportation Planning Agency. Under SB 375, SCAG, as a designated MPO, is required to prepare a Sustainable Communities Strategy (SCS) as an integral part of its Regional Transportation Plan (RTP). On September 3, 2020, SCAG's Regional Council adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS). The 2020 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. Information contained in Chapter 3: A Path to Greater Access, Mobility & Sustainable Growth of the 2020 RTP/SCS forms the basis for the land use and transportation components of the AQMP and are utilized in the preparation of air quality forecasts and consistency analysis included in the AQMP.

3.3.3.2 SCAQMD Air Quality Management Plan

The purpose of an AQMP is to bring an air basin into compliance with federal and state air quality standards and is a multi-tiered document that builds on previously adopted AQMPs. The 2016 AQMP for the Basin, which updated the 2012 AQMP, was approved by the SCAQMD Board of Directors on March 3, 2017. The 2016 AQMP provides new and revised demonstration's for how the SCAQMD, in coordination with Federal, State, Regional and Local Governments will bring the Basin back into attainment for the following NAAQS: 1997 8-hour Ozone; 1997 1-hour Ozone; 2008 8-hour Ozone; 2006 24-hour $PM_{2.5}$; and 2012 Annual $PM_{2.5}$.[2]

On December 2, 2022, the SCAQMD Governing Board adopted the 2022 AQMP, which focuses on bringing the South Coast Air Basin and the Salton Sea Air Basin into compliance with the 2015 8-hour ozone standard. The South Coast Air Basin, which is in extreme nonattainment, has an attainment year of

[2] Although the 2006 24-hour $PM_{2.5}$ standard was focused on in the 2012 AQMP, it has since been determined, primarily due to unexpected drought conditions, that it is impractical to meet the standard by the original attainment year. Since adoption of the 2012 AQMP, the U.S. EPA approved a re-classification to "serious" non-attainment for the standard, which requires a new attainment demonstration and deadline.

2037 for the 2015 8-hour ozone NAAQS. The 2022 AQMP includes growth projections developed by SCAG for the 2020 RTP/SCS that help inform emissions inventories. The 2022 AQMP plans to reduce NOx emissions to 60 tons per day, which is 67% below the current 2037 baseline, in order to meet this standard. The 2022 AQMP notes that widespread adoption of zero emission technologies across all sectors and a combination of local, state, and federal action will be required to achieve the projected NOx reductions.

The SCAQMD proposes incentive programs and 49 control measures that, with state and federal control measures, can achieve the required NOx reductions. SCAQMD's incentive programs would focus on promoting deployment of existing zero emission and low NOx technology and on developing new zero emission and ultra-low NOx technologies. SCAQMD's control measures consist of 30 measures that target stationary sources and 18 that target mobile sources. The 2022 AQMP includes stationary source measures that seek to reduce NOx from residential combustion sources, commercial combustion sources, and large combustion sources, as further described below.

- Residential control measures focus on reducing NOx by replacing appliances and devices (e.g., for heating and cooking) with zero emission and low-NOx appliances.
- Commercial control measures are identified reduce NOx from commercial appliances, cooking devices, and small internal combustion engines and commercial combustion equipment.
- Large combustion control measures have been included reduce NOx from sources including boilers, engines, and facilities.

In addition, the 2022 AQMP includes stationary source measures to reduce VOC, including reducing leaks and providing incentive funding for the adoption of low-VOC technology. The 2022 AQMP also includes co-benefit measures that quantify the reduction in criteria air pollutants from energy and climate change measures. Other stationary source measures (e.g., education and outreach) seek to reduce all criteria pollutants.

Finally, the 2022 AQMP includes mobile source control measures grouped into the following categories:

- Emission growth management, which mitigates emissions from new or redevelopment projects.
- Facility based, which focus on mobile sources at port, railyards, and intermodal facilities.
- On-road and off-road mobile sources, which focus on vehicles and equipment used during construction and operation at industrial sites.
- Incentives, for early deployment of cleaner technology.
- Other measures (e.g., infrastructure planning).

3.3.3.3 SCAQMD Rule Book

In order to control air pollution in the Basin, the SCAQMD adopts rules that establish permissible air pollutant emissions and governs a variety of businesses, processes, operations, and products to implement the AQMP and the various federal and state air quality requirements. SCAQMD does not adopt rules for mobile sources; those are established by CARB or the U.S. EPA. In general, the SCAQMD rules that are anticipated to be applicable to the development of the proposed Project, include:

- **Rule 203 (Permit to Operate)** sets forth the requirement that the use or operation any equipment or agricultural permit unit, the use of which may cause the issuance of air contaminants, or the use of which may reduce or control the issuance of air contaminants, must receive a written permit to operate from the Executive Officer.

- **Rule 401 (Visible Emissions)** prohibits discharge into the atmosphere from any single source of emission for any contaminant for a period or periods aggregating more than three minutes in any one hour that is as dark or darker in shade than that designated as No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.
- **Rule 402 (Nuisance)** prohibits discharges of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
- **Rule 403 (Fugitive Dust)** prohibits emissions of fugitive dust from any grading activity, storage pile, or other disturbed surface area if it crosses the project property line or if emissions caused by vehicle movement cause substantial impairment of visibility (defined as exceeding 20 percent capacity in the air). Rule 403 requires the implementation of Best Available Control Measures and includes additional provisions for projects disturbing more than five acres and those disturbing more than fifty acres.
- **Rule 445 (Wood Burning Devices)** prohibits installation of woodburning devices such as fireplaces and wood-burning stoves in new development unless the development is located at an elevation above 3,000 feet or if existing infrastructure for natural gas service is not available within 150-feet of the development. All fireplaces installed within the Proposed Project area will be natural gas fueled fireplaces.
- **Rule 481 (Spray Coating Operations)** imposes equipment and operational restrictions during construction for all spray painting and spray coating operations.
- **Rule 1108 (Cutback Asphalt)** prohibits the sale or use of any cutback asphalt containing more than 0.5 percent by volume organic compounds which evaporate at 260°C (500°F) or lower.
- **Rule 1113 (Architectural Coatings)** establishes maximum concentrations of VOCs in paints and other applications and establishes the thresholds for low-VOC coatings.
- **Rule 1143 (Consumer Paint Thinners and Multi-Purpose Solvents)** prohibits the supply, sale, manufacture, blend, package or repackage of any consumer paint thinner or multi-purpose solvent for use in the SCAQMD unless consumer paint thinners or other multi-purpose solvents comply with applicable VOC content limits.

3.3.4 CITY OF REDLANDS

3.3.4.1 General Plan

The City of Redlands' General Plan contains the following policies regarding air quality that may be applicable to the proposed Project:

- Policy 7-A.145: Provide, whenever possible, incentives for carpooling, flex time, shortened work weeks, telecommuting, and other means of reducing vehicular miles traveled.
- Policy 7-A.147: Cooperate with the ongoing efforts of the U.S. Environmental Protection Agency, the South Coast Air Quality Management District, and the State of California Air Resources Board in improving air quality in the regional air basin.

- Policy 7-A.149: Ensure that construction and grading projects minimize short-term impacts to air quality.
    - Require grading projects to provide a stormwater pollution prevention plan (SWPPP) in compliance with City requirements, which include standards for best management practices (BMPs) that control pollutants from dust generated by construction activities and those related to vehicle and equipment cleaning, fueling, and maintenance;
    - Require grading projects to undertake measures to minimize mono-nitrogen oxides (NOx) emissions from vehicle and equipment operations; and
    - Monitor all construction to ensure that proper steps are implemented.
- Policy 7-A.152: Enforce regulations to prevent trucks from excessive idling in residential areas.
- Policy 7-A.153: Require applicants for sensitive land uses (e.g. residences, schools, daycare centers, playgrounds, and medical facilities) to site development and/or incorporate design features (e.g. pollution prevention, pollution reduction, barriers, landscaping, ventilation systems, or other measures) to minimize the potential impacts of air pollution on sensitive receptors.
- Policy 7-A.154: Require applicants for sensitive land uses within a Proposition 65 warning contour to conduct a health risk assessment and mitigate any health impacts to a less than significant level.

3.3.4.2 Municipal Code

The City of Redlands Municipal Code, Title 8 Health and Safety, Chapter 8.52 Air Pollution establishes that it is unlawful for any person to maintain or operate any factory, yard, or establishment which generates into or pollutes the atmosphere with any unwholesome gas, fumes, dust, smoke, or odors deleterious to the public health or to allow offensive odors to be emitted from offal, garbage, or any animal or vegetable matter which is used in any process of reduction or manufacturing.

4 AIR QUALITY IMPACT AND HEALTH RISK ANALYSIS

This chapter evaluates the direct and indirect air quality impacts that could result from implementation of the proposed Project.

4.1 THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project could result in potentially significant impacts related to air quality if it would:

- Conflict with or obstruct implementation of the applicable SCAQMD AQMP;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the South Coast Air Basin is designated non-attainment 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.

4.1.1 REGIONAL AND TOXIC AIR CONTAMINANT SIGNIFICANCE THRESHOLDS

Consistent with the guidance contained in Appendix G of the State CEQA Guidelines, this Report relies upon SCAQMD-recommended methods and pollutant thresholds to evaluate whether the proposed Project's emissions would violate any air quality standard, contribute substantially to an existing or projected air quality violation, result in a cumulatively considerable net increase in nonattainment criteria air pollutants, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD's recommended thresholds of significance for criteria pollutants and incremental increases in health risk are shown in Table 4-1.

Table 4-1: SCAQMD-Recommended CEQA Thresholds

Pollutant	Maximum Daily Emissions (lbs/day)	
	Construction	Operation
NO_X	100	55
VOC/ROG	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3
TACs	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)	
Source: SCAQMD, 2019b		

4.1.2 LOCALIZED SIGNIFICANCE THRESHOLDS

In addition to establishing thresholds of significance for emissions of criteria air pollutants on a regional level, the SCAQMD has also developed Localized Significance Thresholds (LSTs) that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standards, which would result in significant adverse localized air quality effects. The LST methodology takes into account a number of factors, including (1) existing ambient air quality in each SRA; (2) how many acres the project would disturb; and (3) how far project construction and operational activities would take place from the nearest sensitive receptor. Unlike the regional emission significance thresholds, LSTs have only been developed for NO_X, CO, PM_{10} and $PM_{2.5}$.

This Report evaluates the proposed Project's potential to expose sensitive receptors to substantial pollutant concentrations pursuant to the SCAQMD Final Localized Significance Thresholds Methodology. This methodology provides screening tables for one through five-acre project scenarios. The construction and operational LSTs for one-acre, two-acre, and five-acre sites in SRA 35 (East San Bernardino Valley), the SRA in which the project is located, are shown in Table 4-2.

Table 4-2: SCAQMD Localized Significance Thresholds for Source Receptor Area 3

Pollutant Monitored	Maximum Allowable Emissions (Pounds per Day) as a Function of Receptor Distance (in Feet) from Site Boundary				
	82 Feet	164 Feet	328 Feet	656 Feet	1,640 Feet
ONE-ACRE SITE					
Construction Thresholds					
Nitrogen Oxides (NO_x)	118	148	211	334	651
Carbon Monoxide (CO)	775	1,205	2,279	5,351	21,703
Particulate Matter (PM_{10})	4	12	36	82	220
Particulate Matter ($PM_{2.5}$)	4	5	10	26	112
Operational Thresholds					
Nitrogen Oxides (NO_x)	118	148	211	334	651
Carbon Monoxide (CO)	775	1,205	2,279	5,351	21,703
Particulate Matter (PM_{10})	1	3	9	20	53
Particulate Matter ($PM_{2.5}$)	1	2	3	7	27
TWO-ACRE SITE					
Construction Thresholds					
Nitrogen Oxides (NO_x)	170	200	263	377	683
Carbon Monoxide (CO)	1,174	1,712	3,029	6,375	23,294
Particulate Matter (PM_{10})	7	21	44	90	230
Particulate Matter ($PM_{2.5}$)	5	7	13	30	120
Operational Thresholds					
Nitrogen Oxides (NO_x)	170	200	263	377	683
Carbon Monoxide (CO)	1,174	1,712	3,029	6,375	23,294
Particulate Matter (PM_{10})	2	5	11	22	56
Particulate Matter ($PM_{2.5}$)	2	2	4	8	29

Table 4-2: SCAQMD Localized Significance Thresholds for Source Receptor Area 3					
Pollutant Monitored	**Maximum Allowable Emissions (Pounds per Day) as a Function of Receptor Distance (in Feet) from Site Boundary**				
	82 Feet	**164 Feet**	**328 Feet**	**656 Feet**	**1,640 Feet**
FIVE-ACRE SITE					
Construction Thresholds					
Nitrogen Oxides (NO_x)	270	302	378	486	778
Carbon Monoxide (CO)	2,075	2,890	4,765	9,044	27,650
Particulate Matter (PM_{10})	14	42	66	113	255
Particulate Matter ($PM_{2.5}$)	9	12	20	40	140
Operational Thresholds					
Nitrogen Oxides (NO_x)	270	302	378	486	778
Carbon Monoxide (CO)	2,075	2,890	4,765	9,044	27,650
Particulate Matter (PM_{10})	4	11	16	28	62
Particulate Matter ($PM_{2.5}$)	3	3	5	10	34

Source: SCAQMD 2009, modified by MIG 2023

Note: The localized thresholds for NOx in this table account for the conversion of NO to NO_2. The emission thresholds are based on NO_2 levels, as this is the compound associated with adverse health effects.

4.1.3 CARBON MONOXIDE "HOT SPOT" THRESHOLDS

Historically, to determine whether a project poses the potential for a CO hotspot, the quantitative CO screening procedures provided in the *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) were used (UCD ITS 1997). The Protocol determines whether a project may worsen air quality by increasing the percentage of vehicles in cold start modes by two percent or more; significantly increasing traffic volumes by five percent or more; or worsening traffic flow at signalized intersections (by increasing average delay at intersections operating at level of service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F). With new vehicles and improvements in fuels resulting in fewer emissions, the retirement of older polluting vehicles, and new controls and programs, CO concentrations have declined dramatically in California. As a result of emissions controls on new vehicles, the number of vehicles that can idle, and the length of time that vehicles can idle before emissions would trigger a CO impact, has increased. Therefore, the use of LOS as an indicator is no longer applicable for determining CO impacts.

The Bay Area Air Quality Management District (BAAQMD) developed a screening-level analysis for CO hotspots in 2010 which finds that projects that are consistent with the applicable congestion management program, and that do not cause traffic volumes at affected intersections to increase to more than 44,000 vehicles per hour, would not result in a CO hotspot that could exceed State or Federal air quality standards (BAAQMD 2017 pg. 3-4). CO modeling was conducted for the SCAQMD's 2003 AQMP at four busy intersections during morning and evening peak hour periods as well. The busiest intersection studied in this analysis, Wilshire Boulevard and Veteran Avenue, had 8,062 vehicles per hour during morning peak hours, 7,719 vehicles per hour during evening peak hours, and approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour CO concentration for this intersection was 4.6 ppm, which is less than a fourth of the 1-hour CAAQS CO standard (20 ppm) (SCAQMD 2003a). The BAAQMD screening threshold is generally consistent with the results of the CO modeling conducted for the SCAQMD's 2003 AQMP.

Therefore, for purposes of this Report, the Project would pose the potential for a CO hotspot if it would exceed the BAAQMD's screening traffic level for peak hour intersection traffic volumes (44,000 vehicles per hour) (thereby having the potential to result in CO concentrations that exceed 1-hour State [20 ppm], 1-hour Federal [35 ppm], and/or State and Federal 8-hour [9 ppm] ambient air quality standards for CO).

4.2 ANALYSIS METHODOLOGY

Construction and operational emissions associated with buildout of the Project were calculated using CalEEMod and emission factors derived from CARB databases. The following summarizes the specific sources, and methodologies employed to estimate emissions.

4.2.1 MASS-BASED CRITERIA AIR POLLUTANT AND CONSTRUCTION TAC EMISSIONS

4.2.1.1 Construction Emissions

Construction of the proposed Project would generate equipment exhaust and dust emissions from the use of heavy-duty off-road equipment during site preparation, grading, building construction, paving, and architectural coating activities, as well as worker and vendor vehicle trips. The proposed Project's potential construction emissions were modeled using CalEEMod, Version 2022.1.1. The Project's construction activities, duration, and typical equipment used during construction are shown in Table 2-2. The construction phases, duration, and the type and amount of equipment used during construction was generated using CalEEMod default assumptions, and modified to reflect the following Project-specific characteristics:

- **Demolition:** The Demolition phase was removed to reflect the fact that the Project site is undeveloped.
- **Fugitive Dust Abatement During Construction:** The model was updated to reflect compliance with the watering requirements of SCAQMD Rule 403 during construction activities.
- **Electricity Use:** A 25 kilowatt (kW) generator was added to the model and assumed to operate 11-hours daily during construction to account for electricity consumption from the potential operation of a construction trailer on-site.

4.2.1.2 Operational Emissions

Once operational, the proposed Project would generate emission from the following sources:

- **Small "area" sources** including landscaping equipment and the use of consumer products such as paints, cleaners, and fertilizers that result in the evaporation of chemicals to the atmosphere during product use.
- **Energy use** in the form of natural gas combustion for building water and space heating needs.
- **Mobile sources** including trips made to and from the site by new residents and visitors.

Similar to construction emissions, criteria air pollutant emissions from operational activities were estimated in CalEEMod, Version 2022.1.1 based on default model assumptions, with the following modifications made to reflect Project-specific characteristics:

- **Area Sources:** Woodstoves and fireplaces were removed pursuant to SCAQMD Rule 445. The quantity of wood-burning fireplaces assumed by CalEEMod were added to natural-gas powered fireplaces.

- **Mobile Sources:** The default, weekday trip generation rate for the proposed land use was updated to reflect the trip generation rate provided in the Traffic Impact Analysis prepared for the proposed Project by Ganddini Group (Ganddini Group, 2023).

4.2.2 CONSTRUCTION EXHAUST PM_{10} MODELING METHODOLOGY

Construction activities associated with the proposed Project would generate on- and off-site exhaust emissions, including DPM, in the form of PM_{10}. The specific quantity of emissions emitted at any given time would be dependent on the type and number of pieces of equipment operating, the equipment's engine classification, the equipment's horsepower, and the load the engine is under. Off-site emissions would be generated from vendor trucks used to deliver materials to the site.

The U.S. EPA's AERMOD dispersion model (version 21112) was used to predict pollutant concentrations at existing sensitive receptors near the Project site. The AERMOD dispersion model is an EPA-approved and SCAQMD-recommended model for simulating the dispersion of pollutant emissions and estimating ground level concentrations of pollutants at specified receptor locations. AERMOD requires the user to input information on the source(s) of pollutants being modeled, the receptors where pollutant concentrations are modeled, and the meteorology, terrain, and other factors that affect the potential dispersion of pollutants. These variables are described below.

4.2.2.1 Modeled Construction Sources / Emission Rates

On- and off-site construction emissions were modeled as a series of area and line area sources, respectively, as shown in Table 4-3 and depicted in Figure 4-1. As a conservative approach, PM_{10} construction exhaust emissions were presumed to be 100 percent DPM. An emissions rate for each source listed in Table 4-3 was derived from the CalEEMod emissions estimates presented in Table 4-7. The annual PM_{10} exhaust emissions generated during construction of the proposed Project were converted to an average emission rate in terms of grams / second per hour of construction activity.

On-site DPM emissions from construction were modeled as a series of four area sources split between the northwestern, northeastern, southeastern, and southwestern quadrants of the site. The area sources were assigned a release height of five meters; this elevated source height reflects the height of the equipment exhaust pipes, plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for the plume rise of the exhaust gases.

Off-site DPM emissions from vehicles were modeled as line area sources. All hauling and vendor trips were assumed to travel via Wabash Avenue along the City's designated truck routes in proximity to the Project site. 50% of trips were assumed to travel via Wabash Avenue north of Colton Avenue, and 50% were assumed to travel via Wabash Avenue south of Colton Avenue. The release height for the line area sources was set to 4.12 meters, the approximate height of a truck exhaust.

Figure 4-1 Modeled Construction Emissions Sources

Table 4-3. AERMOD Source Parameters				
ID	Description	UTM Coordinates(A)		Size (m^2)
		X	Y	
PAREA01	Year 1 On-site PM_{10} Exhaust (northwest)	486982.64	3769341.70	9266.7
PAREA02	Year 1 On-site PM_{10} Exhaust (northeast)	487075.76	3769340.71	9417.8
PAREA03	Year 1 On-site PM_{10} Exhaust (southeast)	487075.45	3769241.18	9016.1
PAREA04	Year 1 On-site PM_{10} Exhaust (southwest)	486983.10	3769241.39	9319.6
PAREA05	Year 2 On-site PM_{10} Exhaust (northwest)	486982.64	3769341.70	9266.0
PAREA06	Year 2 On-site PM_{10} Exhaust (northeast)	487075.76	3769340.71	9417.6
PAREA07	Year 2 On-site PM_{10} Exhaust (southeast)	487075.45	3769241.18	9015.8
PAREA08	Year 2 On-site PM_{10} Exhaust (southwest)	486983.10	3769241.39	9320.1
ARLN01	Year 1 Off-site PM_{10} Exhaust (northbound Wabash Avenue)	487172.97	3769134.60	394.9(B)
ARLN02	Year 1 Off-site PM_{10} Exhaust (southbound Wabash Avenue)	487172.93	3769134.60	272.4(B)

Source: MIG 2023, see Appendix B
(A) UTM coordinates represent the northwest corner of the source.
(B) Reflects length of line area source in meters.

4.2.2.2 Meteorological Data Inputs

AERMOD requires meteorological data as an input into the model. The meteorological data is processed using AERMET, a pre-processor to AERMOD. AERMET requires surface meteorological data, upper air meteorological data, and surface parameter data such as albedo (reflectivity) and surface roughness. For the proposed Project, pre-processed surface data from the SCAQMD was obtained from the Redlands SCAQMD Meteorological Station (see Figure 3-1). Five complete years of meteorological data from January 2012 to December 2016 were utilized. Emissions were assumed to occur over an 11-hour period daily (7:00 AM to 6:00 PM) consistent with the City Municipal Code requirements.

4.2.2.3 Terrain Inputs

Terrain was incorporated by using AERMAP (an AERMOD pre-processor) to import the elevation of the Project site using data from the National Elevation Dataset (NED) with a resolution of 1/3 arcsecond.

4.2.2.4 Modeled Receptors

The following actions were performed to model receptors for the Project:

- A 1,200-meter by 1,200-meter grid was generated with a receptor spacing of 50 meters. The grid's center coordinates were 487075.45 meters Easting and 3769241.18 meters Northing, the approximate center of the Project site. The grid was converted to discrete Cartesian receptors.
- A fence line grid with one tier was generated around the perimeter of the Project site with a fence line spacing of 25 meters, segment distance of 30 meters, and tier spacing 10 meters. The grid was converted to discrete Cartesian receptors.

A plant blanking boundary was drawn around the site Project site. Based on this plant boundary and the grids described above, a total of 786 discrete receptors were modeled for the Project.

4.2.3 HEALTH RISK ANALYSIS METHODOLOGY

Cancer risk and non-cancer health risks to sensitive receptors within one-quarter mile of on-site sources were estimated using the U.S. EPA's AERMOD dispersion model and recommendations contained in the SCAQMD's *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions* white paper and *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics Hot Spots Information and Assessment Act,* as well as the OEHHA *Air Toxics Hot Spots Program Guidance Manual*.

4.2.3.1 Cancer Risk

Cancer risk is the calculated, pollutant-specific estimated probability of developing cancer based upon the dose and exposure to the TAC. Cancer risk is determined by calculating the combinatory effects of the cancer potency factor (CPF) when inhaling the toxic, the daily inhalation dose, the age group the receptor is cohort to, the duration of exposure over a lifetime (70 years), and other factors such as age sensitivity and the amount of time spent at the location of exposure. For the proposed Project, risks were assessed for the inhalation pathway (i.e., breathing) for residential and student receptors.[3] Both residential and student receptors were assessed under a 30-year exposure duration to detail potential risk to those under lifetime exposure. Cancer risk equations for residential and school receptors are summarized in Table 4-4 and Table 4-5.

4.2.3.2 Cancer Burden

Cancer burden is the product of public cancer risk and the population exposed to the carcinogen. There are approximately 330 residential dwelling units located within ¼-mile of the Project site. According to the EIR prepared for the County of San Bernardino's Countywide Plan, there are approximately 3.23 persons per household in the unincorporated portions of the county (County of San Bernardino, 2020b). Thus, an estimated population of 1,066 people live within ¼-mile of the Project site.

4.2.3.3 Non-Cancer Risk

The chronic non-cancer hazard quotient is the calculated pollutant-specific indicator for risk of developing an adverse health effect on specific organ system(s) targeted by the identified TAC, in this DPM. The potential for exposure to result in chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration to the chemical-specific, non-cancer chronic RELs. The REL is a concentration below which there is assumed to be no observable adverse health impact to a target organ system. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient. To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index. The chronic REL for DPM was established by OEHHA as 5 $\mu g/m^3$. For an acute hazard quotient, the one-hour maximum concentration is divided by the acute REL for the substance; however, there is no acute REL for DPM.

[3] OEHHA has not established cancer risk values for diesel exhaust based on the ingestion or dermal pathways. Therefore, only the inhalation pathway is evaluated with regard to this TAC.

Chronic non-cancer risks are considered significant if a project's TAC emissions result in a hazard index greater than or equal to one. Non-cancer risk equations are summarized in Table 4-6.

Table 4-4: Cancer Risk Equations	
Equation 1 - Residential Risk:	$RISK_{INH.RES} = DOSE_{AIR.RES} \times CPF \times ASF \times \frac{ED}{AT} \times FAH$
Where:	
$DOSE_{AIR}$ =	Daily Inhalation Dose (mg/kg-day). See Table 4-5.
CPF =	Cancer Potency Factor for Inhalants (mg/kg-day). CPF is expressed as the 95th percent upper confidence limit of the slope of the dose response curve under continuous lifetime exposure conditions. The CPF for diesel exhaust is 1.1 mg/kg-day.
ASF =	Age Sensitivity Factor. ASF is a protective coefficient intended to take into account increased susceptibility to long-term health effects from early-life exposure to TACs. The recommended ASFs are 10 for the third-trimester to birth and two-year age bins, three for the two-year to nine-year and 16-year age bins, and one for receptors over 16 years of age.
ED =	Exposure Duration (years). Exposure duration characterizes the length of residency (30 Years) for the receptor.
AT =	Averaging Time (years). A 70-year (lifetime) averaging time is used to characterize to total risk as a factor of average risk over a typical lifespan.
FAH =	Fraction at Home / Fraction at School. FAH is the percentage of time the receptor is physically at the receptor location. *Residential Receptors* The recommended percentages are 85 percent for the third-trimester to birth and two-year age bins, 72 percent for the two-year to nine-year and 16-year age bins, and 73 for receptors over 16 years of age. *School Receptors* The FAH for school receptors was set to 42 percent. This reflects receptors being present at the site for 10 hours per day.

Table 4-5: Inhalation Dose Equations	
Residential Dose	$DOSE_{AIR.RES} = C_{AIr} \times \frac{BR}{BW} \times A \times EF \times 10^{-6}$
Where:	
C_{AIR} =	Concentration of TAC in air (µg/m^3). Concentration of toxic in micrograms per one cubic meter of air. The AERMOD program is used in the study to determine concentrations of diesel particulate matter at surrounding discrete and grid receptor points.

Table 4-5: Inhalation Dose Equations	
Residential Dose	$DOSE_{AIR.RES} = C_{AIr} \times \frac{BR}{BW} \times A \times EF \times 10^{-6}$
BR/BW =	Breathing Rate ÷ Body Weight (L/kg/day). Daily breathing rate normalized to body weight. *Residential Receptor* The 95th percentile breathing rate to body weight ratios are used in this study with a recommended 361 L/kg/day for the third-trimester to birth age bin, 1,090 L/kg/day for the birth to two-years age bin, 572 for the two-years to 16-years age bin, 261 L/kg/day for the 16-years to 30-years age bin, and 233 L/kg/day for the 16-years to 70-years age bin. *Student* Consistent with OEHHA guidance, the daily breathing rate to body weight ratios were set to 640 for the for the two-years to nine-years age bin and 520 for the for the two-years to 16-years age bin. The adult receptors were assumed to have the same breathing rate to body weight ratio as the adult receptors.
A =	Inhalation Absorption Factor. Is a coefficient that reflects the fraction of chemical absorbed in studies used in the development of CPF and Reference Exposure Levels (RELs). An absorption factor of one is recommended for all chemicals.
EF =	Exposure Frequency. EF is the ratio of days in a year that a receptor is receiving the dose. *Residential* The recommended EF is 0.96 characterizing an assumed 350 days a year that a residential receptor is home for some portion of the day. *Student* The EF for student receptors was set to 0.49. This reflects student receptors would be at the site 180 days per year.

Table 4-6: Non-Cancer Risk Equation	
Chronic Hazard Quotient:	$HI_{DPM} = \frac{C_{DPM}}{REL_{AAC}}$
Where:	
HI_{DPM} =	Hazard Index; an expression of the potential for non-cancer health effects.
C_{DPM} =	Annual average DPM concentration (μg/m^3).
REL_{DPM} =	Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

4.3 CONSISTENCY WITH THE APPLICABLE AIR QUALITY PLAN

As described in Section 3.1, the proposed Project is within the South Coast Air Basin, which is under the jurisdiction of the SCAQMD. Pursuant to the methodology provided in Chapter 12 of the SCAQMD *CEQA Air Quality Handbook*, consistency with the AQMP is affirmed if the Project:

1) Is consistent with the growth assumptions in the AQMP; and

2) Does not increase the frequency or severity of an air quality standards violation, or cause a new one.

Consistency Criterion 1 refers to the growth forecasts and associated assumptions included in the AQMP. Projects that are consistent with the AQMP growth assumptions would not interfere with attainment of air quality standards, because this growth is included in the projections used to formulate the AQMP. The proposed Project would generate approximately 333 new residents, which would be well within the SCAG 2020 RTP/SCS growth projections for the City of Redlands (i.e., 11,300 residents between 2016 and 2045; SCAG 2020). Therefore, the proposed Project would not exceed the growth assumptions contained in the AQMP.

Consistency Criterion 2 refers to the CAAQS. In developing its CEQA significance thresholds, the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable (SCAQMD, 2003; page D-3). As described below in Section 4.4, the proposed Project would not generate construction or operational emissions in excess of SCAQMD criteria air pollutant thresholds.

For the reasons described above, the proposed Project would not conflict with the SCAQMD 2022 AQMP.

4.4 CUMULATIVELY CONSIDERABLE INCREASE IN REGULATED NONATTAINMENT POLLUTANTS

The proposed Project would generate short-term construction emissions. The Project's potential emissions were estimated using CalEEMod, Version 2022.1.1. As described in more detail below, the proposed Project would not generate short-term emissions that exceed SCAQMD-recommended pollutant thresholds.

4.4.1 CONSTRUCTION EMISSIONS

The proposed Project's maximum daily unmitigated construction emissions are shown in Table 4-7. The construction emissions estimates incorporate measures to control and reduce fugitive dust as required by SCAQMD Rule 403 (see Section 3.3.3). Please refer to Appendix A for CalEEMod output files and detailed construction emissions assumptions.

As shown in Table 4-7, the proposed Project's maximum daily unmitigated construction emissions would be below the SCAQMD's regional pollutant thresholds for all pollutants. Thus, the proposed Project would not generate construction-related emissions that exceed SCAQMD CEQA thresholds.

Table 4-7: Unmitigated Construction Emissions Estimates

Season	Maximum Daily Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer 2024	1.4	11.7	15.7	<0.1	0.9	0.6
Winter 2024	3.7	36.0	33.8	0.1	9.4	5.5
Winter 2025	68.2	7.5	10.7	<0.1	0.5	0.4
SCAQMD CEQA Threshold	75	100	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: MIG, 2023 (see Appendix A) and SCAQMD 2019b.

4.4.2 OPERATIONAL EMISSIONS

The proposed Project's maximum daily unmitigated operational emissions, as estimated using CalEEMod Version 2022.1.1 are shown in Table 4-8. The emissions presented are for the proposed Project's first year of operation, which is presumed to be 2025.

Table 4-8: Unmitigated Operational Emissions Estimates (Year 2025)

Source	Maximum Daily Pollutant Emissions (Pounds Per Day)(A)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	5.6	1.6	6.5	<0.1	0.1	0.1
Energy	0.1	0.8	0.4	<0.1	0.1	0.1
Mobile	3.6	3.4	29.3	0.1	2.3	0.5
Total Project Emissions(B)	9.3	5.8	36.2	0.1	2.5	0.7
SCAQMD CEQA Threshold	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: MIG, 2023 (See Appendix A) and SCAQMD, 2019b.

(A) Maximum daily ROG, CO, SO_X emissions occur during the summer. Maximum daily NO_X, PM_{10}, and $PM_{2.5}$ emissions occur during the winter. See Appendix A.

(B) Totals may not equal due to rounding.

As shown in Table 4-8, the proposed Project's maximum daily unmitigated operational emissions would be below the SCAQMD's regional pollutant thresholds for all pollutants.

4.4.3 CONCLUSION

In developing its CEQA significance thresholds, the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable (SCAQMD, 2003; page D-3). As described above the proposed Project's construction emissions would be below applicable SCAQMD regional thresholds for criteria air pollutants. Therefore, the proposed Project would not result in a cumulatively considerable increase in criteria air pollutants.

4.5 SENSITIVE RECEPTORS AND SUBSTANTIAL POLLUTANT CONCENTRATIONS

The proposed Project would generate both short-term construction emissions and long-term operational emissions that could impact sensitive residential receptors located near the Project; however, as described in more detail below, the proposed Project would not generate short-term or long-term emissions that exceed SCAQMD-recommended localized significance thresholds or result in other substantial pollutant concentrations after the incorporation of recommended Mitigation Measure AIR-1.

4.5.1 LOCALIZED SIGNIFICANCE THRESHOLDS ANALYSIS

4.5.1.1 Construction Emissions

The proposed Project's maximum daily construction emissions are compared against the SCAQMD's-recommended LSTs in Table 4-9. The LSTs are for SRA 35 (East San Bernardino Valley) in which the proposed Project is located. Construction emissions were estimated against the SCAQMD's thresholds for a 5-acre project size. A receptor distance of 25 meters was used to evaluate impacts at sensitive residential receptor locations for construction activities. This is considered to be a conservative approach, since the Project would involve grading / site disturbance of approximately 9 acres, i.e., more than 5 acres.

Table 4-9: Construction Emissions Localized Significance Thresholds Analysis				
Construction Phase	**Maximum On-Site Pollutant Emissions (lbs/day)(A)**			
	NOx	**CO**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation 2024	36	33	1.6	1.5
Grading 2024	18	19	0.8	0.8
Building Construction 2024	11	13	0.5	0.5
Paving 2024	7.8	10	0.4	0.4
Paving 2025	7.5	10	0.4	0.3
Architectural Coating 2025	0.9	1.1	<0.1	<0.1
SCAQMD LST Threshold	270	2,075	14	9
Threshold Exceeded?	No	No	No	No

Source: MIG, 2023 (See Appendix A)

(A) Emissions presented are worst-case emissions and may reflect summer or winter emissions levels. In general, due to rounding, there is no difference between summer and winter emissions levels for the purposes of this table.

As shown in Table 4-9, emissions from construction activities at the Project site will not exceed the SCAQMD's-recommended LSTs for SRA 35.

4.5.1.2 Operational Emissions

The proposed Project's maximum daily operational emissions are compared against the SCAQMD's-recommended LSTs in Table 4-10. The LSTs are for SRA 35 (East San Bernardino Valley) in which the proposed Project is located. The operational emissions from on-site area, mobile, and off-road emissions sources were estimated against the SCAQMD's thresholds for a 5-acre project size. A receptor distance of 25 meters was used to evaluate impacts at sensitive receptor locations for operational activities.

Table 4-10: Operational Emissions Localized Significance Thresholds Analysis				
Operational Emission Source	**Maximum On-Site Pollutant Emissions (lbs/day)(A)**			
	NOx	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area	5.6	1.6	0.1	0.1
Energy	0.1	0.8	0.1	0.1
Mobile(B)	0.1	0.6	<0.1	<0.1
Total On-Site Emissions	5.8	3.0	0.2	0.2
SCAQMD LST Threshold	270	2,075	4	3
Threshold Exceeded?	No	No	No	No

Source: MIG, 2023 (See Appendix A)

(A) Emissions presented are worst-case emissions and may reflect summer or winter emissions levels. In general, due to rounding, there is no difference between summer and winter emissions levels for the purposes of this table.

(B) Mobile source emissions estimates reflect potential onsite vehicle emissions only and were derived by assuming 2% of operational mobile source emissions in Table 4-9 will occur onsite.

As shown in Table 4-10, emissions from operational activities at the Project site will not exceed the SCAQMD's-recommended LSTs for SRA 35.

4.5.2 CARBON MONOXIDE HOT SPOTS

The proposed Project would add approximately 918 new vehicle trips to the local roadway infrastructure per day, with 67 and 88 trips added during the AM and PM peak hours, respectively (Ganddini Group 2023). The Project is not located in an area where hourly or daily traffic volumes are close to 44,000 vehicles per hour, the BAAQMD screening threshold, or 100,000 vehicles per day. Furthermore, the Project would not add enough trips to result in these hourly or daily traffic volumes either. The proposed Project would not cause intersection volumes to exceed any daily (100,000) or hourly (44,000) screening vehicle volumes maintained by the SCAQMD and other regional air districts and, therefore, would not result in significant CO concentrations.

4.5.3 TOXIC AIR CONTAMINANT EMISSIONS / HEALTH RISK ASSESSMENT

As described in Section 3.2.2, sensitive receptors are located north, west, and south of the Project site. Project-related construction activities would emit PM_{10} from equipment exhaust.

4.5.3.1 Individual Cancer Risk from Exposure to DPM

The predicted locations of the annual, unmitigated point of maximum impact (PMI), the maximally exposed individual resident receptor (MEIR), and maximally exposed student receptor (MESR) for DPM exposure during construction are shown in Figure 4-2, along with contours of pollutant concentrations in proximity of the Project site. The predicted PMI is located east of the Project site, in Wabash Avenue. Since the PMI for DPM exposure is located on land that is not occupied by a receptor on a permanent basis, lifetime excess cancer risks and chronic non-cancer health hazards, which are based on exposure to annual average pollutant concentrations, were not estimated for the modeled PMI location.

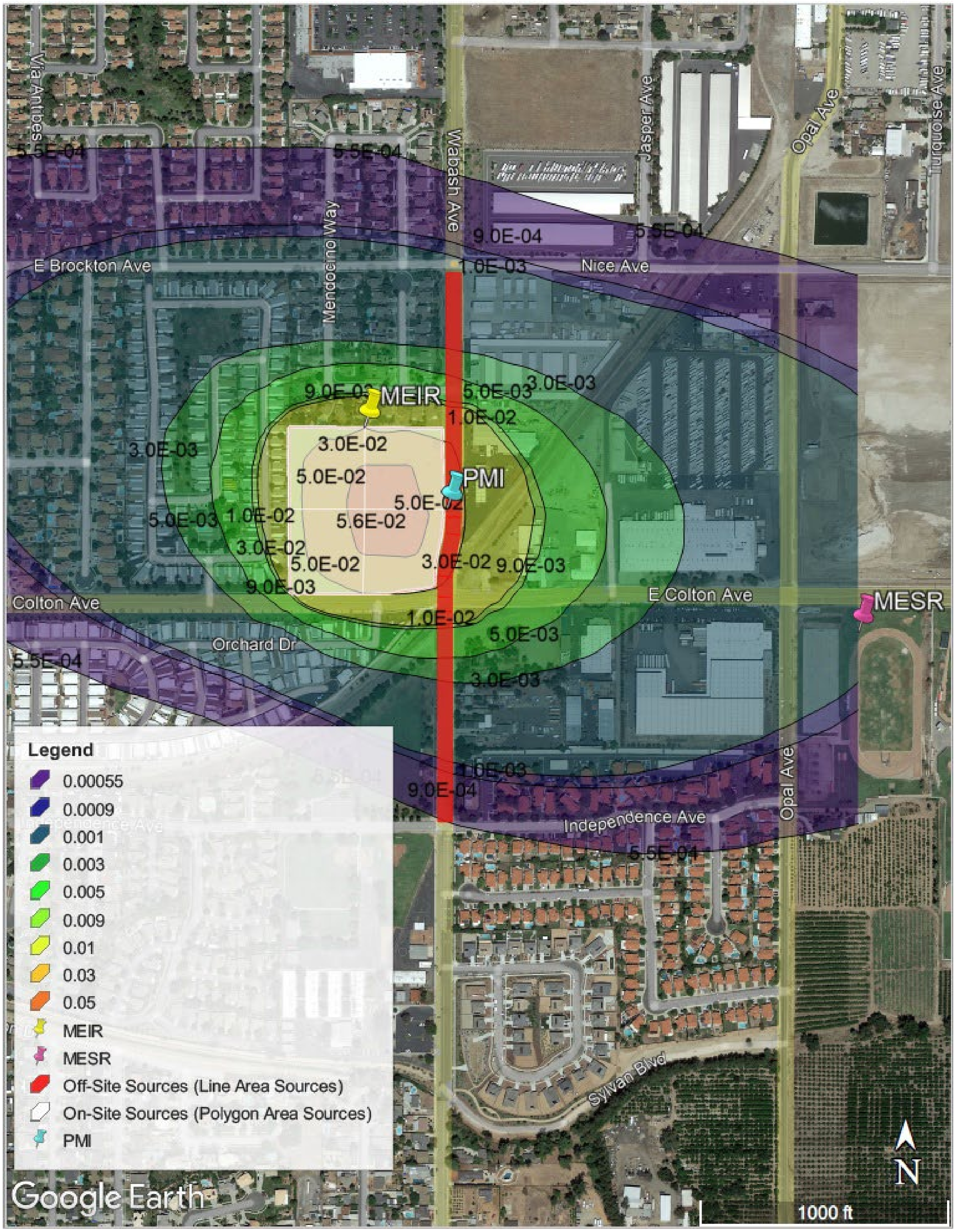
Accordingly, health risks were assessed at the modeled residential MEIR location, which is located north of the Project site at 1774 Mendocino Way. The HRA for residential receptors evaluated worst-case carcinogenic and non-carcinogenic risks to child (3rd trimester, 0-2 years, and 2-16 years) and adult (16-30 years and 30-70 years) receptors. Potential health risks were also assessed for student receptors near Redlands East Valley High School, east of the Project site. The worst-case individual cancer risk from exposure to DPM during construction is summarized in Table 4-11. The worst-case risk is based on a receptor that is in the 3rd trimester at the start of construction activities. See Appendix C for estimated risks to all receptor age groups.

Table 4-11: Unmitigated Cancer Risk at PMI, MEIR, and MEIR

Receptor	UTM Location		Annual Average DPM Concentration (µg/m³)(A)		Excess Cancer Risk (per million population)		
	Easting	Northing	Construction Year 1	Construction Year 2	Construction Year 1	Construction Year 2	Total
PMI(A)	487175.45	3769241.18	0.21381	0.00941	--	--	--
MEIR	487075.45	3769341.18	0.14218	0.00625	21.5	0.9	22.4
MESR	487675.45	3769091.18	0.00567	0.00025	<0.1	<0.1	<0.1

Source: MIG, 2023 (see Appendix C)
(A) The PMI is located along Wabash Avenue, which is not occupied by a long-term sensitive receptor.

Figure 4-2 Construction: Modeled Annual Average DPM Concentrations (µg/m³)



As shown in Table 4-11, the maximum construction unmitigated health risk for the MEIR location would be approximately 22.4 excess cancers in a million, which would exceed the SCAQMD cancer risk threshold of 10 in a million. Therefore, MIG recommends the implementation of Mitigation Measure AIR-1 to reduce construction-related DPM emissions and associated adverse health risks.

Mitigation Measure AIR-1: Reduce DPM Emissions. To reduce potential short-term adverse health risks associated with PM_{10} exhaust emissions, including emissions of diesel particulate matter (DPM), generated during project construction activities, the City shall require the Applicant and/or its designated contractors, contractor's representatives, or other appropriate personnel to comply with the following construction equipment restriction for the Project:

- All construction equipment with a rated power-output of 50 horsepower or greater shall meet U.S. EPA and CARB Tier IV Interim Emission Standards. This may be achieved via the use of equipment with engines that have been certified to meet Tier IV Interim emission standards, or through the use of equipment that has been retrofitted with a CARB-verified diesel emission control strategy (e.g., oxidation catalyst, particulate filter) capable of reducing exhaust PM_{10} emissions to levels that meet Tier IV standards.

As an alternative to using equipment that meets Tier IV Interim Emissions Standards for off-road equipment with a rated power-output of 50 horsepower or greater, the Applicant may prepare and submit a refined construction health risk assessment to the City once additional Project-specific construction information is known (e.g., specific construction equipment type, quantity, engine tier, and runtime by phase). The refined health risk assessment shall demonstrate and identify any measures necessary such that the proposed Project's incremental cancerogenic health risk at nearby sensitive receptor locations is below the applicable SCAQMD threshold of 10 cancers in a million.

Mitigation Measure AIR-1 would reduce PM_{10} exhaust emissions by approximately 79.4%, as accounted for in the CalEEMod emissions modeling (see Appendix A). Table 4-12 summarizes potential cancerogenic health risks after the implementation of Mitigation Measure AIR-1. As shown in Table 4-12, with the implementation of Mitigation Measure AIR-1, potential excess cancer risk from project activities at the MEIR location would be reduced to approximately 4.7 excess cancers in a million, which is less than the SCAQMD's threshold of 10 in a million.

Table 4-12: Mitigated Cancer Risk at PMI, MEIR, and MEIR

Receptor	UTM Location		Annual Average DPM Concentration ($\mu g/m^3$)(A)		Excess Cancer Risk (per million population)		
	Easting	Northing	Construction Year 1	Construction Year 2	Construction Year 1	Construction Year 2	Total(B)
PMI(C)	487175.45	3769241.18	0.04423	0.00335	--	--	--
MEIR	487075.45	3769341.18	0.02936	0.00222	4.4	0.3	4.7
MESR	487675.45	3769091.18	0.00117	9.00E-5	<0.1	<0.1	<0.1

Source: MIG, 2023 (see Appendix C)
(A) The annual average DPM concentration for construction is based on the first year of construction.
(B) Totals may not equal due to rounding.
(C) The PMI is located along Wabash Avenue, which is not occupied by a long-term sensitive receptor.

4.5.3.2 Cancer Burden

The average cancer risk based on the lifetime exposure scenario (70 years), when taking into account Mitigation Measure AIR-1 to address construction risks, is 1.34E-06 (approximately 1.34 cases per million people). The product of cancer risk and the estimated population (1,066) is 0.001429 and does not exceed the SCAQMD threshold of 0.5 excess cancer cases.

4.5.3.3 Non-Cancer Risk

The maximum annual average DPM concentration at any receptor location under unmitigated conditions would be approximately 0.14218 $\mu g/m^3$, which would occur at the MEIR location. Based on the chronic inhalation REL for DPM (5 $\mu g/m^3$), the calculated chronic hazard quotient during the maximum exposure to DPM concentration would be 0.0284, which is below the SCAQMD's non-cancer hazard index threshold value of 1.0.

4.6 ODORS

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper, etc.). The proposed Project does not include such sources but would result in the construction of new single-family homes and parking area that could generate odors related to vehicle parking and refuse collection (e.g. oils, lubricants, fuel vapors, short-term waste odors). These activities would not generate sustained odors that would affect substantial numbers of people.

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5 REPORT PREPARERS AND REFERENCES

This report was prepared by MIG under contract to City of Redlands. This report reflects the independent, objective, professional opinion of MIG. The following individuals were involved in the preparation and review of this report:

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APPENDIX A: CalEEMod Output Files

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Madera at Citrus Trail Single Family Detailed Report

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5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.13.2. Mitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.14.2. Mitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Madera at Citrus Trail Single Family
Construction Start Date	1/1/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	11.2
Location	34.06398413695213, -117.14011516418039
County	San Bernardino-South Coast
City	Redlands
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5388
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.12

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

Single Family Housing	103	Dwelling Unit	8.55	216,576	65,470	—	341	—
Other Asphalt Surfaces	20.1	1000sqft	0.46	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

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.	1.66	1.39	11.7	15.7	0.03	0.50	0.43	0.93	0.46	0.10	0.57	—	3,070	3,070	0.14	0.08	2.33	3,098
Mit.	0.87	0.77	9.74	17.5	0.03	0.12	0.43	0.55	0.12	0.10	0.22	—	3,070	3,070	0.14	0.08	2.33	3,098
% Reduced	48%	45%	17%	-12%	—	75%	—	41%	75%	—	61%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.43	68.2	36.0	33.8	0.05	1.60	7.83	9.43	1.47	3.98	5.45	—	6,462	6,462	0.50	0.57	0.20	6,644
Mit.	1.01	68.2	14.8	29.2	0.05	0.14	7.83	7.93	0.12	3.98	4.08	—	6,462	6,462	0.50	0.57	0.20	6,644
% Reduced	77%	—	59%	14%	—	91%	—	16%	92%	—	25%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.32	3.78	9.69	11.8	0.02	0.41	0.69	1.10	0.38	0.26	0.64	—	2,434	2,434	0.12	0.08	0.82	2,462
Mit.	0.62	3.77	7.41	12.8	0.02	0.09	0.69	0.78	0.08	0.26	0.35	—	2,434	2,434	0.12	0.08	0.82	2,462
% Reduced	53%	< 0.5%	23%	-9%	—	78%	—	29%	78%	—	46%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.69	1.77	2.15	< 0.005	0.08	0.13	0.20	0.07	0.05	0.12	—	403	403	0.02	0.01	0.14	408
Mit.	0.11	0.69	1.35	2.34	< 0.005	0.02	0.13	0.14	0.02	0.05	0.06	—	403	403	0.02	0.01	0.14	408
% Reduced	53%	< 0.5%	23%	-9%	—	78%	—	29%	78%	—	46%	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.66	1.39	11.7	15.7	0.03	0.50	0.43	0.93	0.46	0.10	0.57	—	3,070	3,070	0.14	0.08	2.33	3,098
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.43	3.73	36.0	33.8	0.05	1.60	7.83	9.43	1.47	3.98	5.45	—	6,462	6,462	0.50	0.57	0.20	6,644
2025	1.02	68.2	7.51	10.7	0.01	0.35	0.14	0.49	0.32	0.03	0.35	—	1,653	1,653	0.07	0.02	0.01	1,660
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.32	1.09	9.69	11.8	0.02	0.41	0.69	1.10	0.38	0.26	0.64	—	2,434	2,434	0.12	0.08	0.82	2,462
2025	0.06	3.78	0.40	0.58	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	88.9	88.9	< 0.005	< 0.005	0.02	89.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	0.24	0.20	1.77	2.15	< 0.005	0.08	0.13	0.20	0.07	0.05	0.12	—	403	403	0.02	0.01	0.14	408
2025	0.01	0.69	0.07	0.11	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	14.7	14.7	< 0.005	< 0.005	< 0.005	14.8

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.87	0.77	9.74	17.5	0.03	0.12	0.43	0.55	0.12	0.10	0.22	—	3,070	3,070	0.14	0.08	2.33	3,098
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.01	0.76	14.8	29.2	0.05	0.14	7.83	7.93	0.12	3.98	4.08	—	6,462	6,462	0.50	0.57	0.20	6,644
2025	0.58	68.2	6.84	11.3	0.01	0.10	0.14	0.25	0.10	0.03	0.13	—	1,653	1,653	0.07	0.02	0.01	1,660
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.62	0.53	7.41	12.8	0.02	0.09	0.69	0.78	0.08	0.26	0.35	—	2,434	2,434	0.12	0.08	0.82	2,462
2025	0.04	3.77	0.37	0.61	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	88.9	88.9	< 0.005	< 0.005	0.02	89.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.11	0.10	1.35	2.34	< 0.005	0.02	0.13	0.14	0.02	0.05	0.06	—	403	403	0.02	0.01	0.14	408
2025	0.01	0.69	0.07	0.11	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.7	14.7	< 0.005	< 0.005	< 0.005	14.8

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.	4.81	9.31	5.54	36.1	0.08	0.24	2.28	2.52	0.24	0.41	0.64	61.9	11,230	11,292	6.75	0.36	27.5	11,596
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.98	8.51	5.71	25.7	0.08	0.24	2.28	2.52	0.23	0.41	0.64	61.9	10,776	10,838	6.77	0.37	2.22	11,121
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.17	8.76	4.38	30.0	0.07	0.12	2.28	2.40	0.12	0.41	0.53	61.9	9,037	9,099	6.74	0.37	12.8	9,391
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.76	1.60	0.80	5.47	0.01	0.02	0.42	0.44	0.02	0.07	0.10	10.2	1,496	1,506	1.12	0.06	2.11	1,555

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	3.98	3.64	3.13	29.3	0.07	0.05	2.28	2.33	0.04	0.41	0.45	—	7,009	7,009	0.35	0.33	26.0	7,141
Area	0.73	5.62	1.59	6.49	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,968	1,968	0.04	< 0.005	—	1,970
Energy	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	2,175	2,175	0.16	0.01	—	2,182
Water	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Waste	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	4.81	9.31	5.54	36.1	0.08	0.24	2.28	2.52	0.24	0.41	0.64	61.9	11,230	11,292	6.75	0.36	27.5	11,596
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	3.71	3.36	3.36	24.7	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,571	6,571	0.36	0.34	0.67	6,681
Area	0.18	5.10	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Energy	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	2,175	2,175	0.16	0.01	—	2,182
Water	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Waste	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	3.98	8.51	5.71	25.7	0.08	0.24	2.28	2.52	0.23	0.41	0.64	61.9	10,776	10,838	6.77	0.37	2.22	11,121
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.68	3.34	3.42	25.6	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,639	6,639	0.36	0.34	11.2	6,760
Area	0.39	5.38	0.14	4.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	144	144	< 0.005	< 0.005	—	145
Energy	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	2,175	2,175	0.16	0.01	—	2,182
Water	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Waste	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	4.17	8.76	4.38	30.0	0.07	0.12	2.28	2.40	0.12	0.41	0.53	61.9	9,037	9,099	6.74	0.37	12.8	9,391
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.67	0.61	0.62	4.67	0.01	0.01	0.42	0.42	0.01	0.07	0.08	—	1,099	1,099	0.06	0.06	1.86	1,119
Area	0.07	0.98	0.03	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.9	23.9	< 0.005	< 0.005	—	23.9
Energy	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	360	360	0.03	< 0.005	—	361
Water	—	—	—	—	—	—	—	—	—	—	—	1.36	8.70	10.1	0.14	< 0.005	—	14.6
Waste	—	—	—	—	—	—	—	—	—	—	—	8.88	0.00	8.88	0.89	0.00	—	31.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	4.32	4.32	—	—	—	4.32

Total	0.76	1.60	0.80	5.47	0.01	0.02	0.42	0.44	0.02	0.07	0.10	10.2	1,496	1,506	1.12	0.06	2.11	1,555

2.6. Operations Emissions by Sector, Mitigated

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	3.98	3.64	3.13	29.3	0.07	0.05	2.28	2.33	0.04	0.41	0.45	—	7,009	7,009	0.35	0.33	26.0	7,141
Area	0.73	5.62	1.59	6.49	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,968	1,968	0.04	< 0.005	—	1,970
Energy	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	2,175	2,175	0.16	0.01	—	2,182
Water	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Waste	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	4.81	9.31	5.54	36.1	0.08	0.24	2.28	2.52	0.24	0.41	0.64	61.9	11,230	11,292	6.75	0.36	27.5	11,596
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.71	3.36	3.36	24.7	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,571	6,571	0.36	0.34	0.67	6,681
Area	0.18	5.10	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Energy	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	2,175	2,175	0.16	0.01	—	2,182
Water	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Waste	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	3.98	8.51	5.71	25.7	0.08	0.24	2.28	2.52	0.23	0.41	0.64	61.9	10,776	10,838	6.77	0.37	2.22	11,121

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.68	3.34	3.42	25.6	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,639	6,639	0.36	0.34	11.2	6,760
Area	0.39	5.38	0.14	4.04	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	144	144	< 0.005	< 0.005	—	145
Energy	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	2,175	2,175	0.16	0.01	—	2,182
Water	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Waste	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	4.17	8.76	4.38	30.0	0.07	0.12	2.28	2.40	0.12	0.41	0.53	61.9	9,037	9,099	6.74	0.37	12.8	9,391
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.67	0.61	0.62	4.67	0.01	0.01	0.42	0.42	0.01	0.07	0.08	—	1,099	1,099	0.06	0.06	1.86	1,119
Area	0.07	0.98	0.03	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.9	23.9	< 0.005	< 0.005	—	23.9
Energy	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	360	360	0.03	< 0.005	—	361
Water	—	—	—	—	—	—	—	—	—	—	—	1.36	8.70	10.1	0.14	< 0.005	—	14.6
Waste	—	—	—	—	—	—	—	—	—	—	—	8.88	0.00	8.88	0.89	0.00	—	31.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Vegetation	—	—	—	—	—	—	—	—	—	—	—	—	4.32	4.32	—	—	—	4.32
Total	0.76	1.60	0.80	5.47	0.01	0.02	0.42	0.44	0.02	0.07	0.10	10.2	1,496	1,506	1.12	0.06	2.11	1,555

3. Construction Emissions Details

3.1. Site Preparation (2024) - 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	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	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	0.12	0.10	0.99	0.90	< 0.005	0.04	—	0.04	0.04	—	0.04	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
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	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	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	0.09	0.08	0.08	0.86	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	168	168	0.01	0.01	0.02	170
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.73
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
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

3.2. Site Preparation (2024) - Mitigated

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	0.64	0.64	14.7	28.3	0.05	0.10	—	0.10	0.10	—	0.10	—	5,296	5,296	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	0.02	0.02	0.40	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
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	0.07	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	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	0.09	0.08	0.08	0.86	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	168	168	0.01	0.01	0.02	170
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

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.66	4.66	< 0.005	< 0.005	0.01	4.73
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	0.78
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

3.3. Grading (2024) - 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	2.26	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
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	0.12	0.10	1.00	1.03	< 0.005	0.05	—	0.05	0.04	—	0.04	—	162	162	0.01	< 0.005	—	163

Dust From Material Movement	—	—	—	—	—	—	0.15	0.15	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.07	0.74	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	144	144	0.01	0.01	0.02	146
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	0.44	0.07	4.30	2.32	0.02	0.06	0.88	0.95	0.04	0.24	0.28	—	3,359	3,359	0.37	0.54	0.18	3,530
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	—	8.00	8.00	< 0.005	< 0.005	0.01	8.12
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	< 0.005	0.24	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	184	184	0.02	0.03	0.17	194
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.32	1.32	< 0.005	< 0.005	< 0.005	1.34
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	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.5	30.5	< 0.005	< 0.005	0.03	32.0

3.4. Grading (2024) - Mitigated

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	0.49	0.47	10.0	17.8	0.03	0.08	—	0.08	0.08	—	0.08	—	2,958	2,958	0.12	0.02	—	2,969
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	0.03	0.03	0.55	0.97	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.15	0.15	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.10	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.8	26.8	< 0.005	< 0.005	—	26.9

Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.07	0.74	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	144	144	0.01	0.01	0.02	146
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	0.44	0.07	4.30	2.32	0.02	0.06	0.88	0.95	0.04	0.24	0.28	—	3,359	3,359	0.37	0.54	0.18	3,530
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	—	8.00	8.00	< 0.005	< 0.005	0.01	8.12
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	< 0.005	0.24	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	184	184	0.02	0.03	0.17	194
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.32	1.32	< 0.005	< 0.005	< 0.005	1.34
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	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.5	30.5	< 0.005	< 0.005	0.03	32.0

3.5. Building Construction (2024) - 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	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.44	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	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	0.91	0.76	7.07	8.26	0.01	0.31	—	0.31	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
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	1.29	1.51	< 0.005	0.06	—	0.06	0.05	—	0.05	—	250	250	0.01	< 0.005	—	251
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	0.20	0.18	0.14	2.36	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	388	388	0.02	0.01	1.54	394
Vendor	0.03	0.01	0.34	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	284	284	0.02	0.04	0.79	298
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	0.19	0.17	0.16	1.82	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	356	356	0.02	0.01	0.04	361
Vendor	0.03	0.01	0.36	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	284	284	0.02	0.04	0.02	298
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	0.12	0.11	0.10	1.20	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	227	227	0.01	0.01	0.42	231
Vendor	0.02	0.01	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	179	179	0.01	0.03	0.21	188
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	0.02	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.6	37.6	< 0.005	< 0.005	0.07	38.2
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.7	29.7	< 0.005	< 0.005	0.04	31.1
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

3.6. Building Construction (2024) - Mitigated

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	0.64	0.58	9.26	15.0	0.02	0.12	—	0.12	0.11	—	0.11	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.64	0.58	9.26	15.0	0.02	0.12	—	0.12	0.11	—	0.11	—	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	0.40	0.36	5.83	9.45	0.01	0.08	—	0.08	0.07	—	0.07	—	1,511	1,511	0.06	0.01	—	1,516
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	0.07	0.07	1.06	1.72	< 0.005	0.01	—	0.01	0.01	—	0.01	—	250	250	0.01	< 0.005	—	251
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	0.20	0.18	0.14	2.36	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	388	388	0.02	0.01	1.54	394
Vendor	0.03	0.01	0.34	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	284	284	0.02	0.04	0.79	298
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	0.19	0.17	0.16	1.82	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	356	356	0.02	0.01	0.04	361
Vendor	0.03	0.01	0.36	0.19	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	284	284	0.02	0.04	0.02	298
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	0.12	0.11	0.10	1.20	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	227	227	0.01	0.01	0.42	231
Vendor	0.02	0.01	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	179	179	0.01	0.03	0.21	188

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	0.02	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.6	37.6	< 0.005	< 0.005	0.07	38.2
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.7	29.7	< 0.005	< 0.005	0.04	31.1
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

3.7. Paving (2024) - 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	1.01	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.9
Paving	—	< 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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.96	1.96	< 0.005	< 0.005	—	1.97

Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.07	0.74	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	144	144	0.01	0.01	0.02	146
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.14	1.14	< 0.005	< 0.005	< 0.005	1.16
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.19
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

3.8. Paving (2024) - Mitigated

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	0.54	0.48	6.85	10.6	0.01	0.12	—	0.12	0.11	—	0.11	—	1,512	1,512	0.06	0.01	—	1,517
Paving	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.9
Paving	—	< 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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.96	1.96	< 0.005	< 0.005	—	1.97
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.07	0.74	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	144	144	0.01	0.01	0.02	146
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.14	1.14	< 0.005	< 0.005	< 0.005	1.16
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.19	0.19	< 0.005	< 0.005	< 0.005	0.19
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

3.9. Paving (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	0.95	0.80	7.45	9.98	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.04	0.35	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	—	71.0	71.0	< 0.005	< 0.005	—	71.2
Paving	—	< 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

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.8
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.68	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	141	141	0.01	0.01	0.01	143
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.71	6.71	< 0.005	< 0.005	0.01	6.81
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	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.13
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

3.10. Paving (2025) - Mitigated

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	0.51	0.46	6.78	10.6	0.01	0.10	—	0.10	0.10	—	0.10	—	1,511	1,511	0.06	0.01	—	1,517
Paving	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.32	0.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	71.0	71.0	< 0.005	< 0.005	—	71.2
Paving	—	< 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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.06	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.8	11.8	< 0.005	< 0.005	—	11.8
Paving	—	< 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	0.68	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	141	141	0.01	0.01	0.01	143
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.71	6.71	< 0.005	< 0.005	0.01	6.81
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	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.13
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

3.11. Architectural Coating (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	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	68.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	3.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	—	0.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.03	0.03	0.33	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.7	69.7	< 0.005	< 0.005	0.01	70.6
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.87	3.87	< 0.005	< 0.005	0.01	3.93
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.65

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

3.12. Architectural Coating (2025) - Mitigated

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	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	68.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	3.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22

Architect Coatings	—	0.68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.03	0.03	0.33	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	69.7	69.7	< 0.005	< 0.005	0.01	70.6
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.87	3.87	< 0.005	< 0.005	0.01	3.93
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.65
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.98	3.64	3.13	29.3	0.07	0.05	2.28	2.33	0.04	0.41	0.45	—	7,009	7,009	0.35	0.33	26.0	7,141
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	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	3.98	3.64	3.13	29.3	0.07	0.05	2.28	2.33	0.04	0.41	0.45	—	7,009	7,009	0.35	0.33	26.0	7,141
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.71	3.36	3.36	24.7	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,571	6,571	0.36	0.34	0.67	6,681
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	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	3.71	3.36	3.36	24.7	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,571	6,571	0.36	0.34	0.67	6,681
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.67	0.61	0.62	4.67	0.01	0.01	0.42	0.42	0.01	0.07	0.08	—	1,099	1,099	0.06	0.06	1.86	1,119
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	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	0.67	0.61	0.62	4.67	0.01	0.01	0.42	0.42	0.01	0.07	0.08	—	1,099	1,099	0.06	0.06	1.86	1,119

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.98	3.64	3.13	29.3	0.07	0.05	2.28	2.33	0.04	0.41	0.45	—	7,009	7,009	0.35	0.33	26.0	7,141
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	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	3.98	3.64	3.13	29.3	0.07	0.05	2.28	2.33	0.04	0.41	0.45	—	7,009	7,009	0.35	0.33	26.0	7,141
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.71	3.36	3.36	24.7	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,571	6,571	0.36	0.34	0.67	6,681
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	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	3.71	3.36	3.36	24.7	0.06	0.05	2.28	2.33	0.04	0.41	0.45	—	6,571	6,571	0.36	0.34	0.67	6,681
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.67	0.61	0.62	4.67	0.01	0.01	0.42	0.42	0.01	0.07	0.08	—	1,099	1,099	0.06	0.06	1.86	1,119
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	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	0.67	0.61	0.62	4.67	0.01	0.01	0.42	0.42	0.01	0.07	0.08	—	1,099	1,099	0.06	0.06	1.86	1,119

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	189	189	0.01	< 0.005	—	190
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	189	189	0.01	< 0.005	—	190

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,142	1,142	0.07	0.01	—	1,147
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	189	189	0.01	< 0.005	—	190
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	189	189	0.01	< 0.005	—	190

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Other Asphalt Surfaces	0.00	0.00	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	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Other Asphalt Surfaces	0.00	0.00	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	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	171	171	0.02	< 0.005	—	171
Other Asphalt Surfaces	0.00	0.00	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	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	171	171	0.02	< 0.005	—	171

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Other Asphalt Surfaces	0.00	0.00	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	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Other Asphalt Surfaces	0.00	0.00	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	0.10	0.05	0.81	0.35	0.01	0.07	—	0.07	0.07	—	0.07	—	1,033	1,033	0.09	< 0.005	—	1,036
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	171	171	0.02	< 0.005	—	171
Other Asphalt Surfaces	0.00	0.00	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	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	171	171	0.02	< 0.005	—	171

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Consumer Products	—	4.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.55	0.53	0.06	5.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Total	0.73	5.62	1.59	6.49	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,968	1,968	0.04	< 0.005	—	1,970
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Consumer Products	—	4.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.18	5.10	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	22.1	22.1	< 0.005	< 0.005	—	22.2
Consumer Products	—	0.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	0.01	0.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.77	1.77	< 0.005	< 0.005	—	1.78
Total	0.07	0.98	0.03	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.9	23.9	< 0.005	< 0.005	—	23.9

4.3.1. Mitigated

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	0.18	0.09	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Consumer Products	—	4.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.55	0.53	0.06	5.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Total	0.73	5.62	1.59	6.49	0.01	0.13	—	0.13	0.13	—	0.13	0.00	1,968	1,968	0.04	< 0.005	—	1,970
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.18	0.09	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Consumer Products	—	4.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.18	5.10	1.54	0.65	0.01	0.12	—	0.12	0.12	—	0.12	0.00	1,952	1,952	0.04	< 0.005	—	1,954
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	22.1	22.1	< 0.005	< 0.005	—	22.2
Consumer Products	—	0.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.07	0.07	0.01	0.73	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.77	1.77	< 0.005	< 0.005	—	1.78
Total	0.07	0.98	0.03	0.74	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	23.9	23.9	< 0.005	< 0.005	—	23.9

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.36	8.70	10.1	0.14	< 0.005	—	14.6
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.36	8.70	10.1	0.14	< 0.005	—	14.6

4.4.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.23	52.5	60.8	0.85	0.02	—	88.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.36	8.70	10.1	0.14	< 0.005	—	14.6
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.36	8.70	10.1	0.14	< 0.005	—	14.6

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	8.88	0.00	8.88	0.89	0.00	—	31.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.88	0.00	8.88	0.89	0.00	—	31.1

4.5.1. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	53.7	0.00	53.7	5.36	0.00	—	188
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	8.88	0.00	8.88	0.89	0.00	—	31.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	8.88	0.00	8.88	0.89	0.00	—	31.1

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.26	0.26

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grassland	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grassland	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grassland	—	—	—	—	—	—	—	—	—	—	—	—	4.32	4.32	—	—	—	4.32
Total	—	—	—	—	—	—	—	—	—	—	—	—	4.32	4.32	—	—	—	4.32

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grassland	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grassland	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	26.1	26.1	—	—	—	26.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grassland	—	—	—	—	—	—	—	—	—	—	—	—	4.32	4.32	—	—	—	4.32
Total	—	—	—	—	—	—	—	—	—	—	—	—	4.32	4.32	—	—	—	4.32

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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
Site Preparation	Site Preparation	1/1/2024	1/12/2024	5.00	10.0	—
Grading	Grading	1/13/2024	2/9/2024	5.00	20.0	—
Building Construction	Building Construction	2/10/2024	12/27/2024	5.00	230	—
Paving	Paving	12/28/2024	1/24/2025	5.00	20.0	—
Architectural Coating	Architectural Coating	1/25/2025	2/21/2025	5.00	20.0	—

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
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	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37

Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
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	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
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

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Interim	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	3.00	8.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Tier 4 Interim	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Interim	2.00	8.00	81.0	0.42

Paving	Paving Equipment	Diesel	Tier 4 Interim	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
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	13.4	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.33	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	13.4	LDA,LDT1,LDT2
Grading	Vendor	—	8.33	HHDT,MHDT
Grading	Hauling	47.7	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	37.1	13.4	LDA,LDT1,LDT2
Building Construction	Vendor	11.0	8.33	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	13.4	LDA,LDT1,LDT2
Paving	Vendor	—	8.33	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT

Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	7.42	13.4	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.33	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	13.4	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.33	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	13.4	LDA,LDT1,LDT2
Grading	Vendor	—	8.33	HHDT,MHDT
Grading	Hauling	47.7	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	37.1	13.4	LDA,LDT1,LDT2
Building Construction	Vendor	11.0	8.33	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	13.4	LDA,LDT1,LDT2
Paving	Vendor	—	8.33	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	7.42	13.4	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.33	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

Non-applicable. No control strategies activated by user.

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	438,566	146,189	0.00	0.00	1,206

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	15.0	0.00	—
Grading	7,631	0.00	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.60

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction

Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.13	0%
Other Asphalt Surfaces	0.46	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	11.5	532	0.03	< 0.005
2025	11.5	532	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
Single Family Housing	918	918	918	335,070	8,184	8,184	8,184	2,987,160
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	918	918	918	335,070	8,184	8,184	8,184	2,987,160

Other Asphalt Surfaces	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)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	93
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	10

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	93
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	10

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)

438566.39999999997	146,189	0.00	0.00	1,206

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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)
Single Family Housing	783,791	532	0.0330	0.0040	3,222,841
Other Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
Single Family Housing	783,791	532	0.0330	0.0040	3,222,841
Other Asphalt Surfaces	0.00	532	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)
Single Family Housing	4,293,161	1,285,033
Other Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	4,293,161	1,285,033
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	99.6	—
Other Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	99.6	—
Other Asphalt Surfaces	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
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

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

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

5.15.2. Mitigated

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

5.18.1.2. Mitigated

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
Grassland	9.01	0.00

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
Grassland	9.01	0.00

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

5.18.2.2. Mitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.8	annual days of extreme heat
Extreme Precipitation	4.35	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	24.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	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	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	100
AQ-PM	54.9
AQ-DPM	38.7
Drinking Water	60.9
Lead Risk Housing	12.4
Pesticides	77.6
Toxic Releases	41.8
Traffic	9.22
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	60.9
Cardio-vascular	57.4

Low Birth Weights	84.0
Socioeconomic Factor Indicators	—
Education	30.0
Housing	13.6
Linguistic	22.2
Poverty	30.3
Unemployment	66.6

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	77.77492622
Employed	32.144232
Median HI	75.87578596
Education	—
Bachelor's or higher	59.98973438
High school enrollment	100
Preschool enrollment	65.54600282
Transportation	—
Auto Access	70.20402926
Active commuting	60.27203901
Social	—
2-parent households	47.77364301
Voting	65.10971385
Neighborhood	—
Alcohol availability	79.76389067

Park access	40.33106634
Retail density	23.63659695
Supermarket access	33.46593096
Tree canopy	32.7216733
Housing	—
Homeownership	92.89105608
Housing habitability	96.7406647
Low-inc homeowner severe housing cost burden	85.75644809
Low-inc renter severe housing cost burden	89.32375209
Uncrowded housing	96.93314513
Health Outcomes	—
Insured adults	76.99217246
Arthritis	36.9
Asthma ER Admissions	48.9
High Blood Pressure	59.0
Cancer (excluding skin)	22.7
Asthma	51.9
Coronary Heart Disease	61.0
Chronic Obstructive Pulmonary Disease	59.8
Diagnosed Diabetes	78.0
Life Expectancy at Birth	36.8
Cognitively Disabled	93.6
Physically Disabled	46.5
Heart Attack ER Admissions	44.1
Mental Health Not Good	68.6
Chronic Kidney Disease	73.0
Obesity	64.9

Pedestrian Injuries	19.6
Physical Health Not Good	72.6
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	14.4
Current Smoker	69.0
No Leisure Time for Physical Activity	82.7
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	55.0
Elderly	49.5
English Speaking	94.9
Foreign-born	1.7
Outdoor Workers	84.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	66.4
Traffic Density	16.9
Traffic Access	23.0
Other Indices	—
Hardship	19.6
Other Decision Support	—
2016 Voting	81.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	41.0

Healthy Places Index Score for Project Location (b)	68.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
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	Updated land use lot acreage, building square footage and landscape area based on project site plan 3/10/23 and data request response 4/26/23.
Construction: Construction Phases	Removed Demolition phase as the project site is undeveloped.
Operations: Vehicle Data	Updated daily trip rate based on traffic impact analysis conducted by Ganddini Group 5/3/23. Updated trip length based on TAZ VMT per the VMT screening assessment conducted by Ganddini Group 4/7/23.
Operations: Hearths	Updated fireplaces to be all natural gas fueled and removed wood burning stoves based on South Coast Rule 445.
Construction: Electricity	Added a 25kW generator, assumed to operate for an 11 hour period any day during the week, to represent electricity consumption associated with construction trailer operation.

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APPENDIX B: AERMOD Output Files

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```
 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\Madera at Citrus
Trail\Madera at Citrus Trail.isc           ***       05/16/23
 *** AERMET - VERSION  16216 ***   ***
***        11:57:55

PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

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

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses URBAN Dispersion Algorithm for the SBL for    16
Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =   2035210.0 ;  Urban Roughness Length =  1.000 m

 **Model Uses Regulatory DEFAULT Options:
         1. Stack-tip Downwash.
         2. Model Accounts for ELEVated Terrain Effects.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.
         6. Urban Roughness Length of 1.0 Meter Assumed.

 **Other Options Specified:
         ADJ_U*   - Use ADJ_U* option for SBL in AERMET
         TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  PM_10

 **Model Calculates PERIOD Averages Only

 **This Run Includes:     16 Source(s);       4 Source Group(s); and
786 Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:      0 VOLUME source(s)
                 and:     16 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)


 **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) =    10.00
;  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:   Madera at Citrus Trail.err
 **File for Summary of Results:   Madera at Citrus Trail.sum
```



```
 *** 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,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: Z:\Shared\Riverside\Projects\City of Redlands\13791.00_Redlands_Madera Citrus Tr   Met Version: 16216
Profile file: Z:\Shared\Riverside\Projects\City of Redlands\13791.00_Redlands_Madera Citrus Tr
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  -10.6  0.149 -9.000 -9.000 -999.  138.     26.7
0.32   3.22   1.00    1.30  110.    9.1  285.4    5.5
 12 01 01   1 02   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  130.    9.1  284.5    5.5
 12 01 01   1 03   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  100.    9.1  285.0    5.5
 12 01 01   1 04   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  107.    9.1  284.6    5.5
 12 01 01   1 05  -10.7  0.149 -9.000 -9.000 -999.  138.     26.7
0.32   3.22   1.00    1.30   98.    9.1  284.9    5.5
 12 01 01   1 06   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90   86.    9.1  284.5    5.5
 12 01 01   1 07   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90   91.    9.1  284.0    5.5
 12 01 01   1 08   -4.0  0.102 -9.000 -9.000 -999.   78.     22.9
0.32   3.22   0.54    0.90  107.    9.1  285.0    5.5
 12 01 01   1 09   44.6  0.237  0.382  0.006   43.  276.    -25.6
0.15   3.22   0.33    2.10   81.   10.1  289.1    5.5
 12 01 01   1 10  134.3  0.111  0.882  0.008  176.   99.     -1.0
0.32   3.22   0.26    0.40   72.    9.1  295.1    5.5
 12 01 01   1 11  199.8  0.409  1.429  0.005  503.  627.    -29.4
0.15   3.22   0.23    3.68   78.   10.1  297.9    5.5
 12 01 01   1 12  232.3  0.300  1.889  0.005  999.  402.    -10.0
0.32   3.22   0.22    1.80  333.    9.1  299.4    5.5
 12 01 01   1 13  230.0  0.300  2.134  0.005 1453.  394.    -10.1
0.32   3.22   0.22    1.80   72.    9.1  300.4    5.5
 12 01 01   1 14  194.0  0.294  2.109  0.005 1663.  382.    -11.2
0.32   3.22   0.24    1.80  277.    9.1  301.0    5.5
 12 01 01   1 15  126.3  0.378  1.872  0.005 1784.  557.    -36.5
0.32   3.22   0.27    2.70  243.    9.1  301.0    5.5
 12 01 01   1 16   39.5  0.199  1.278  0.005 1817.  240.    -17.2
0.32   3.22   0.36    1.30  274.    9.1  300.1    5.5
 12 01 01   1 17   -4.7  0.101 -9.000 -9.000 -999.   85.     19.0
0.32   3.22   0.65    0.90  252.    9.1  298.2    5.5
 12 01 01   1 18   -4.9  0.102 -9.000 -9.000 -999.   78.     18.2
0.32   3.22   1.00    0.90  116.    9.1  296.4    5.5
 12 01 01   1 19  -18.8  0.204 -9.000 -9.000 -999.  220.     45.6
0.15   3.22   1.00    2.27   79.   10.1  292.2    5.5
 12 01 01   1 20   -5.0  0.102 -9.000 -9.000 -999.   83.     18.1
0.32   3.22   1.00    0.90   95.    9.1  290.2    5.5
 12 01 01   1 21   -5.0  0.102 -9.000 -9.000 -999.   78.     18.0
0.32   3.22   1.00    0.90   99.    9.1  287.8    5.5
 12 01 01   1 22   -5.0  0.102 -9.000 -9.000 -999.   78.     18.0
0.32   3.22   1.00    0.90  110.    9.1  287.6    5.5
 12 01 01   1 23  -10.6  0.149 -9.000 -9.000 -999.  138.     26.8
0.32   3.22   1.00    1.30   89.    9.1  287.2    5.5
```

```
 12 01 01   1 24   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  105.    9.1  285.9    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 12 01 01 01    5.5 0 -999.  -99.00   285.5   99.0  -99.00  -99.00
 12 01 01 01    9.1 1  110.    1.30  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)

 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\Madera at Citrus
Trail\Madera at Citrus Trail.isc           ***        05/16/23
 *** AERMET - VERSION  16216 ***   ***
***        11:57:55

PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                        *** THE SUMMARY OF MAXIMUM
PERIOD ( 43848 HRS) RESULTS ***


                                    ** CONC OF PM_10    IN
MICROGRAMS/M**3                          **


NETWORK
GROUP ID                       AVERAGE CONC                RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

Y1_OFF    1ST HIGHEST VALUE IS       0.00008 AT (  487197.69,
3769203.87,   492.69,  2401.29,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00008 AT (  487199.53,
3769215.67,   492.52,  2401.29,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00008 AT (  487200.27,
3769225.29,   492.50,  2401.29,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00008 AT (  487199.98,
3769339.98,   492.81,  2401.29,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00008 AT (  487200.48,
3769277.71,   492.79,  2401.29,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00008 AT (  487200.32,
3769298.47,   492.64,  2401.29,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00008 AT (  487200.15,
3769319.22,   492.64,  2401.29,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00008 AT (  487200.65,
3769256.95,   492.77,  2401.29,    0.00)  DC
          9TH HIGHEST VALUE IS       0.00008 AT (  487193.25,
3769182.13,   492.60,  2401.29,    0.00)  DC
```

```
        10TH HIGHEST VALUE IS       0.00008 AT (  487200.82,
3769236.19,   492.60,  2401.29,    0.00)  DC

Y1_ALL     1ST HIGHEST VALUE IS       0.27032 AT (  487125.45,
3769241.18,   490.90,  2401.29,    0.00)  DC
           2ND HIGHEST VALUE IS       0.26609 AT (  487075.45,
3769241.18,   490.01,  2401.29,    0.00)  DC
           3RD HIGHEST VALUE IS       0.25740 AT (  487125.45,
3769191.18,   491.30,  2401.29,    0.00)  DC
           4TH HIGHEST VALUE IS       0.25189 AT (  487075.45,
3769191.18,   490.22,  2401.29,    0.00)  DC
           5TH HIGHEST VALUE IS       0.25173 AT (  487075.45,
3769291.18,   489.82,  2401.29,    0.00)  DC
           6TH HIGHEST VALUE IS       0.25163 AT (  487125.45,
3769291.18,   490.79,  2401.29,    0.00)  DC
           7TH HIGHEST VALUE IS       0.22387 AT (  487169.96,
3769225.27,   492.05,  2401.29,    0.00)  DC
           8TH HIGHEST VALUE IS       0.22329 AT (  487170.58,
3769229.57,   492.06,  2401.29,    0.00)  DC
           9TH HIGHEST VALUE IS       0.22314 AT (  487169.89,
3769220.29,   492.06,  2401.29,    0.00)  DC
          10TH HIGHEST VALUE IS       0.22274 AT (  487170.82,
3769235.95,   492.06,  2401.29,    0.00)  DC

Y1_ON      1ST HIGHEST VALUE IS       0.27031 AT (  487125.45,
3769241.18,   490.90,  2401.29,    0.00)  DC
           2ND HIGHEST VALUE IS       0.26609 AT (  487075.45,
3769241.18,   490.01,  2401.29,    0.00)  DC
           3RD HIGHEST VALUE IS       0.25738 AT (  487125.45,
3769191.18,   491.30,  2401.29,    0.00)  DC
           4TH HIGHEST VALUE IS       0.25188 AT (  487075.45,
3769191.18,   490.22,  2401.29,    0.00)  DC
           5TH HIGHEST VALUE IS       0.25173 AT (  487075.45,
3769291.18,   489.82,  2401.29,    0.00)  DC
           6TH HIGHEST VALUE IS       0.25162 AT (  487125.45,
3769291.18,   490.79,  2401.29,    0.00)  DC
           7TH HIGHEST VALUE IS       0.22383 AT (  487169.96,
3769225.27,   492.05,  2401.29,    0.00)  DC
           8TH HIGHEST VALUE IS       0.22324 AT (  487170.58,
3769229.57,   492.06,  2401.29,    0.00)  DC
           9TH HIGHEST VALUE IS       0.22309 AT (  487169.89,
3769220.29,   492.06,  2401.29,    0.00)  DC
          10TH HIGHEST VALUE IS       0.22269 AT (  487170.82,
3769235.95,   492.06,  2401.29,    0.00)  DC

Y2_ON      1ST HIGHEST VALUE IS       0.01190 AT (  487125.45,
3769241.18,   490.90,  2401.29,    0.00)  DC
           2ND HIGHEST VALUE IS       0.01171 AT (  487075.45,
3769241.18,   490.01,  2401.29,    0.00)  DC
           3RD HIGHEST VALUE IS       0.01135 AT (  487125.45,
3769191.18,   491.30,  2401.29,    0.00)  DC
```

```
         4TH HIGHEST VALUE IS       0.01110 AT (  487075.45,
3769191.18,   490.22,  2401.29,    0.00)  DC
         5TH HIGHEST VALUE IS       0.01107 AT (  487075.45,
3769291.18,   489.82,  2401.29,    0.00)  DC
         6TH HIGHEST VALUE IS       0.01106 AT (  487125.45,
3769291.18,   490.79,  2401.29,    0.00)  DC
         7TH HIGHEST VALUE IS       0.00986 AT (  487169.96,
3769225.27,   492.05,  2401.29,    0.00)  DC
         8TH HIGHEST VALUE IS       0.00983 AT (  487170.58,
3769229.57,   492.06,  2401.29,    0.00)  DC
         9TH HIGHEST VALUE IS       0.00983 AT (  487169.89,
3769220.29,   492.06,  2401.29,    0.00)  DC
        10TH HIGHEST VALUE IS       0.00981 AT (  487170.82,
3769235.95,   492.06,  2401.29,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR

 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\Madera at Citrus
Trail\Madera at Citrus Trail.isc           ***        05/16/23
 *** AERMET - VERSION  16216 ***   ***
***        11:57:55

PAGE   5
 *** 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          388 Informational Message(s)

 A Total of        43848 Hours Were Processed

 A Total of          191 Calm Hours Identified

 A Total of          197 Missing Hours Identified (  0.45 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186     246       MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used           0.50
```

ME W187   246   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION. DRYDPLT = F
**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses URBAN Dispersion Algorithm for the SBL for 16 Source(s),
for Total of 1 Urban Area(s):
Urban Population = 2035210.0 ; Urban Roughness Length = 1.000 m

**Model Uses Regulatory DEFAULT Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
ADJ_U* - Use ADJ_U* option for SBL in AERMET
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: PM_10

**Model Calculates PERIOD Averages Only

**This Run Includes: 16 Source(s); 4 Source Group(s); and 786 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 16 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)


 **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) =    10.00
;  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:   Madera at Citrus Trail Mitigated.err
 **File for Summary of Results:   Madera at Citrus Trail Mitigated.sum
```



```
                                            *** 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,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: Z:\Shared\Riverside\Projects\City of Redlands\13791.00_Redlands_Madera Citrus Tr   Met Version: 16216
Profile file: Z:\Shared\Riverside\Projects\City of Redlands\13791.00_Redlands_Madera Citrus Tr
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  -10.6  0.149 -9.000 -9.000 -999.  138.     26.7
0.32   3.22   1.00    1.30  110.    9.1  285.4    5.5
 12 01 01   1 02   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  130.    9.1  284.5    5.5
 12 01 01   1 03   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  100.    9.1  285.0    5.5
 12 01 01   1 04   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  107.    9.1  284.6    5.5
 12 01 01   1 05  -10.7  0.149 -9.000 -9.000 -999.  138.     26.7
0.32   3.22   1.00    1.30   98.    9.1  284.9    5.5
 12 01 01   1 06   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90   86.    9.1  284.5    5.5
 12 01 01   1 07   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90   91.    9.1  284.0    5.5
 12 01 01   1 08   -4.0  0.102 -9.000 -9.000 -999.   78.     22.9
0.32   3.22   0.54    0.90  107.    9.1  285.0    5.5
 12 01 01   1 09   44.6  0.237  0.382  0.006   43.  276.    -25.6
0.15   3.22   0.33    2.10   81.   10.1  289.1    5.5
 12 01 01   1 10  134.3  0.111  0.882  0.008  176.   99.     -1.0
0.32   3.22   0.26    0.40   72.    9.1  295.1    5.5
 12 01 01   1 11  199.8  0.409  1.429  0.005  503.  627.    -29.4
0.15   3.22   0.23    3.68   78.   10.1  297.9    5.5
 12 01 01   1 12  232.3  0.300  1.889  0.005  999.  402.    -10.0
0.32   3.22   0.22    1.80  333.    9.1  299.4    5.5
 12 01 01   1 13  230.0  0.300  2.134  0.005 1453.  394.    -10.1
0.32   3.22   0.22    1.80   72.    9.1  300.4    5.5
 12 01 01   1 14  194.0  0.294  2.109  0.005 1663.  382.    -11.2
0.32   3.22   0.24    1.80  277.    9.1  301.0    5.5
 12 01 01   1 15  126.3  0.378  1.872  0.005 1784.  557.    -36.5
0.32   3.22   0.27    2.70  243.    9.1  301.0    5.5
 12 01 01   1 16   39.5  0.199  1.278  0.005 1817.  240.    -17.2
0.32   3.22   0.36    1.30  274.    9.1  300.1    5.5
 12 01 01   1 17   -4.7  0.101 -9.000 -9.000 -999.   85.     19.0
0.32   3.22   0.65    0.90  252.    9.1  298.2    5.5
 12 01 01   1 18   -4.9  0.102 -9.000 -9.000 -999.   78.     18.2
0.32   3.22   1.00    0.90  116.    9.1  296.4    5.5
 12 01 01   1 19  -18.8  0.204 -9.000 -9.000 -999.  220.     45.6
0.15   3.22   1.00    2.27   79.   10.1  292.2    5.5
 12 01 01   1 20   -5.0  0.102 -9.000 -9.000 -999.   83.     18.1
0.32   3.22   1.00    0.90   95.    9.1  290.2    5.5
 12 01 01   1 21   -5.0  0.102 -9.000 -9.000 -999.   78.     18.0
0.32   3.22   1.00    0.90   99.    9.1  287.8    5.5
 12 01 01   1 22   -5.0  0.102 -9.000 -9.000 -999.   78.     18.0
0.32   3.22   1.00    0.90  110.    9.1  287.6    5.5
 12 01 01   1 23  -10.6  0.149 -9.000 -9.000 -999.  138.     26.8
0.32   3.22   1.00    1.30   89.    9.1  287.2    5.5
```

```
 12 01 01   1 24   -5.0  0.102 -9.000 -9.000 -999.   78.     17.9
0.32   3.22   1.00    0.90  105.    9.1  285.9    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 12 01 01 01    5.5 0 -999.  -99.00   285.5   99.0  -99.00  -99.00
 12 01 01 01    9.1 1  110.    1.30  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)

 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\Madera at Citrus Trail
Mitigated\Madera at Citrus Trail Mit ***        05/17/23
 *** AERMET - VERSION  16216 ***   ***
***        11:08:58

PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                        *** THE SUMMARY OF MAXIMUM
PERIOD ( 43848 HRS) RESULTS ***


                                    ** CONC OF PM_10    IN
MICROGRAMS/M**3                         **


NETWORK
GROUP ID                       AVERAGE CONC                RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

Y1_OFF    1ST HIGHEST VALUE IS       0.00008 AT (  487197.69,
3769203.87,   492.69,  2401.29,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00008 AT (  487199.53,
3769215.67,   492.52,  2401.29,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00008 AT (  487200.27,
3769225.29,   492.50,  2401.29,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00008 AT (  487199.98,
3769339.98,   492.81,  2401.29,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00008 AT (  487200.48,
3769277.71,   492.79,  2401.29,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00008 AT (  487200.32,
3769298.47,   492.64,  2401.29,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00008 AT (  487200.15,
3769319.22,   492.64,  2401.29,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00008 AT (  487200.65,
3769256.95,   492.77,  2401.29,    0.00)  DC
          9TH HIGHEST VALUE IS       0.00008 AT (  487193.25,
3769182.13,   492.60,  2401.29,    0.00)  DC
```

```
         10TH HIGHEST VALUE IS       0.00008 AT (  487200.82,
3769236.19,   492.60,  2401.29,    0.00)  DC

Y1_ALL    1ST HIGHEST VALUE IS       0.05589 AT (  487125.45,
3769241.18,   490.90,  2401.29,    0.00)  DC
          2ND HIGHEST VALUE IS       0.05502 AT (  487075.45,
3769241.18,   490.01,  2401.29,    0.00)  DC
          3RD HIGHEST VALUE IS       0.05328 AT (  487125.45,
3769191.18,   491.30,  2401.29,    0.00)  DC
          4TH HIGHEST VALUE IS       0.05216 AT (  487075.45,
3769191.18,   490.22,  2401.29,    0.00)  DC
          5TH HIGHEST VALUE IS       0.05198 AT (  487075.45,
3769291.18,   489.82,  2401.29,    0.00)  DC
          6TH HIGHEST VALUE IS       0.05197 AT (  487125.45,
3769291.18,   490.79,  2401.29,    0.00)  DC
          7TH HIGHEST VALUE IS       0.04633 AT (  487169.96,
3769225.27,   492.05,  2401.29,    0.00)  DC
          8TH HIGHEST VALUE IS       0.04621 AT (  487170.58,
3769229.57,   492.06,  2401.29,    0.00)  DC
          9TH HIGHEST VALUE IS       0.04619 AT (  487169.89,
3769220.29,   492.06,  2401.29,    0.00)  DC
         10TH HIGHEST VALUE IS       0.04608 AT (  487170.82,
3769235.95,   492.06,  2401.29,    0.00)  DC

Y1_ON     1ST HIGHEST VALUE IS       0.05588 AT (  487125.45,
3769241.18,   490.90,  2401.29,    0.00)  DC
          2ND HIGHEST VALUE IS       0.05501 AT (  487075.45,
3769241.18,   490.01,  2401.29,    0.00)  DC
          3RD HIGHEST VALUE IS       0.05327 AT (  487125.45,
3769191.18,   491.30,  2401.29,    0.00)  DC
          4TH HIGHEST VALUE IS       0.05215 AT (  487075.45,
3769191.18,   490.22,  2401.29,    0.00)  DC
          5TH HIGHEST VALUE IS       0.05197 AT (  487075.45,
3769291.18,   489.82,  2401.29,    0.00)  DC
          6TH HIGHEST VALUE IS       0.05196 AT (  487125.45,
3769291.18,   490.79,  2401.29,    0.00)  DC
          7TH HIGHEST VALUE IS       0.04629 AT (  487169.96,
3769225.27,   492.05,  2401.29,    0.00)  DC
          8TH HIGHEST VALUE IS       0.04616 AT (  487170.58,
3769229.57,   492.06,  2401.29,    0.00)  DC
          9TH HIGHEST VALUE IS       0.04614 AT (  487169.89,
3769220.29,   492.06,  2401.29,    0.00)  DC
         10TH HIGHEST VALUE IS       0.04604 AT (  487170.82,
3769235.95,   492.06,  2401.29,    0.00)  DC

Y2_ON     1ST HIGHEST VALUE IS       0.00424 AT (  487125.45,
3769241.18,   490.90,  2401.29,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00417 AT (  487075.45,
3769241.18,   490.01,  2401.29,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00404 AT (  487125.45,
3769191.18,   491.30,  2401.29,    0.00)  DC
```

```
          4TH HIGHEST VALUE IS       0.00395 AT (  487075.45,
3769191.18,   490.22,  2401.29,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00394 AT (  487075.45,
3769291.18,   489.82,  2401.29,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00394 AT (  487125.45,
3769291.18,   490.79,  2401.29,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00351 AT (  487169.96,
3769225.27,   492.05,  2401.29,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00350 AT (  487170.58,
3769229.57,   492.06,  2401.29,    0.00)  DC
          9TH HIGHEST VALUE IS       0.00350 AT (  487169.89,
3769220.29,   492.06,  2401.29,    0.00)  DC
         10TH HIGHEST VALUE IS       0.00349 AT (  487170.82,
3769235.95,   492.06,  2401.29,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR

 *** AERMOD - VERSION 21112  ***   *** C:\Lakes\Madera at Citrus Trail
Mitigated\Madera at Citrus Trail Mit ***        05/17/23
 *** AERMET - VERSION  16216 ***   ***
***        11:08:58

PAGE   5
 *** 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          388 Informational Message(s)

 A Total of        43848 Hours Were Processed

 A Total of          191 Calm Hours Identified

 A Total of          197 Missing Hours Identified (  0.45 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186     246       MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used           0.50
```

ME W187   246   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

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APPENDIX C: Health Risk Assessment Calculations

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Appendix A.4: Construction Health Risk Assessment Calculations (DPM)
Madera at Citrus Trail Project HRA
Unmitigated Health Risk Calculations - Residential

METHODOLOGY

Dose (Air) = Cair x DBR x A x EF x CF

Where:		
	Cair	Chemical concentration in air (µg/m^3)
	DBR:	Daily breathing rate (L/kg-day)
	A:	Inhalation adsorption factor (unitless)
	EF:	Exposure Frequency, days at home / days in year (unitless)
	CF:	10^{-6} Conversion Factor (m^3/L and mg/µg)

Cancer Risk (per million) = Dose (Air) x CPF x ASF x (ED/AT) x FAH x 1,000,000

Where:		
	Dose:	Dose of chemical in the air (µg/m3)
	CPF:	Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$
	ASF:	Age Sensitivity Factor
	ED:	Exposure Duration (years)
	AT:	Averaging Time for lifetime cancer risks
	FAH:	Fraction of daily time spent at home / school

Risk Parameter Values by Age Bin

Variable	Residential Age Bin				
	3rd Trimester	0-2 Years	2-16 Years	16-30 Years	16-70 Years
DBR	361	1090	572	261	233
A	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96
CF	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
CPF	1.1	1.1	1.1	1.1	1.1
ASF	10	10	3	1	1
ED	0.25	2	14	14	54
AT	70	70	70	70	70
FAH	0.85	0.85	0.72	0.73	0.73

AERMOD Modeled DPM Concentrations (PMI/MEIR)

	PMI			MEIR		
	Conc.	X	Y	Conc.	X	Y
Year 1	0.21381	487175.45	3769241.18	0.14218	487075.45	3769341.18
Year 2	0.00941	487175.45	3769241.18	0.00625	487075.45	3769341.18

Risk Assessment Year 1 MEIR

Scenario	AERMOD DPM Conc.	Chronic Hazard Quotient
Year 1	0.14218	0.028436
Year 2	0.00625	0.00125

Year 1 Dose @ MEIR

Age Group	Cair x	BR	A	EF	CF		Dose
3rd Trimester	0.14218	361	1	0.96	1.00E-06	=	4.92E-05
0-2 Years	0.14218	1090	1	0.96	1.00E-06	=	1.49E-04
2-16 Years	0.14218	572	1	0.96	1.00E-06	=	7.80E-05
16-30 Years	0.14218	261	1	0.96	1.00E-06	=	3.56E-05
30-70 Years	0.14218	233	1	0.96	1.00E-06	=	3.18E-05

Year 1 Excess Risk at MEIR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
3rd Trimester	4.92E-05	1.1	10	0.25	70	0.85	1,000,000	1.6
0-2 Years	1.49E-04	1.1	10	1.00	70	0.85	1,000,000	19.8
0-2 Years	1.49E-04	1.1	10	1.00	70	0.85	1,000,000	19.8
2-16 Years	7.80E-05	1.1	3	1.00	70	0.72	1,000,000	2.6
16-30 Years	3.56E-05	1.1	1	1.00	70	0.73	1,000,000	0.4

30-70 Years	3.18E-05	1.1	1	1.00	70	0.73	1,000,000	0.4

Year 2 Dose @ MEIR

Age Group	**Cair x**	**BR**	**A**	**EF**	**CF**		**Dose**
0-2 Years	0.00625	1090	1	0.96	1.00E-06	=	6.53E-06
2-16 Years	0.00625	572	1	0.96	1.00E-06	=	3.43E-06
16-30 Years	0.00625	261	1	0.96	1.00E-06	=	1.56E-06
30-70 Years	0.00625	233	1	0.96	1.00E-06	=	1.40E-06

Year 2 Excess Risk at MEIR

Age Group	**Dose**	**CPF**	**ASF**	**ED**	**AT**	**FAH**	**Conversion**	**Risk**
0-2 Years	6.53E-06	1.1	10	1.00	70	0.85	1,000,000	0.9
2-16 Years	3.43E-06	1.1	3	1.00	70	0.72	1,000,000	0.1
16-30 Years	1.56E-06	1.1	1	1.00	70	0.73	1,000,000	0.0
30-70 Years	1.40E-06	1.1	1	1.00	70	0.73	1,000,000	0.0

Total Excess Risk at MEIR (Cumulative, Based on Age at Start of Construction)

	Infant	Child < 2	Child 2<x<16	Adult 16<x<30	Adult 30<x<70
Year 1	21.5	19.8	2.6	0.4	0.4
Year 2	0.9	0.9	0.1	0.0	0.0
Total	22.4	20.7	2.8	0.4	0.4

Appendix A.4: Construction Health Risk Assessment Calculations (DPM)
Madera at Citrus Trail Project HRA
Unmitigated Health Risk Calculations - Student

METHODOLOGY

Dose (Air) = Cair x DBR x A x EF x CF

Where:

- Cair Chemical concentration in air ($\mu g/m^3$)
- DBR: Daily breathing rate (L/kg-day)
- A: Inhalation adsorption factor (unitless)
- EF: Exposure Frequency, days at home / days in year (unitless)
- CF: 10^{-6} Conversion Factor (m^3/L and mg/µg)

Cancer Risk (per million) = Dose (Air) x CPF x ASF x (ED/AT) x FAH x 1,000,000

Where:

- Dose: Dose of chemical in the air (µg/m3)
- CPF: Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$
- ASF: Age Sensitivity Factor
- ED: Exposure Duration (years)
- AT: Averaging Time for lifetime cancer risks
- FAH: Fraction of daily time spent at home / school

Risk Parameter Values by Age Bin

Variable	School Age Bin			
	2-9 Years	**2-16 Years**	**16-30 Years**	**16-70 Years**
DBR	640	572	261	233
A	1	1	1	1
EF	0.49	0.49	0.49	0.49
CF	1.00E-06	1.00E-06	1.00E-06	1.00E-06
CPF	1.1	1.1	1.1	1.1
ASF	3	3	1	1
ED	7	14	14	54
AT	70	70	70	70
FAH	0.42	0.42	0.42	0.42

AERMOD Modeled DPM Concentrations (PMI/MESR)

	PMI			MESR		
	Conc.	X	Y	Conc.	X	Y
Year 1	0.21381	487175.45	3769241.18	0.00567	487675.45	3769091.18
Year 2	0.00941	487175.45	3769241.18	0.00025	487675.45	3769091.18

Risk Assessment Year 1 MESR

Scenario	AERMOD DPM Conc.	Chronic Hazard Quotient
Year 1	0.00567	0.001134
Year 2	0.00025	0.00005

Year 1 Dose @ MESR

Age Group	Cair x	BR	A	EF	CF		Dose
9-16 Years	0.00567	572	1	0.49	1.00E-06	=	1.59E-06

Year 1 Excess Risk at MESR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
9-16 Years	1.59E-06	1.1	3	1	70	0.42	1,000,000	0.03

Year 2 Dose @ MESR

Age Group	Cair x	BR	A	EF	CF		Dose
9-16 Years	0.00025	572	1	0.49	0.000001	=	7.01E-08

Year 2 Excess Risk at MESR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk

9-16 Years	7.01E-08	1.1	3	1	70	0.42	1,000,000	0.00

Total Excess Risk at MESR (Cumulative, Based on Age at Start of Construction)

	9-16 Years
Year 1	0.03
Year 2	0.00
Total	0.03

Appendix C: Construction Health Risk Assessment Calculations (DPM)
Citrus Warehouse Project HRA
Unmitigated Health Risk Calculations - Community Burden

METHODOLOGY

Dose (Air) = Cair x DBR x A x EF x CF

Where:

	Cair	Chemical concentration in air (µg/m^3)
	DBR:	Daily breathing rate (L/kg-day)
	A:	Inhalation adsorption factor (unitless)
	EF:	Exposure Frequency, days at home / days in year (unitless)
	CF:	10^$^{-6}$ Conversion Factor (m^3/L and mg/µg)

Cancer Risk (per million) = Dose (Air) x CPF x ASF x (ED/AT) x FAH x 1,000,000

Where:

	Dose:	Dose of chemical in the air (µg/m3)
	CPF:	Cancer Potency Factor (mg/kg-day)$^{-1}$
	ASF:	Age Sensitivity Factor
	ED:	Exposure Duration (years)
	AT:	Averaging Time for lifetime cancer risks
	FAH:	Fraction of daily time spent at home / school

Risk Parameter Values by Age Bin

Variable	Residential Age Bin				
	3rd Trimester	**0-2 Years**	**2-16 Years**	**16-30 Years**	**16-70 Years**
DBR	361	1090	572	261	233
A	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96
CF	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
CPF	1.1	1.1	1.1	1.1	1.1
ASF	10	10	3	1	1
ED	0.25	2	14	14	54
AT	70	70	70	70	70
FAH	0.85	0.85	0.72	0.73	0.73

AERMOD Modeled DPM Concentrations

	Conc.
Year 1	0.008867
Year 2	

Age Group	Cair x	BR	A	EF	CF		Dose
3rd Trimester	0.008867	361	1	0.96	1.00E-06	=	3.07E-06
0-2 Years	0.008867	1090	1	0.96	1.00E-06	=	9.27E-06
2-16 Years	0.008867	572	1	0.96	1.00E-06	=	4.86E-06
16-30 Years	0.008867	261	1	0.96	1.00E-06	=	2.22E-06
30-70 Years	0.008867	233	1	0.96	1.00E-06	=	1.98E-06

Year 1 Excess Risk for Community

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
3rd Trimester	3.07E-06	1.1	10	0.25	70	0.85	1,000,000	0.1
0-2 Years	9.27E-06	1.1	10	1.00	70	0.85	1,000,000	1.2
2-16 Years	4.86E-06	1.1	3	1.00	70	0.72	1,000,000	0.2

16-30 Years	2.22E-06	1.1	1	1.00	70	0.73	1,000,000	0.0
30-70 Years	1.98E-06	1.1	1	1.00	70	0.73	1,000,000	0.0

Year 2 Dose for Community

Age Group	Cair x	BR	A	EF	CF		Dose
0-2 Years	0	1090	1	0.96	1.00E-06	=	0.00E+00
2-16 Years	0	572	1	0.96	1.00E-06	=	0.00E+00
16-30 Years	0	261	1	0.96	1.00E-06	=	0.00E+00
30-70 Years	0	233	1	0.96	1.00E-06	=	0.00E+00

Year 2 Excess Risk for Community

Year 2 - 30 D	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
0-2 Years	0.00E+00	1.1	10	1.00	70	0.85	1,000,000	0.0
2-16 Years	0.00E+00	1.1	3	1.00	70	0.72	1,000,000	0.0
16-30 Years	0.00E+00	1.1	1	1.00	70	0.73	1,000,000	0.0
30-70 Years	0.00E+00	1.1	1	1.00	70	0.73	1,000,000	0.0

Total Excess Risk for Community (Adjusted for Millions)

	Infant	Child < 2	Child 2<x<16	Adult 16<x<30	Adult 30<x<70
Year 1	1.34E-06	1.24E-06	1.65E-07	2.55E-08	2.27E-08
Year 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Year 2-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Year 16-30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Year 30-70	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
Total	1.34E-06	1.24E-06	1.65E-07	2.55E-08	2.27E-08

Note: Infant exposure includes infant and child (0.75 years exposure) in Year 1

Population 1066

Calculated Community Cancer Burden (Product of Risk, in Millions, and Population)

	Infant	Child < 2	Child 2<x<16	Adult 16<x<30	Adult 30<x<70
Total	0.001429	0.001320	0.000176	0.000027	0.000024

Appendix A.4: Construction Health Risk Assessment Calculations (DPM)
Madera at Citrus Trail Project HRA
Mitigated (Tier 4 Interim) Health Risk Calculations - Residential

METHODOLOGY

Dose (Air) = Cair x DBR x A x EF x CF

Where:		
	Cair	Chemical concentration in air (µg/m^3)
	DBR:	Daily breathing rate (L/kg-day)
	A:	Inhalation adsorption factor (unitless)
	EF:	Exposure Frequency, days at home / days in year (unitless)
	CF:	10^{-6} Conversion Factor (m^3/L and mg/µg)

Cancer Risk (per million) = Dose (Air) x CPF x ASF x (ED/AT) x FAH x 1,000,000

Where:		
	Dose:	Dose of chemical in the air (µg/m3)
	CPF:	Cancer Potency Factor (mg/kg-day)$^{-1}$
	ASF:	Age Sensitivity Factor
	ED:	Exposure Duration (years)
	AT:	Averaging Time for lifetime cancer risks
	FAH:	Fraction of daily time spent at home / school

Risk Parameter Values by Age Bin

Variable	Residential Age Bin				
	3rd Trimester	0-2 Years	2-16 Years	16-30 Years	16-70 Years
DBR	361	1090	572	261	233
A	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96
CF	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
CPF	1.1	1.1	1.1	1.1	1.1
ASF	10	10	3	1	1
ED	0.25	2	14	14	54
AT	70	70	70	70	70
FAH	0.85	0.85	0.72	0.73	0.73

AERMOD Modeled DPM Concentrations (PMI/MEIR)

	PMI			MEIR		
	Conc.	X	Y	Conc.	X	Y
Year 1	0.04423	487175.45	3769241.18	0.02936	487075.45	3769341.18
Year 2	0.00335	487175.45	3769241.18	0.00222	487075.45	3769341.18

Risk Assessment Year 1 MEIR

Scenario	AERMOD DPM Conc.	Chronic Hazard Quotient
Year 1	0.02936	0.005872
Year 2	0.00222	0.000444

Year 1 Dose @ MEIR

Age Group	Cair x	BR	A	EF	CF		Dose
3rd Trimester	0.02936	361	1	0.96	1.00E-06	=	1.02E-05
0-2 Years	0.02936	1090	1	0.96	1.00E-06	=	3.07E-05
2-16 Years	0.02936	572	1	0.96	1.00E-06	=	1.61E-05
16-30 Years	0.02936	261	1	0.96	1.00E-06	=	7.35E-06
30-70 Years	0.02936	233	1	0.96	1.00E-06	=	6.56E-06

Year 1 Excess Risk at MEIR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
3rd Trimester	1.02E-05	1.1	10	0.25	70	0.85	1,000,000	0.3
0-2 Years	3.07E-05	1.1	10	1.00	70	0.85	1,000,000	4.1
0-2 Years	3.07E-05	1.1	10	1.00	70	0.85	1,000,000	4.1
2-16 Years	1.61E-05	1.1	3	1.00	70	0.72	1,000,000	0.5
16-30 Years	7.35E-06	1.1	1	1.00	70	0.73	1,000,000	0.1

30-70 Years	6.56E-06	1.1	1	1.00	70	0.73	1,000,000	0.1

Year 2 Dose @ MEIR

Age Group	Cair x	BR	A	EF	CF		Dose
0-2 Years	0.00222	1090	1	0.96	1.00E-06	=	2.32E-06
2-16 Years	0.00222	572	1	0.96	1.00E-06	=	1.22E-06
16-30 Years	0.00222	261	1	0.96	1.00E-06	=	5.56E-07
30-70 Years	0.00222	233	1	0.96	1.00E-06	=	4.96E-07

Year 2 Excess Risk at MEIR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
0-2 Years	2.32E-06	1.1	10	1.00	70	0.85	1,000,000	0.3
2-16 Years	1.22E-06	1.1	3	1.00	70	0.72	1,000,000	0.0
16-30 Years	5.56E-07	1.1	1	1.00	70	0.73	1,000,000	0.0
30-70 Years	4.96E-07	1.1	1	1.00	70	0.73	1,000,000	0.0

Total Excess Risk at MEIR (Cumulative, Based on Age at Start of Construction)

	Infant	Child < 2	Child 2<x<16	Adult 16<x<30	Adult 30<x<70
Year 1	4.4	4.1	0.5	0.1	0.1
Year 2	0.3	0.3	0.0	0.0	0.0
Total	4.7	4.4	0.6	0.1	0.1

Appendix A.4: Construction Health Risk Assessment Calculations (DPM)
Madera at Citrus Trail Project HRA
Mitigated (Tier 4 Interim) Health Risk Calculations - Student

METHODOLOGY

Dose (Air) = Cair x DBR x A x EF x CF

Where:		
	Cair	Chemical concentration in air (μg/m^3)
	DBR:	Daily breathing rate (L/kg-day)
	A:	Inhalation adsorption factor (unitless)
	EF:	Exposure Frequency, days at home / days in year (unitless)
	CF:	10^-6 Conversion Factor (m^3/L and mg/μg)

Cancer Risk (per million) = Dose (Air) x CPF x ASF x (ED/AT) x FAH x 1,000,000

Where:		
	Dose:	Dose of chemical in the air (μg/m3)
	CPF:	Cancer Potency Factor (mg/kg-day)$^{-1}$
	ASF:	Age Sensitivity Factor
	ED:	Exposure Duration (years)
	AT:	Averaging Time for lifetime cancer risks
	FAH:	Fraction of daily time spent at home / school

Risk Parameter Values by Age Bin

Variable	School Age Bin 2-9 Years	2-16 Years
DBR	640	572
A	1	1
EF	0.49	0.49
CF	1.00E-06	1.00E-06
CPF	1.1	1.1
ASF	3	3
ED	7	14
AT	70	70
FAH	0.42	0.42

AERMOD Modeled DPM Concentrations (PMI/MESR)

	PMI			MESR		
	Conc.	X	Y	Conc.	X	Y
Year 1	0.21381	487175.45	3769241.18	0.00117	487675.45	3769091.18
Year 2	0.00941	487175.45	3769241.18	9.00E-05	487675.45	3769091.18

Risk Assessment Year 1 MESR

Scenario	AERMOD DPM Conc.	Chronic Hazard Quotient
Year 1	0.00117	0.000234
Year 2	0.00009	0.000018

Year 1 Dose @ MESR

Age Group	Cair x	BR	A	EF	CF		Dose
9-16 Years	0.00117	572	1	0.49	1.00E-06	=	3.28E-07

Year 1 Excess Risk at MESR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk
9-16 Years	3.28E-07	1.1	3	1	70	0.42	1,000,000	0.0

Year 2 Dose @ MESR

Age Group	Cair x	BR	A	EF	CF		Dose
9-16 Years	0.00009	572	1	0.49	0.000001	=	2.52E-08

Year 2 Excess Risk at MESR

Age Group	Dose	CPF	ASF	ED	AT	FAH	Conversion	Risk

9-16 Years	2.52E-08	1.1	3	1	70	0.42	1,000,000	0.0

Total Excess Risk at MESR (Cumulative, Based on Age at Start of Construction)

	9-16 Years
Year 1	0.01
Year 2	0.00
Total	0.01