

AIR QUALITY AND GREENHOUSE GAS ANALYSIS

**TTM37731 COLE DEVELOPMENT
RIVERSIDE, CALIFORNIA**



May 2020

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EXECUTIVE SUMMARY

LSA was retained to prepare an air quality and greenhouse gas (GHG) impact analysis for the proposed TTM37731 Cole Development project (project) at the southwest corner of Cole Avenue and Lurin Avenue in Riverside, California. The proposed project consists of the following entitlements to facilitate the establishment of a 138-unit Planned Residential Development: (1) Tentative Tract Map (TTM 37731) to subdivide 35.8 acres into 138 single-family residential lots and lettered lots for private streets and common open space; (2) Planned Residential Development for the establishment of detached single-family dwellings, private streets, and common open space; (3) Variance to allow a reduced perimeter setback; and (4) Design Review of project plans.

The air quality study provides a discussion of the proposed project, the physical setting of the project area, and the regulatory framework for air quality. This report also provides data on existing air quality and evaluates potential air quality impacts associated with the proposed project.

Emissions with regional effects during project construction, calculated with the California Emissions Estimator Model (CalEEMod, Version 2016.3.2), would not exceed criteria pollutant thresholds established by the South Coast Air Quality Management District (SCAQMD). Compliance with SCAQMD Rules and Regulations during construction will reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions. Standard dust suppression measures recommended by SCAQMD have been identified for short-term construction to meet SCAQMD emissions thresholds. Construction emissions for the proposed project would not exceed the SCAQMD significance thresholds for any criteria pollutants. Construction-related carbon monoxide (CO), nitrogen dioxide (NO₂), and particulate matter (PM) in 10-micron and 2.5-micron pollutant concentrations (PM₁₀ and PM_{2.5}, respectively) would not exceed the localized significance thresholds at the existing residential homes in the southeastern areas of the project site. Therefore, construction impacts would be less than significant.

Historical air quality data show that existing CO levels for the project area and the general vicinity do not exceed either State or federal ambient air quality standards. Because the ambient CO concentrations in the project area are much lower than the federal and State CO standards, the proposed project would not result in significant increases in CO concentrations at intersections in the project vicinity that would result in the exceedance of federal or State CO concentration standards. Pollutant emissions from project operation, also calculated with CalEEMod, would not exceed the SCAQMD threshold for any criteria pollutants.

The proposed project is in Riverside County, which has been identified to have serpentine and ultramafic rock in its soil. However, according to the California Geological Survey, no such rock has been identified in the project vicinity. Therefore, the potential risk for naturally occurring asbestos during project construction is less than significant.

Although odor impacts are unlikely, the proposed project would be required to comply with SCAQMD Rule 402, in the event a nuisance complaint occurs. Impacts associated with objectionable odors would be less than significant.

This study addresses the potential for the project to affect global climate change. The City of Riverside (City) does not have an adopted threshold of significance for GHG emissions. For California Environmental Quality Act (CEQA) purposes, the City has discretion to select an appropriate significance criterion, based on substantial evidence. In December 2008, SCAQMD drafted interim GHG thresholds of significance based on a tiered system. The applicable thresholds for this residential project are Tier 3 with 3,000 metric tons (MT) of carbon dioxide equivalent (CO₂e) per year. This threshold of 3,000 MT per year for residential land uses is selected as the significance criterion that has been supported by substantial evidence during SCAQMD evaluations of its interim GHG standard. Short-term construction and long-term operational emissions of the principal GHGs, including CO₂ and methane, were quantified and compared to this threshold. Project-related GHG emissions would be below this threshold, and the GHG impacts are less than significant. Therefore, no mitigation measures are required.

The proposed project's uses are consistent with the City General Plan (2007). The City's General Plan is consistent with the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) and the SCAQMD 2016 Air Quality Management Plan (AQMP). Therefore, the proposed project is consistent with the General Plans and the regional AQMP.

Cumulative construction and operational emissions were found to be less than significant. The proposed project's GHG reduction measures result in project consistency with the California Climate Change Scoping Plan, the SCAG RTP/SCS, and the City's Riverside Restorative Growthprint: Climate Action Plan (2016). Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. Given this consistency, it is concluded that the proposed project's impact related to GHG emissions would not be cumulatively considerable.

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
ac	acre/acres
AQMP	Air Quality Management Plan
ATCM	Airborne Toxic Control Measure
Basin	South Coast Air Basin
BAU	business as usual
CAA	federal Clean Air Act
CAAQS	California ambient air quality standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
C&D	construction and demolition
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CH ₄	methane
City	City of Riverside
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
DPM	diesel particulate matter
EIR	Environmental Impact Report
EO	Executive Order
EPA	United States Environmental Protection Agency
EV	electric vehicle
First Update	<i>First Update to the Climate Change Scoping Plan: Building on the Framework</i>
ft	foot/feet

GAP	Green Accountability Performance
GCC	global climate change
GHG	greenhouse gas
GWP	global warming potential
H ₂ S	hydrogen sulfide
HFC	hydrofluorocarbon
HRA	Health Risk Assessment
IPCC	Intergovernmental Panel on Climate Change
lbs/day	pounds per day
LCFS	Low Carbon Fuel Standard
LDR	Low Density Residential
LOS	level(s) of service
LST	localized significance threshold
MATES	Multiple Air Toxics Exposure Study
mg/m ³	milligrams per cubic meter
mi	mile/miles
MMT	million metric tons
MMT CO ₂ e	million metric tons of carbon dioxide equivalent
mph	miles per hour
MPO	Metropolitan Planning Organization
MT	metric ton(s)
MT CO ₂ e	metric tons of carbon dioxide equivalent
MT CO ₂ e/yr	metric tons of carbon dioxide equivalent per year
N ₂ O	nitrous oxide
NAAQS	national ambient air quality standards
NDIR	nondispersive infrared
NEPA	National Environmental Policy Act
NEV	neighborhood electric vehicle
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
O ₃	ozone
OPR	Office of Planning and Research
OSP	Orangecrest Specific Plan
PFCs	perfluorocarbons
PM	particulate matter
PM _{2.5}	particulate matter less than 2.5 microns in size
PM ₁₀	particulate matter less than 10 microns in size
ppb	parts per billion

ppm	parts per million
PRC	Public Resources Code
project	TTM37731 Cole Development Project
RMC	Riverside Municipal Code
ROC	reactive organic compound
ROG	reactive organic gas
RPS	Renewable Portfolio Standard
RPU	Riverside Public Utilities
RRG-CAP	Riverside Restorative Growthprint: Climate Action Plan
RRG-EPAP	Riverside Restorative Growthprint: Economic Prosperity Action Plan
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
Scoping Plan	<i>Climate Change Scoping Plan: A Framework for Change</i>
SCS	Sustainable Communities Strategy
Second Update	<i>2017 Climate Change Scoping Plan Update</i>
SF ₆	sulfur hexafluoride
SIP	State Implementation Plan
SLCP	short-lived climate pollutant
SO ₂	sulfur dioxide
SP	service population
State	State of California
TAC	toxic air contaminant
T-BACT	best available control technology for toxics
TDM	transportation demand management
TTM	Tentative Tract Map
Under 2 MOU	Global Climate Leadership Memorandum of Understanding
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VLDR	Very Low Density Residential
VMT	vehicle miles traveled
VOC	volatile organic compound
Working Group	CEQA Significance Threshold Working Group
WRCOG	Western Riverside Council of Governments
ZEV	zero-emissions vehicle
ZNE	zero net energy

INTRODUCTION

This air quality and greenhouse gas (GHG) analysis has been prepared to evaluate the potential air quality and climate change impacts associated with the proposed TTM37731 Cole Development Project (project) in Riverside in Riverside County, California. This report provides a project-specific air quality and climate change impact analysis by examining the impacts of the proposed uses on adjacent sensitive uses and evaluating the mitigation measures required as part of the project design. Guidelines identified by the South Coast Air Quality Management District (SCAQMD) in its *CEQA* [California Environmental Quality Act] *Air Quality Handbook* (SCAQMD 1993) and *Air Quality Analysis Guidance Handbook* and its subsequent updates on its website (SCAQMD 2017) are followed in this air quality impact analysis.

PROJECT LOCATION AND DESCRIPTION

Located on the southwest corner of Cole Avenue and Lurin Avenue in the Orangecrest neighborhood of Riverside, the 35.8-acre (ac) project site is currently vacant. The 35.8 ac project site is generally rectangular and comprises six parcels (Assessor's Parcel Numbers 266-140-022, 266-140-029, 266-140-030, 266-140-049, and 266-140-050). The proposed project consists of the following entitlements to facilitate the establishment of a 138-unit Planned Residential Development: (1) Tentative Tract Map (TTM 37731) to subdivide 35.8 ac into 138 single-family residential lots and lettered lots for private streets and common open space; (2) Planned Residential Development for the establishment of detached single-family dwellings, private streets, and common open space; (3) Variance to allow a reduced perimeter setback; and (4) Design Review of project plans. The upper (northern) portion of the site has a General Plan Land Use Designation of LDR (Low Density Residential) and is zoned R-1-1300-SP - Single-Family Residential and Specific Plan (Orangecrest) Overlay Zones. The lower (southern) portion of the site has a General Plan Land Use Designation of VLDR (Very Low Density Residential) and is zoned R-1-1/2 Acre-SP - Single-Family Residential and Specific Plan (Orangecrest) Overlay Zones and R-E-SP - Residential Estate and Specific Plan (Orangecrest) Overlay Zones.

Figure 1 illustrates the regional and project location, and Figure 2 shows the conceptual site plan.

Precise construction schedule details are unknown at this time and would be dependent on sales; therefore, for the purpose of this analysis, construction is assumed to begin in 2020 with operations occurring as early as 2021.

Existing Sensitive Land Uses in the Project Area

The project site is located on vacant land, with no structures within the project boundaries. The proposed project is surrounded on all sides by single-family residence. Due to the irregular polygon shape of the project boundary, the project surrounds five existing single-family homes along Lurin Avenue, on the west, east, and south sides. Additionally, single-family homes are across Lurin Avenue to the north, across Cole Avenue to the east, and across Mariposa Avenue to the south.

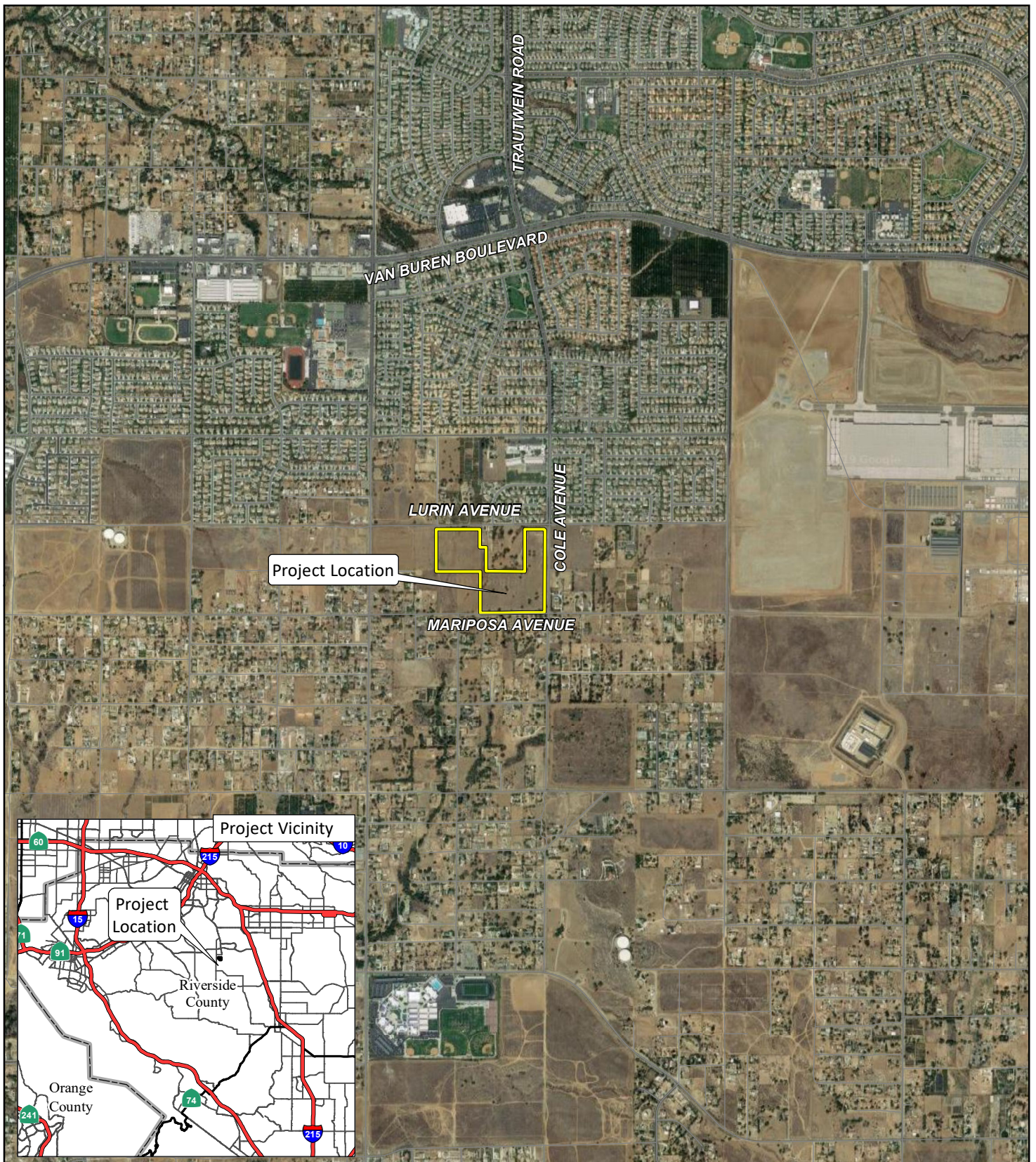
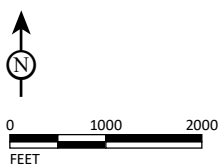


FIGURE 1

LSA



SOURCE: ESRI Streetmap, 2013; Google Earth, 2018.

I:\DFD1906\Cole\Reports\Traffic\fig1-1_Reg_ProjLoc.mxd (7/11/2019)

TTM37731 Cole Development Project
Regional and Project Location

TENTATIVE TRACT MAP NO. 37731 IN THE CITY RIVERSIDE

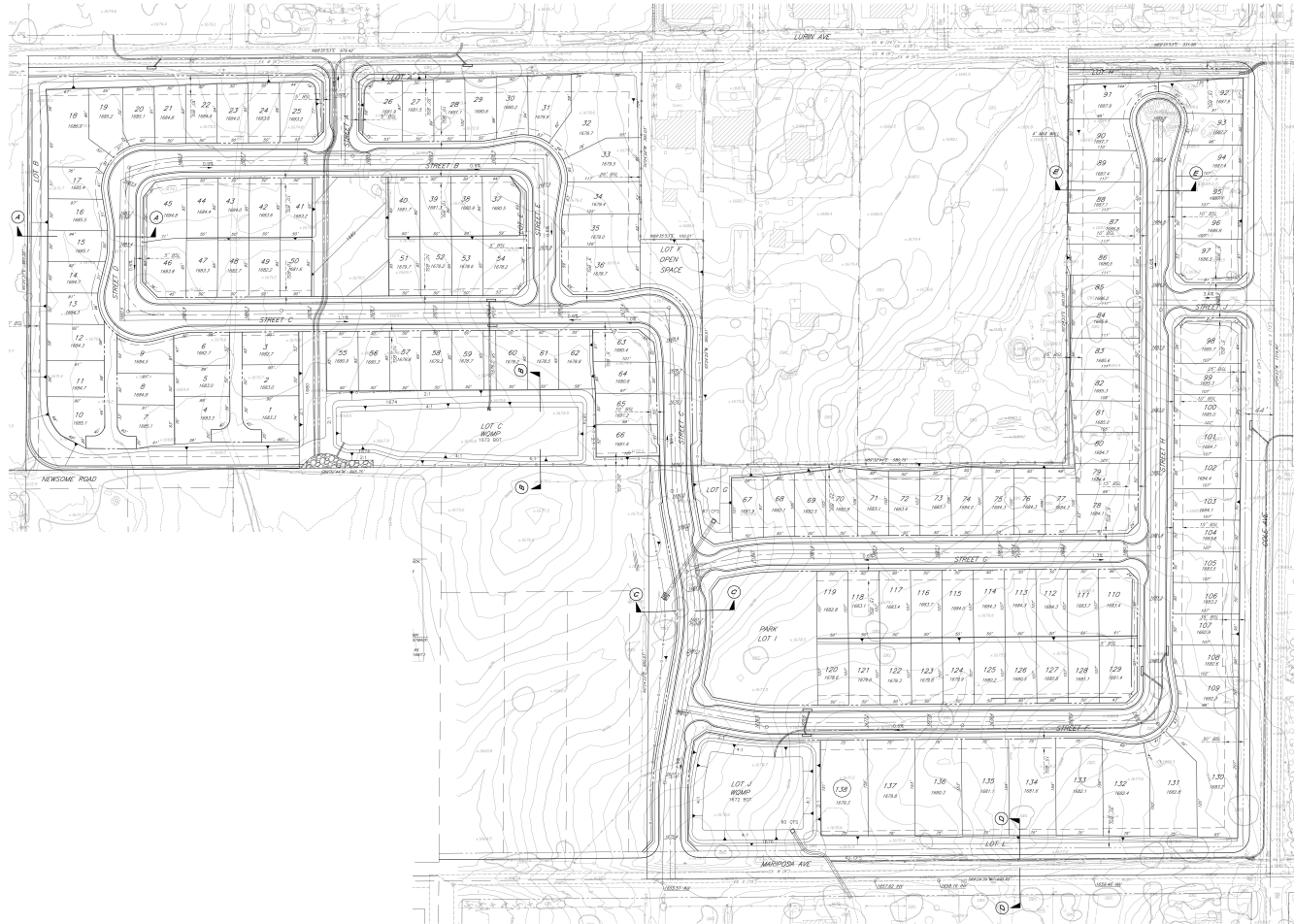
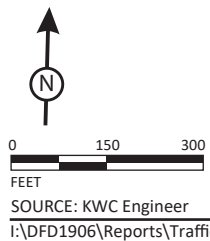


FIGURE 2

LSA



TTM37731 Cole Development Project
Traffic Impact Analysis
Conceptual Site Plan

The area directly west of the project boundary is vacant land, and single-family homes are located approximately 195 meters away. The areas adjacent to the project site include the following uses:

- North: single-family residences
- East: single-family residences
- South: single-family residences
- West: vacant lot and single-family residences

The closest sensitive receptor (i.e., residential home) is approximately 10 feet (ft) to the east of the project boundary at 19331 Lurin Avenue.

PROJECT SETTING

REGIONAL AIR QUALITY

The project site is in Riverside in the nondesert portion of Riverside County, California, which is part of the South Coast Air Basin (Basin) and is under the jurisdiction of SCAQMD. The air quality assessment for the proposed project includes estimating emissions associated with short-term construction and long-term operation of the proposed project.

A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts (e.g., SCAQMD) have created guidelines and requirements to conduct air quality analyses. SCAQMD's current guidelines, included in its *CEQA Air Quality Handbook* (1993) and associated updates, were followed in the assessment of air quality impacts for the proposed project.

Both the State and federal governments have established health-based ambient air quality standards (AAQS) for seven air pollutants. As detailed in Table A, these pollutants include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than 10 microns in size (PM₁₀), particulate matter less than 2.5 microns in size (PM_{2.5}), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide (H₂S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O₃, CO, NO₂, SO₂, and PM₁₀. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert will be declared when any one of the pollutant alert levels is reached at any monitoring site and when meteorological conditions are such that the pollutant concentrations can be expected to remain at these levels for 12 or more hours or to increase, or when, in the case of oxidants, the situation is likely to recur within the next 24 hours unless control actions are taken.

Pollutant alert levels consist of the following:

- **O₃:** 392 micrograms per cubic meter (µg/m³) (0.20 parts per million [ppm]), 1-hour average
- **CO:** 17 milligrams per cubic meter (mg/m³) (15 ppm), 8-hour average
- **NO₂:** 1,130 µg/m³ (0.6 ppm), 1-hour average; 282 µg/m³ (0.15 ppm), 24-hour average
- **SO₂:** 800 µg/m³ (0.3 ppm), 24-hour average
- **PM₁₀:** 350 µg/m³, 24-hour average

Table A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃) ⁸	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)		
Particulate Matter (PM ₁₀) ⁹	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5}) ⁹	24-Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12.0 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—	
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO ₂) ¹⁰	1-Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹¹	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas) ¹¹	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹¹	—	
	3-Hour	—		—	0.5 ppm (1,300 µg/m ³)	
	1-Hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³)	—	
Lead ^{12,13}	30-Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹³	Same as Primary Standard	
	Rolling 3-Month Average ¹¹	—		0.15 µg/m ³		
Visibility-Reducing Particles ¹⁴	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹²	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Source: Ambient Air Quality Standards (CARB 2016).

Footnotes are provided on the following page.

- ¹ California standards for O₃, CO (except 8-hour Lake Tahoe), SO₂ (1- and 24-hour), NO₂, and PM (PM₁₀, PM_{2.5}, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California AAQS are listed in the Table of Standards in Section 70200 of Title 17 of the CCR (State of California 2019b).
- ² National standards (other than for O₃, PM, and those based on the annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current national policies.
- ³ Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ⁴ Any equivalent measurement method that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
- ⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ⁷ Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- ⁸ On October 1, 2015, the national 8-hour O₃ primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- ⁹ On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- ¹⁰ To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- ¹¹ On June 2, 2010, a new 1-hour SO₂ standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated as Nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
- ¹² The CARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ¹³ The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated as Nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.
- ¹⁴ In 1989, the CARB converted both the general statewide 10 mi visibility standard and the Lake Tahoe 30 mi visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius

µg/m³ = micrograms per cubic meter

AAQS = ambient air quality standards

CARB = California Air Resources Board

CO = carbon monoxide

EPA = United States Environmental Protection Agency

H₂S = hydrogen sulfide

mg/m³ = milligrams per cubic meter

mi = mile/miles

NO₂ = nitrogen dioxide

O₃ = ozone

PM = particulate matter

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ppm = parts per million

ppb = parts per billion

SO₂ = sulfur dioxide

Table B summarizes the primary health effects and sources of common air pollutants. Because the concentration standards were set (by the United States Environmental Protection Agency [EPA]) at a level that protects public health with an adequate margin of safety, these health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. State AAQS are more stringent than federal AAQS. Among the pollutants, O₃ and particulate matter (PM_{2.5} and PM₁₀) are considered pollutants with regional effects, while the others have more localized effects.

Table B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutant	Health Effects	Examples of Sources
PM _{2.5} and PM ₁₀	<ul style="list-style-type: none"> Hospitalizations for worsened heart diseases Emergency room visits for asthma Premature death 	<ul style="list-style-type: none"> Cars and trucks (especially diesels) Fireplaces, wood stoves Windblown dust from roadways, agriculture, and construction
O ₃	<ul style="list-style-type: none"> Cough, chest tightness Difficulty taking a deep breath Worsened asthma symptoms Lung inflammation 	<ul style="list-style-type: none"> Precursor sources:¹ motor vehicles, industrial emissions, and consumer products
CO	<ul style="list-style-type: none"> Chest pain in heart patients² Headaches, nausea² Reduced mental alertness² Death at very high levels² 	<ul style="list-style-type: none"> Any source that burns fuel, such as cars, trucks, construction and farming equipment, and residential heaters and stoves
NO ₂	<ul style="list-style-type: none"> Increased response to allergens 	<ul style="list-style-type: none"> See CO sources
TACs	<ul style="list-style-type: none"> Cancer Chronic eye, lung, or skin irritation Neurological and reproductive disorders 	<ul style="list-style-type: none"> Cars and trucks (especially diesels) Industrial sources such as chrome platers Neighborhood businesses such as dry cleaners and service stations Building materials and products

Source: ARB Fact Sheet: Air Pollution and Health (CARB 2009).

¹ Ozone is not generated directly by these sources. Rather, chemicals emitted by these precursor sources react with sunlight to form ozone in the atmosphere.

² Health effects from CO exposure occur at levels considerably higher than ambient.

CARB = California Air Resources Board

CO = carbon monoxide

NO₂ = nitrogen dioxide

O₃ = ozone

PM_{2.5} = particulate matter less than 2.5 or 10 microns in size

PM₁₀: particulate matter less than 10 microns in size

TAC = toxic air contaminant

The California Clean Air Act (CCAA) provides SCAQMD and other air districts with the authority to manage transportation activities at indirect sources. Indirect sources of pollution include any facility, building, structure, or installation, or combination thereof, that attracts or generates mobile-source activity that results in emissions of any pollutant. In addition, area source emissions that are generated when minor sources collectively emit a substantial amount of pollution are also managed by the local air districts. Examples of this would be the motor vehicles at an intersection, at a mall, and on highways. SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the California Air Resources Board (CARB).

Climate/Meteorology

Air quality in the planning area is affected not only by various emission sources (e.g., mobile and industry) but also by atmospheric conditions (e.g., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the Basin the worst air pollution problem in the nation.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site is Riverside Fire Station 3 (WRCC 2019). The monthly average maximum temperature recorded ranged from 66.8 °F in January to 94.4 °F in August, with an annual average maximum of 79.5 °F. The monthly average minimum temperature recorded at this station ranged from 39.1 °F in January to 59.6 °F in August, with an annual average minimum of 48.6 °F. January is typically the coldest month, and July and August are typically the warmest months in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. Riverside Fire Station 3's monitored precipitation shows that average monthly rainfall varied from 2.20 inches in February to 0.44 inch or less from May to October, with an annual total of 10.21 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in the midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds in the project area blow predominantly from the southeast, with relatively low velocities. Wind speeds in the project area average about 5 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside County. In the winter, the greatest pollution problems are CO and nitrogen oxides (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight

hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

A Description of Global Climate Change and Its Sources

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (e.g., precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

Climate change refers to any change in measures of weather (e.g., temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric¹ temperature of 0.36 °F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming may occur, which may induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of the State could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in the State might include a decline in the Sierra Nevada snowpack, erosion of the State's coastline, and seawater intrusion in the San Joaquin Delta.

Global surface temperatures have risen by 1.33°F ±0.32°F over the last 100 years. The rate of warming over the last 50 years is almost double that over the last 100 years (IPCC 2013). The latest projections, based on state-of-the-art climate models, indicate that temperatures in the State are expected to rise 3°F to 10.5°F by the end of the century (CalEPA 2013). The prevailing scientific opinion on climate change is that "most of the warming observed over the last 60 years is attributable to human activities" (IPCC 2013). Increased amounts of carbon dioxide (CO₂) and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.²

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

² The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the amount of heat that escapes, greenhouse gases (GHGs) such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GHG are the following:¹

- CO₂
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF₆)

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which some scientist believe can cause global warming. While GHGs produced by human activities include naturally occurring GHGs (e.g., CO₂, CH₄, and N₂O), some gases (e.g., HFCs, PFCs, and SF₆) are completely new to the atmosphere. Certain other gases (e.g., water vapor) are short-lived in the atmosphere as compared to these GHGs that remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes (e.g., oceanic evaporation). For the purposes of this air quality study, the term “GHGs” will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of metric tons² of CO₂ equivalents (MT CO₂e). For example, N₂O is 298 times more potent at contributing to global warming than CO₂. Table C identifies the GWP for each type of GHG analyzed in this report. United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the *IPCC Fourth 9 Assessment Report* (IPCC 2007).

¹ The GHGs listed are consistent with the definition in Assembly Bill 32 (Government Code 38505), as discussed later in this section.

² A metric ton is equivalent to 1.1 tons.

Table C: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-Year Time Horizon)
CO ₂	~100	1
CH ₄	12	25
N ₂ O	114	298

Sources: *IPCC Fourth 9 Assessment Report* (IPCC 2007) and *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017* (EPA 2019a).

CH₄ = methane

CO₂ = carbon dioxide

N₂O = nitrous oxide

The following discussion summarizes the characteristics of the six primary GHGs.

Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form, as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance, and when concentrations of CO₂ are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO₂ to the atmosphere. Natural removal processes (e.g., photosynthesis by land- and ocean-dwelling plant species) cannot keep pace with this extra input of human-made CO₂; consequently, the gas is building up in the atmosphere. The concentration of CO₂ in the atmosphere has risen from about 280 ppm prior to the Industrial Revolution to more than 400 ppm currently (NOAA 2019).

The transportation sector remains the largest source of GHG emissions in 2015, representing 39 percent of the State's GHG emission inventory (CARB 2019a). The largest emissions category within the transportation sector is on-road, which consists of passenger vehicles (cars, motorcycles, and light-duty trucks) and heavy-duty trucks and buses. Emissions from on-road sources constitute over 92 percent of the transportation sector total. Industry and electricity generation were the State's second- and third-largest categories of GHG emissions, respectively.

Methane

CH₄ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH₄ include fires, geologic processes, and bacteria that produce CH₄ in a variety of settings (most notably, wetlands) (EPA 2010). Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (e.g., the burning of coal, oil, and natural gas). As with CO₂, the major removal process of atmospheric CH₄—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

Nitrous Oxide

N₂O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N₂O is also a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion sources emit N₂O. The quantity of N₂O emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O emissions in the State.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for O₃-depleting substances regulated under the Montreal Protocol.¹ PFCs and SF₆ are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric-power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in the State; however, the rapid growth in the semiconductor industry, which is active in the State, has led to greater use of PFCs. However, there are no known project-related emissions of these three GHGs; therefore, these substances are not discussed further in this analysis.

Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (see Table C), accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

Global Emissions

Worldwide emissions of GHGs in 2017 totaled 25.6 billion MT CO₂e (UNFCCC 2019). Global estimates are based on country inventories developed as part of the programs of the UNFCCC.

United States Emissions

In 2017, the United States emitted approximately 6.456 billion MT CO₂e, down from 7.4 billion MT CO₂e in 2007. United States emissions decreased by 0.5 percent from 2016 to 2017. This decrease was largely driven by a decrease in emissions from fossil fuel combustion, which was a result of multiple factors including a continued shift from coal to natural gas and increased use of renewables in the electric-power sector, and milder weather that contributed to less overall electricity use. In 2017, the total United States GHG emissions were approximately 13 percent less than 2005 levels (EPA 2019a).

¹ The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion and that are also potent GHGs.

State of California Emissions

According to CARB emission inventory estimates, the State emitted approximately 424 million MT CO₂e (MMT CO₂e) emissions in 2017. This is a decrease of 5 MMT CO₂e from 2016 and below the 2020 target of 431 MMT CO₂e (CARB 2019a).

The CARB estimates that transportation was the source of approximately 37 percent of the State's GHG emissions in 2017. The transportation sector remains the largest source of GHG emissions, accounting for 40 percent (CARB 2019a), followed by electricity generation (both in-state and out-of-state) at 15 percent and industrial sources at 21 percent. The remaining sources of GHG emissions were residential and commercial activities at 9 percent, agriculture at 8 percent, high-GWP gases at 4.3 percent, and recycling and waste at 2 percent (CARB 2019a).

Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant environmental health issue in the State. In 1983, the California legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Clean Air Act (42 United States Code Section 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency (CalEPA), acting through the CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). AB 1807 sets forth a formal procedure for the CARB to designate substances as TACs. Once a TAC is identified, the CARB adopts an Airborne Toxic Control Measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the ATCM must reduce exposure to below that threshold. If there is no safe threshold, the ATCM must incorporate toxics best available control technology (T-BACT) to minimize emissions.

Air toxics from stationary sources are also regulated in California under AB 2588. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a Health Risk Assessment (HRA) and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

To date, the CARB has designated nearly 200 compounds as TACs. Additionally, the CARB has implemented ATCMs for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter (PM) from diesel-fueled engines (diesel particulate matter [DPM]).

Exposure to DPM may be a health hazard, particularly to children whose lungs are still developing and the elderly, who may have other serious health problems. DPM levels and resultant potential health effects may be higher in close proximity to heavily traveled roadways with substantial truck traffic or near industrial facilities. According to the CARB, DPM exposure may lead to the following adverse health effects: (1) aggravated asthma; (2) chronic bronchitis; (3) increased respiratory and cardiovascular hospitalizations; (4) decreased lung function in children; (5) lung cancer; and (6) premature deaths for people with heart or lung disease (CARB 2008; CARB 2019b).

The CARB is working to reduce DPM through regulations, financial incentives, and enforcement programs. In 2004, the CARB adopted two ATCMs to reduce DPM emissions associated with distribution centers. The first limits nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than 5 minutes at any one location. The elimination of unnecessary idling reduces the localized impacts caused by DPM and other air toxics in diesel vehicle exhaust.

Air Quality and Land Use Handbook

The CARB published the *Air Quality and Land Use Handbook* on April 28, 2005, to serve as a general guide for considering health effects associated with siting sensitive receptors proximate to sources of TAC emissions. The recommendations provided therein are voluntary and do not constitute a requirement of mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, and acutely ill and chronically ill persons, from exposure to TAC emissions. Some examples of the CARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 ft of a freeway, an urban road with 100,000 vehicles per day, or a rural road with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 1,000 ft of a distribution center (that accommodates more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration units operations exceed 300 hours per week); and (3) avoid siting sensitive receptors within 300 ft of any dry-cleaning operation using perchloroethylene and within 500 ft of a dry-cleaning operation with two or more machines.

Ambient Toxic Air Contaminants Inventory for the Basin

SCAQMD has conducted an in-depth analysis of the TACs and their resulting health risks for all of Southern California. This study, the *Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES IV*, shows that cancer risk has decreased more than 50 percent between MATES III (SCAQMD 2008) and MATES IV (SCAQMD 2015).

MATES IV is the most comprehensive dataset documenting the ambient air toxic levels and health risks associated with Basin emissions. Therefore, the MATES IV study represents the baseline health risk for a cumulative analysis. These model estimates were based on monitoring data collected at 10 fixed sites in the Basin. None of the fixed monitoring sites is in the local area of the project site. However, MATES IV has extrapolated the excess cancer risk levels throughout the Basin by modeling the specific grids. MATES IV modeling predicted an excess cancer risk of 470 in 1 million for the region in the proposed project area. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68 percent of the total risk shown in MATES IV.

Air Pollution Constituents and Attainment Status

The CARB coordinates and oversees both State and federal air pollution control programs in California. The CARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout California in conjunction with the EPA and local air districts. The CARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by the CARB and EPA to classify air basins as Attainment, Nonattainment, Nonattainment-Transitional, or Unclassified, based on air quality data for the most recent 3 calendar years compared with the AAQS.

Attainment areas may be the following:

- Attainment/Unclassified (“Unclassifiable” in some lists). These basins have never violated the air quality standard of interest or do not have enough monitoring data to establish Attainment or Nonattainment status.
- Attainment-Maintenance (national ambient air quality standards [NAAQS] only). These basins violated a NAAQS that is currently in use (were Nonattainment) in or after 1990, but now attain the standard and have been officially redesignated as Attainment by the EPA with a Maintenance State Implementation Plan (SIP).
- Attainment (usually only for California ambient air quality standards [CAAQS], but sometimes for NAAQS). These basins have adequate monitoring data to show Attainment, have never been Nonattainment, or, for NAAQS, have completed the official Maintenance period.

Nonattainment areas are imposed with additional restrictions as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table D lists the attainment status for the criteria pollutants in the Basin.

Table D: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O ₃ 1-hour	Nonattainment	N/A
O ₃ 8-hour	Nonattainment	Extreme Nonattainment
PM ₁₀	Nonattainment	Attainment-Maintenance
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment/Unclassified
NO ₂	Attainment	Attainment/Unclassified
SO ₂	Attainment	Attainment
Lead	Nonattainment ¹	Nonattainment ¹
All others	Attainment/Unclassified	Attainment/Unclassified

Source: Air Quality Standards and Area Designations (CARB 2019).

¹ Only in Los Angeles County. All other counties in California are in attainment.

CO = carbon monoxide

N/A = not applicable

NO₂ = nitrogen dioxide

O₃ = ozone

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SO₂ = sulfur dioxide

Ozone

O₃ (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases (ROGs) rather than being directly emitted. O₃ is a pungent, colorless gas typical of Southern California smog. Elevated O₃ concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors (e.g., the sick, the elderly, and young children). O₃ levels peak during summer and early fall. The entire Basin is designated as Nonattainment for the State 1-hour and 8-hour O₃ standards. The EPA has officially designated the status for most of the Basin regarding the 8-hour O₃ standard as Extreme Nonattainment, which means the Basin has until 2024 to attain the Federal 8-hour O₃ standard.

Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. CO is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire Basin is designated as Attainment for the State standards for CO. The Basin is designated as Attainment/Unclassified under the federal CO standards.

Nitrogen Oxides

NO₂, a reddish-brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NO_x. NO_x is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO₂ decreases lung function and may reduce resistance to infection. The entire Basin is designated as Attainment for the State NO₂ standard and as Attainment/Unclassified under the federal NO₂ standard.

Sulfur Dioxide

SO₂ is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO₂ levels. SO₂ irritates the respiratory tract, can injure lung tissue when combined with fine PM, and reduces visibility and the level of sunlight. The entire Basin is designated as Attainment for both federal and State SO₂ standards.

Lead

Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the bloodstream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. Los Angeles County is designated as Nonattainment for both federal and State standards (all other counties in California are designated as Attainment).

Particulate Matter

“Particulate matter” is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (PM₁₀) derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle (PM_{2.5}) levels. Fine particles can also be formed in the

atmosphere through chemical reactions. PM₁₀ can accumulate in the respiratory system and aggravate health problems (e.g., asthma). The EPA's scientific review concluded that PM_{2.5}, which penetrates deeply into the lungs, is more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM₁₀ standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily for the elderly and individuals with cardiopulmonary disease), increased respiratory symptoms and disease (for children and individuals with cardiopulmonary disease [e.g., asthma]), decreased lung functions (particularly in children and individuals with asthma), and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The Basin is designated as Nonattainment for the federal and State PM_{2.5} standards and State PM₁₀ standard, and Attainment-Maintenance for the federal PM₁₀ standard.

Volatile Organic Compounds

Volatile organic compounds (VOCs; also known as ROGs and reactive organic compounds [ROCs]) are formed from the combustion of fuels and the evaporation of organic solvents. VOCs are not defined as criteria pollutants; however, because VOCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower, they are a prime component of the photochemical smog reaction. There are no attainment designations for VOCs.

Sulfates

Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO₂ during the combustion process and subsequently is converted to sulfate compounds in the atmosphere. The conversion of SO₂ to sulfates takes place comparatively rapidly and completely in urban areas of the State due to regional meteorological features. The entire Basin is designated as Attainment for the State standard for sulfates.

Hydrogen Sulfide

H₂S is a colorless gas with the odor of rotten eggs. H₂S is formed during bacterial decomposition of sulfur-containing organic substances. In addition, H₂S can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. In 1984, a CARB committee concluded that the ambient standard for H₂S is adequate to protect public health and to significantly reduce odor annoyance. The entire Basin is designated as Attainment/Unclassified for the State standard for H₂S.

Visibility-Reducing Particles

Visibility-reducing particles consist of suspended PM, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials (e.g., metals, soot, soil, dust, and salt). The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. The entire Basin is designated as Attainment/Unclassified for the State standard for visibility-reducing particles.

LOCAL AIR QUALITY

SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Riverside-Rubidoux Station, which monitors criteria air pollutant data. The air quality trends from this station are used to represent the ambient air quality in the project area. The pollutants monitored are CO, O₃, PM₁₀, PM_{2.5}, NO₂, and SO₂ (EPA 2019; CARB 2019c). The ambient air quality data in Table E show that NO₂, SO₂, and CO levels are within the applicable State and federal standards. As detailed in Table E, the State 1-hour O₃ standard was exceeded 22 to 47 times per year in the past three years.

Table E: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
Ozone (O₃)—taken from Riverside-Rubidoux Station				
Maximum 1-hour concentration (ppm)		0.142	0.145	0.123
Number of days exceeded:	State: >0.09 ppm	33	47	22
Maximum 8-hour concentration (ppm)		0.105	0.119	0.101
Number of days exceeded:	State: >0.070 ppm	71	82	57
	Federal: >0.070 ppm	69	81	53
Course Particulates (PM₁₀)—taken from Riverside-Rubidoux Station				
Maximum 24-hour concentration (µg/m ³)		170.5.0	137.6.0	126.0
Number of days exceeded:	State: >50 µg/m ³	60	98	127
	Federal: >150 µg/m ³	0	0	0
Annual arithmetic average concentration (µg/m ³)		38.1	41.3	43.9
Exceeded for the year:	State: >20 µg/m ³	Yes	Yes	Yes
Fine Particulates (PM_{2.5})—taken from Riverside-Rubidoux Station				
Maximum 24-hour concentration (µg/m ³)		51.5	50.3	66.3
Number of days exceeded:	Federal: >35 µg/m ³	5	7	3
Annual arithmetic average concentration (µg/m ³)		12.6	14.5	12.6
Exceeded for the year:	State: >12 µg/m ³	Yes	Yes	Yes
	Federal: >15 µg/m ³	No	No	No
Nitrogen Dioxide (NO₂)—taken from Riverside-Rubidoux Station				
Maximum 1-hour concentration (ppm)		0.073	0.063	0.055
Number of days exceeded:	State: >0.18 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.014	0.014	0.014
Exceeded for the year:	State: >0.030 ppm	No	No	No
	Federal: >0.053 ppm	No	No	No
Carbon Monoxide (CO)—taken from Riverside-Rubidoux Station				
Maximum 1-hour concentration (ppm)		1.7	2.4	2.2
Number of days exceeded:	State: >20 ppm	0	0	0
	Federal: >35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.3	1.8	2.0
Number of days exceeded:	State: ≥9.0 ppm	0	0	0
	Federal: ≥9 ppm	0	0	0

Table E: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
Sulfur Dioxide (SO₂)—taken from Riverside-Rubidoux Station				
Maximum 24-hour concentration (ppm)		0.001	0.001	0.001
Number of days exceeded:	State: >0.04 ppm	0	0	0
	Federal: >0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.0002	0.0002	0.0002
Exceeded for the year:	Federal: >0.030 ppm	No	No	No

Sources 1: Air Data: Air Quality Data Collected at Outdoor Monitors across the US (EPA 2019b) and iADAM Air Quality Data Statistics (CARB 2019c).

µg/m³ = micrograms per cubic meter

CO = carbon monoxide

NO₂ = nitrogen dioxide

O₃ = ozone

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

ppm = parts per million

SO₂ = sulfur dioxide

The federal 8-hour O₃ standard was exceeded 53 to 81 days per year in the past 3 years, and the State 8-hour O₃ standard was exceeded 57 to 82 times per year in the past 3 years. The federal 24-hour PM₁₀ standard was not exceeded in the past 3 years, but the State 24-hour PM₁₀ standard was exceeded 60 to 127 days per year in the past 3 years. The State's annual PM₁₀ standard was exceeded in each of the years from 2016 to 2018. The federal 24-hour PM_{2.5} standard was exceeded 3 to 7 days per year in the past 3 years, and the State's annual PM_{2.5} standard was exceeded in 2016, 2017, and 2018.

REGULATORY SETTINGS

Federal Regulations/Standards

Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established the NAAQS. The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the EPA to classify regions as Attainment or Nonattainment, depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

In April 2003, the EPA was cleared by the White House Office of Management and Budget to implement the 8-hour ground-level O₃ standard. The EPA issued the proposed rule implementing the 8-hour O₃ standard in April 2003. The EPA completed final 8-hour Nonattainment status on April 15, 2004. The EPA revoked the 1-hour O₃ standard on June 15, 2005, and lowered the 8-hour O₃ standard from 0.08 ppm to 0.075 ppm on April 1, 2008.

The EPA issued the final PM_{2.5} implementation rule in fall 2004. The EPA lowered the 24-hour PM_{2.5} standard from 65 to 35 µg/m³ and revoked the annual PM₁₀ standard on December 17, 2006. The EPA issued final designations for the 2006 24-hour PM_{2.5} standard on December 12, 2008.

On December 7, 2009, the EPA Administrator signed a final action under the CAA, finding that six GHGs (i.e., CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to GHGs. This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles discussed below.

On April 1, 2010, the EPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The EPA has finalized the first-ever national GHG emissions standards under the CAA, and NHTSA finalized Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act on August 16, 2016. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile in model year 2016, equivalent to 35.5 miles per gallon.

On September 15, 2011, the EPA and NHTSA issued a final rule of *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles* (76 Fed. Reg. 7106). This final rule is tailored to each of three regulatory categories of heavy-duty vehicles: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. The EPA and NHTSA estimated that the new standards in this rule will reduce CO₂ emissions by approximately 270 MMT and save 530 million barrels of oil over the life of vehicles sold during the 2014 through 2018 model years.

On August 24, 2018, the EPA and NHTSA promulgated the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks. The SAFE Vehicles Rule would amend certain existing CAFE and tailpipe CO₂ emissions standards for passenger cars and light trucks and establish new standards, all covering model years 2021 through 2026. More specifically, NHTSA promulgated the new CAFE standards for model years 2022 through 2026 and amended its 2021 model year CAFE standards, and the EPA amended its CO₂ emissions standards for model years 2021 through 2025 in addition to establishing new standards for model year 2026. The agencies retained the model year 2020 standards for both programs through model year 2026.

State Regulations/Standards

In 1967, the State legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus—the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board—to establish the CARB. Since its formation, the CARB has worked with the public, the business sector, and local governments to find solutions to the State's air pollution problems.

California adopted the CCAA in 1988. The CARB administers the CAAQS for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six criteria pollutants designated by the CAA as well as four others: visibility-reducing particulates, H₂S, sulfates, and vinyl chloride.

California Climate Action Milestones

Assembly member Fran Pavley authored AB 1493 in 2002, which directed the CARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. CARB approved the so-called “Pavley” regulations, or Clean Car regulations, in 2004. The CARB submitted a request to the EPA to implement the regulations in December 2005. After several years of requests to the federal government, and accompanying litigation, this waiver request was granted on June 30, 2009. The CARB has since combined the control of smog-causing pollutants and GHG emissions to develop a single coordinated package of standards known as Low Emission Vehicles III. These regulations were expected to reduce GHG emissions from State passenger vehicles by approximately 22 percent in 2012 and approximately 30 percent in 2016, all while improving fuel efficiency and reducing motorists’ costs. AB 1493 also directed the State’s Climate Action Registry to adopt protocols for reporting reductions in GHG emissions from mobile sources prior to the operative date of the regulations.

SB 812 added forest management practices to the State’s Climate Action Registry members’ reportable emissions actions. SB 812 also directed the Climate Action Registry to adopt forestry procedures and protocols to monitor, estimate, calculate, report, and certify CO stores and CO₂ emissions that resulted from the conservation and conservation-based management of forests in California.

The California Renewable Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission (CPUC) to meet 20 percent of their retail sales with renewable power by 2017, was established by SB 1078 in 2002. The renewable portfolio standard was accelerated to 20 percent by 2010 by SB 107 in 2006. The program was subsequently expanded by the renewable electricity standard approved by the CARB in September 2010, requiring all utilities to meet a 33 percent target by 2020. The renewable electricity standard is projected to reduce GHG emissions from the electricity sector by at least 12 MMT CO₂e in 2020.

In December 2004, Governor Arnold Schwarzenegger signed Executive Order (EO) S-20-04, which set a goal of reducing energy use in State-owned buildings by 20 percent by 2015 (from a 2003 baseline) and encouraged cities, counties, schools, and the private sector to take all cost-effective measures to reduce building electricity use. This action built upon the State’s strong history of energy efficiency efforts that have saved Californians and the State businesses energy and money for decades. They are a cornerstone of GHG reduction efforts.

EO S-3-05 (June 2005) established GHG targets for the State including returning to year-2000 emission levels by 2010, returning to 1990 levels by 2020, and achieving levels that are 80 percent below 1990 levels by 2050. EO S-3-05 directed the Secretary of CalEPA to coordinate efforts to meet the targets with the heads of other State agencies. This group became the Climate Action Team (CAT).

AB 32 and the CARB’s Climate Change Scoping Plan

In 2006, the State legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multiyear program to reduce GHG emissions in California. Under

AB 32, the CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. The CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized the CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, the CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

AB 32 required the CARB to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. In 2007, the CARB approved a limit on the statewide GHG emissions level for the year 2020 consistent with the determined 1990 baseline (427 MMT CO₂e). The CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Furthermore, in 2008, the CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) in accordance with Health and Safety Code Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable-energy mix of 33 percent
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps emissions sources to 85 percent of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
6. Creating targeted fees, including a public-goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation

In the Scoping Plan, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "business as usual" [BAU]). For purposes of calculating this percentage reduction, the CARB assumed that all new electricity generation would be supplied by natural gas

plants, no further regulatory action would affect vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, the CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12 to 20 percent), the CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

More recently, in 2014, the CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update). The stated purpose of the First Update is to “highlight California’s success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050.” The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.

In conjunction with the First Update, the CARB identified “six key focus areas comprising major components of the state’s economy to evaluate and describe the larger transformative actions that will be needed to meet the state’s more expansive emission reduction needs by 2050.” Those six areas are the following: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05’s 2050 reduction goal.

Based on the CARB’s research efforts presented in the First Update, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050.” Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

On December 14, 2017, the CARB adopted The *2017 Climate Change Scoping Plan Update* (Second Update) (ARB 2017). This update proposes the CARB’s strategy for achieving the State’s 2030 GHG target as established in SB 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20 percent.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 sets an interim target goal of reducing statewide

GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to the CARB's Scoping Plan to express the 2030 target in terms of MMT CO₂e. The EO also calls for State agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to the CARB's membership, increase legislative oversight of the CARB's climate-change-based activities, and expand dissemination of GHG and other air-quality-related emissions data to enhance transparency and accountability.

More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring the CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the State senate and three members of the State assembly, in order to provide ongoing oversight over implementation of the State's climate policies. AB 197 also added two members of the State legislature to the CARB as nonvoting members; requires the CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires the CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations (CCR) was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure that new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The CEC is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building (CEC 2015). These standards are updated to consider and incorporate new energy-efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality (CALGreen 2019). The CALGreen standards took effect in January 2011 and instituted mandatory minimum

environmental performance standards for all ground-up, new construction of commercial, low-rise residential and State-owned buildings and schools and hospitals. The latest CALGreen standards, the 2019 California Green Building Standards Code, became effective on January 1, 2020. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water-efficient landscaping ordinance
- Diversion of 65 percent of construction and demolition waste from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle (EV) charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle board

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15 percent improvement in energy requirements, stricter water conservation, 65 percent diversion of construction and demolition waste, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The CPUC, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include the following: (1) all new residential construction in California will achieve ZNE by 2020; and (2) all new commercial construction in California will achieve ZNE by 2030 (CPUC 2019).¹ As defined by the CEC in its 2015 *Integrated Energy Policy Report*, a zero net energy code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2016).

Title 20. Title 20 of the CCR requires manufacturers of appliances to meet State and federal standards for energy and water efficiency. The performance of appliances must be certified through the CEC to demonstrate compliance with standards. Title 20 presents protocols for testing for each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and State standards for federally regulated appliances, State standards for federally regulated appliances, and State standards for non-federally regulated appliances.

¹ It is expected that achievement of the zero-net-energy goal will occur via revisions to the Title 24 standards.

SB 1. SB 1 (2006) established a \$3 billion rebate program to support the goal of the State to install rooftop solar energy systems with a generation capacity of 3,000 megawatts (MW) through 2016. SB 1 added sections to the Public Resources Code (PRC), including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the State to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed “GoSolarCalifornia,” was previously titled “Million Solar Roofs.”

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the State legislature relating to the promotion of solar water-heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water-heating systems in homes and businesses throughout the State by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting and to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

Mobile Sources

AB 1493. AB 1493 required the CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the CARB to be vehicles that are used as personal non-commercial transportation in the state. The bill set CARB GHG emission standards on motor vehicles after 2008. When fully phased in, the standards on vehicles made from 2009–2012 resulted in a reduction of about 22 percent, while 2013–2016 models saw a reduction of about 30 percent in GHG emissions from 2002.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 set a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in CO₂e grams per unit of fuel energy sold in California. The LCFS’ target is to reduce carbon intensity fuels by at least 10 percent by 2020.

SB 375. SB 375 (2008) requires the CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional MPOs are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plans (RTPs). The goal of the SCS is to establish a forecast development pattern for the region that, will achieve, the GHG reduction targets. The targets for SCAG are an 8 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035. SCAG completed and adopted its 2016 RTP/SCS in April 2016.

Renewable Energy and Energy Procurement

SB 350. SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from

qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or the class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

Water

EO B-29-15. In response to the then-ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

The Water Conservation Act of 2009 (also known as Senate Bill X7-7) is a California state law that requires the State to reduce urban water consumption by 20 percent by 2020. The key purpose of the law is to encourage both urban and agricultural water providers to implement conservation strategies, monitor water usage, and report data to the Department of Water Resources.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the State's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the State in reaching the 75 percent goal by 2020.

Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established SCAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in its nonattainment areas.

The CARB is responsible for incorporating AQMPs for local air basins into an SIP for EPA approval. Significant authority for air quality control within the AQMPs has been given to local air districts that regulate stationary-source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan

SCAQMD and SCAG are responsible for formulating and implementing the AQMP for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. Every 3 years, SCAQMD prepares a new AQMP, updating the previous plan and 20-year

horizon. SCAQMD adopted the 2016 AQMP in March 3, 2017 (SCAQMD 2017). The CARB approved the plan on March 10, 2017, and forwarded the AQMP to the EPA.

The Final 2016 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories. The Final 2016 AQMP includes the new and changing federal requirements, implementation of new technology measures, and continued development of economically sound, flexible compliance approaches. The AQMP also provides policies and measures to guide responsible agencies in achieving federal standards for healthful air quality in the Basin. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to project construction or operation. For example, SCAQMD Rule 403 requires the implementation of the best available fugitive dust control measure during active construction periods capable of generating fugitive dust emissions from on-site earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads (SCAQMD 2005).

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with new development projects within the Basin, such as the proposed project. Instead, the SCAQMD published the *CEQA Air Quality Handbook* (SCAQMD 1993) to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects proposed in the Basin. The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in Environmental Impact Reports (EIRs) and was used extensively in the preparation of this analysis. SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook* with the *Air Quality Analysis Guidance Handbook* (SCAQMD 2019a).

In order to assist the CEQA practitioner in conducting an air quality analysis in the interim while the replacement *Air Quality Analysis Guidance Handbook* is being prepared, supplemental guidance/information is provided on the SCAQMD website and includes the following: (1) on-road vehicle emission factors; (2) background CO concentrations; (3) localized significance thresholds (LSTs); (4) mitigation measures and control efficiencies; (5) mobile-source toxics analysis; (6) off-road mobile-source emission factors; (7) PM_{2.5} significance thresholds and calculation methodology; and (8) updated SCAQMD Air Quality Significance Thresholds. SCAQMD also recommends using approved models to calculate emissions from land use projects, such as CalEEMod. These recommendations were followed in the preparation of this analysis.

The following SCAQMD rules and regulations would be applicable to the proposed project:

- SCAQMD Rule 403 requires projects to incorporate fugitive dust control measures.
- SCAQMD Rule 1113 limits the VOC content of architectural coatings.

Regional Transportation Plan

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California to ensure compliance with the federal and State air quality requirements, including the Transportation Conformity Rule and other applicable federal, State, and air district laws and regulations. As the federally designated MPO for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and State air quality plans to attain NAAQS. In addition, SCAG is a coproducer with SCAQMD of the transportation strategy and transportation control measure sections of the AQMP for the Basin. With regard to future growth, SCAG adopted the 2016 RTP/SCS in April 2016, which provides population, housing, and employment projections for cities under its jurisdiction. The growth projections in the 2016 RTP/SCS are based in part on projections originating under county and city General Plans. These growth projections were utilized in the preparation of the air quality forecasts and consistency analysis included in the 2016 AQMP.

City of Riverside General Plan 2025

The Air Quality Element of the *City of Riverside General Plan 2025* (City of Riverside 2007) includes air quality policies intended to limit sources of air pollution and sensitive receptor exposure. The following policies are applicable to the project:

- **Objective AQ-1:** Adopt land use policies that site polluting facilities away from sensitive receptors and vice versa, improve the jobs–housing balance, reduce vehicle miles traveled (VMT) and the length of work trips, and improve the flow of traffic.
- **Policy AQ-1.3:** Separate, buffer, and protect sensitive receptors from significant sources of pollution to the greatest extent possible.
- **Policy AQ-1.4:** Facilitate communication between residents and businesses on nuisance issues related to air quality.
- **Policy AQ-1.10:** Encourage job creation in job-poor areas as a means of reducing VMT.
- **Policy AQ-1.13:** Encourage employment centers that are nonpolluting or extremely low-polluting and do not draw large numbers of vehicles in proximity to residential uses.
- **Policy AQ-1.15:** Establish land use patterns that reduce the number and length of motor vehicle trips and promote alternative modes of travel.
- **Policy AQ-1.16:** Design safe and efficient vehicular access to commercial land uses from arterial streets to ensure efficient vehicular ingress and egress.
- **Policy AQ-1.19:** Require future commercial areas to foster pedestrian circulation through the land use entitlement process and/or business regulation.
- **Policy AQ-1.20:** Create the maximum possible opportunities for bicycles as an alternative work transportation mode.

- **Policy AQ-2.1:** Support Transportation Management Associations between large employers and commercial/industrial complexes.
- **Policy AQ-2.6:** Develop trip reduction plans that promote alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education, and preferential parking.
- **Policy AQ-2.17:** Encourage and, to the extent possible, require, through the land use entitlement or business regulation process, business owners to schedule deliveries at off-peak traffic periods.
- **Policy AQ-3.4:** Require projects to mitigate, to the extent feasible, anticipated emissions that exceed the AQMP Guidelines.
- **Policy AQ-3.7:** Require use of pollution control measures for stationary and area sources through the use of the best available control activities, fuel/material substitution, cleaner fuel alternatives, product reformulation, and changes in work practices and the use of control measures identified in the latest AQMP.
- **Policy AQ-4.2:** Reduce particulate matter from agriculture (e.g., require use of clean nondiesel equipment and particulate traps), construction, demolition, debris hauling, street cleaning, utility maintenance, railroad rights-of-way, and off-road vehicles to the extent possible, as provided in SCAQMD Rule 403.
- **Policy AQ-4.5:** Require the suspension of all grading operations when wind speeds (as instantaneous gusts) exceed 25 mph.

The Air Quality Element and the Open Space and Conservation Element of the City General Plan 2025 (City of Riverside 2007) include policies intended to reduce GHGs. Many of the policies described in Section 4.1, Air Quality, and Section 4.12, Energy Conservation, would also apply to GHGs. Additional policies that may be applicable to the project include the following:

- **Policy AQ-5.1:** Utilize source reduction, recycling, and other appropriate measures to reduce the amount of solid waste disposed of in landfills.
- **Policy AQ-5.3:** Continue and expand use of renewable energy resources such as wind, solar, water, landfill gas, and geothermal sources.
- **Policy AQ-5.6:** Support the use of automated equipment for conditioned facilities to control heating and air conditioning.
- **Policy AQ-5.7:** Require residential building construction to meet or exceed energy use guidelines in Title 24 of the California Administrative Code.
- **Policy AQ-8.17:** Develop measures to encourage that a minimum of 40 percent of the waste from all construction sites throughout Riverside be recycled by the end of 2008.

Riverside Restorative Growthprint: Economic Prosperity Action Plan and Climate Action Plan

The Riverside Restorative Growthprint: Economic Prosperity Action Plan (RRG-EPAP) and the Riverside Restorative Growthprint: Climate Action Plan (RRG-CAP) were adopted by the City on January 5, 2016. In 2014, Riverside was one of 12 cities that collaborated with the Western Riverside Council of Governments (WRCOG) on a Subregional Climate Action Plan (Subregional CAP) that includes 36 measures to guide Riverside's GHG reduction efforts through 2020 (WRCOG 2014). The RRG-CAP expands upon the Subregional CAP and provides a path for the City to achieve deep reductions in GHG emissions through 2035, while the RRG-EPAP provides a framework for smart growth and low-carbon economic development. By using energy more efficiently, harnessing renewable energy to power buildings and vehicles, improving access to sustainable transportation modes, recycling more waste, conserving water, and building local food systems, the City can support the local economy, create new green jobs, and improve public health and community quality of life. The RRG-CAP contains GHG reduction measures organized into four primary sectors, as defined by the following policy goals:

- **Energy:** Measures will increase communitywide building and equipment efficiency and renewable-energy use, and promote energy efficiency and renewable-energy generation for use supporting municipal operations that support the community.
- **Transportation and land use:** Measures will reduce single-occupancy vehicle travel, increase nonmotorized travel, improve public-transit access, increase motor vehicle efficiency, encourage alternative-fuel vehicles, and promote sustainable-growth patterns.
- **Water:** Measures will conserve potable water and reduce water demand by the community and municipal operations.
- **Solid waste:** Measures will reduce solid waste sent to landfills that is generated by the community and municipal operations.

As stated in the City RRG-CAP, AB 32 directs California to reduce statewide GHG emissions to 1990 levels by 2020. To achieve these reductions, the CARB recommends that local governments target their 2020 emissions at 15 percent below "current" levels, consistent with the statewide commitment, to account for emissions growth that has occurred since 1990. The City has adopted a 2020 communitywide GHG emissions target of 2,224,908 MT CO₂e, which represents a 15 percent reduction from the City's 2010 GHG emissions baseline inventory of 2,617,540 MT CO₂e (City of Riverside 2016). A 15 percent reduction target is deemed by the City and the WRCOG to be consistent with the statewide AB 32 goal of reducing emissions to 1990 levels and is in line with the current best practice for CAPs developed for numerous California cities.

THRESHOLDS OF SIGNIFICANCE

SCAQMD's *CEQA Air Quality Handbook* (SCAQMD 1993), with associated updates, and the City's *Environmental Quality Act Guidelines* were followed in the assessment of air quality impacts for the proposed project.

This air quality and GHG impact analysis includes estimated emissions associated with short-term construction and long-term operation of the proposed project. Criteria pollutants with regional impacts would be emitted by project-related vehicular trips, as well as by emissions associated with stationary sources used on site.

The net increase in pollutant emissions determines the significance and impact on regional air quality as a result of the proposed project. The results also allow the local government to determine whether the proposed project will deter the region from achieving the goal of reducing pollutants in accordance with the AQMP in order to comply with the NAAQS and CAAQS.

Based on *Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines)*, Appendix G, PRC Sections 15000–15387, a project would normally be considered to have a significant effect on air quality if the project would violate any CAAQS, contribute substantially to an existing air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with adopted environmental plans and goals of the community in which it is located. The following significance thresholds are contained in Appendix G of the *State CEQA Guidelines*. A significant impact would occur if a project would do any of the following:

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

The *State CEQA Guidelines* define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

According to SCAQMD, if an individual project results in emissions of criteria air pollutants that exceed SCAQMD's recommended daily thresholds for project-specific impacts, then the project would also result in a cumulatively considerable net increase of these criteria pollutants.

POLLUTANTS WITH REGIONAL EFFECTS

SCAQMD has established daily emissions thresholds for construction and operation of a proposed project in the Basin. The emissions thresholds were established based on the attainment status of

the Basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set (by the EPA) at a level that protects public health with an adequate margin of safety, these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Regional Thresholds for Construction and Operational Emissions

The City utilizes the SCAQMD *CEQA Air Quality Handbook* to identify potentially significant impacts on air quality. The SCAQMD has established the thresholds of significance for emissions generated during construction and operation of projects as shown in Table F below.

Table F: South Coast Air Quality Management District Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
VOCs	75 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
NO _x	100 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day

Source: Air Quality Significance Threshold (SCAQMD 2016).

CO = carbon monoxide

lbs = pounds

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

VOC = volatile organic compound

SCAQMD = South Coast Air Quality Management District

SO_x = sulfur oxides

Projects in the Basin with operational emissions that exceed any of these emission thresholds are considered to be significant under SCAQMD guidelines. These thresholds, which apply throughout the Basin and were developed by SCAQMD, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

Local Microscale Concentration Standards

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) E or worse without improvements. The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- State 1-hour CO standard of 20 ppm
- State 8-hour CO standard of 9 ppm

THRESHOLDS FOR LOCALIZED IMPACTS ANALYSIS

SCAQMD published its *Final Localized Significance Threshold Methodology* in June 2003 and updated it in July 2008 (SCAQMD 2003), recommending that all air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. LSTs were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative. The LST methodology was adopted by the SCAQMD Governing Board in October 2003 (SCAQMD 2003). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The local significance lookup thresholds for NO_x were developed based on the 1-hour NO₂ CAAQS of 0.18 ppm. However, the EPA has promulgated a 1-hour NO₂ NAAQS of 0.1 ppm based on a 98th percentile value, which is more stringent than the CAAQS. In addition to the more stringent federal 1-hour NO₂ standard, the CARB has also established a new annual standard of 0.03 ppm. The local significance lookup thresholds were developed for short-term standards (less than 24-hour concentration standards).

SCAQMD has developed methodology to assess the potential for localized emissions to cause an exceedance of applicable AAQS. Impacts would be considered significant if the following would occur:

- Maximum daily localized emissions are greater than the LSTs, resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent AAQS for CO and NO₂.
- Maximum localized PM₁₀ or PM_{2.5} emissions during construction are greater than the applicable LSTs, resulting in predicted ambient concentrations in the vicinity of the site to exceed 50 µg/m³ (SCAQMD Rule 403 control requirement).

In the case of CO and NO₂, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM₁₀ and PM_{2.5}, both of which are Nonattainment pollutants (SCAQMD 2006). For these two, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403 and 1301. The Rule 403 threshold of 10.4 µg/m³ applies to construction emissions. The Rule 1301 threshold of 2.5 µg/m³ applies to operational activities.

THRESHOLDS FOR GREENHOUSE GASES

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public

agency involved, based to the extent possible on scientific and factual data,” and further states that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

For the purpose of this analysis, Appendix G of the *State CEQA Guidelines* has been used as the significance threshold for GHG emissions. A project would normally have a significant effect on the environment if the project would do either of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs

On December 30, 2009, the California Natural Resources Agency adopted amendments to the *State CEQA Guidelines* that became effective on March 18, 2010. The amendments to the *State CEQA Guidelines* include new requirements to evaluate GHG emissions. Pursuant to the amended *State CEQA Guidelines*, a lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions compared to the existing environmental setting
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project
3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions

Background on Greenhouse Gas Thresholds

As SCAQMD has recognized, the analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or nonattainment is based on daily exceedances of applicable AAQS. Furthermore, several AAQS are based on relatively short-term exposure effects on human health (e.g., 1-hour and 8-hour). However, since the half-life of CO₂, for example, is approximately 100 years, the effects of GHGs are longer term and affect global climate over a relatively long time frame. As a result, SCAQMD’s current position is to evaluate GHG effects over a longer time frame than a single day.

The recommended approach for GHG analysis included in the Office of Planning and Research (OPR) June 2008 release is to do the following: (1) identify and quantify GHG emissions; (2) assess the significance of the impact on GHG; and (3) if the impact is significant, identify alternatives and/or mitigation measures to reduce the impact to below a level of significance. The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: “CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a

broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews.”

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

While individual projects are unlikely to measurably affect GHG, each project incrementally contributes toward the potential for GHG on a cumulative basis, in concert with all other past, present, and probable future projects. However, despite this, neither the CEQA statutes, the OPR guidelines, nor the draft proposed changes to the *State CEQA Guidelines* currently prescribe thresholds of significance or a particular methodology for performing an impact analysis. As with most environmental topics, significance criteria are left to the judgment and discretion of the lead agency.

SCAQMD has adopted a significance threshold of 10,000 MT CO₂e per year (MT CO₂e/yr) for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1. Exemptions:** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2. Consistency with a locally adopted GHG reduction plan:** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project’s geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3. Numerical screening-level threshold:** If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, is proposing a “bright-line” screening-level threshold of 3,000 MT CO₂e/yr for all land use types or, under Option 2, the following land-use-specific thresholds: 1,400 MT CO₂e for commercial projects, 3,500 MT CO₂e for residential projects, or 3,000 MT CO₂e for mixed-use projects. This bright-line threshold is based on a review of the OPR database of CEQA projects. Based on SCAQMD’s review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold

would have a nominal and therefore less than cumulatively considerable impact on GHG emissions.

- **Tier 4. Performance Standards:** If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percentage emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 MT CO₂e per year per service population (MT CO₂e/year/SP) for project-level analyses and 6.6 MT CO₂e/year/SP for plan-level projects (e.g., program-level projects such as general plans). The GHG efficiency metric divides annualized GHG emissions by the service population, which is the sum of residents and employees, per the following equation:

$$\text{Rate of Emission: GHG Emissions (MT CO}_2\text{e/yr)} \div \text{SP}$$

The efficiency evaluation consists of comparing the project's efficiency metric to efficiency targets. Efficiency targets represent the maximum quantity of emissions each resident and employee in the State could emit in various years based on emission levels necessary to achieve the statewide GHG emissions reduction goals. A project that results in a lower rate of emissions would be more efficient than a project with a higher rate of emissions, based on the same service population. The metric considers GHG reduction measures integrated into a project's design and operation (or through mitigation). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for the CARB's 2008 Scoping Plan.

For the proposed project, the buildout year is 2021, and GHG efficiency targets were calculated based on statewide GHG reduction goals and the statewide service population. The City proposed a draft threshold of 3,000 MT CO₂e/yr for residential developments such as the proposed project.

IMPACTS AND MITIGATION

Air pollutant emissions associated with the project would occur over the short term from construction activities (e.g., fugitive dust from site preparation and grading) and emissions from equipment exhaust. Long-term regional emissions associated with the project would result from vehicular trips and energy consumption (e.g., electricity usage) by the proposed land uses.

CONSTRUCTION IMPACTS

Equipment Exhaust and Related Construction Activities

Construction activities produce combustion emissions from various sources (e.g., demolition, site preparation, grading, utility engines, tenant improvements, and motor vehicles transporting the construction crew). Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Air pollutant emission sources during project construction would include the following:

- Exhaust and particulate emissions generated from construction equipment
- Fugitive dust from soil disturbance during site preparation, grading, and excavation activities
- Volatile compounds that evaporate during site paving and painting of the structures

The purpose of this air quality analysis is to review reasonably foreseeable worst-case air quality impacts due to construction and occupancy of the proposed project.

For purposes of air quality analysis, it is assumed that construction would take place in phases. Each individual phase of project development would include the following construction activities:

- Site preparation
- Grading
- Building construction
- Paving and surface improvement
- Architectural coating (painting)

The construction analysis includes estimating the construction equipment that would be used during each construction activity, the hours of use for that construction equipment, the quantities of earth and debris to be moved, and on-road vehicle trips (worker, soil-hauling, and vendor trips). The proposed earthwork for the project assumes balanced cut and fill. CalEEMod modeling and defaults are assumed for the construction activities, off-road equipment, on-road construction fleet mix, and trip lengths. Table G lists the tentative project construction schedule for the proposed project based on a probable start date in 2020. Table H lists the potential construction equipment to be used during project construction under each project phase.

Table G: Tentative Project Construction Schedule

Phase Number	Phase Name	Number of Days
1	Site Preparation	30
2	Grading	75
3	Building Construction	740
4	Paving	55
5	Architectural Coating	55

Source: Estimated by LSA Associates, Inc., using California Emission Estimator Model (CalEEMod) Version 2016.3.2 defaults (December 2019).

Table H: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Site Preparation	Rubber-Tired Dozers	3	8	247	0.40
	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	2	8	158	0.38
	Graders	1	8	187	0.41
	Rubber-Tired Dozers	1	8	247	0.40
	Tractors/Loaders/Backhoes	2	8	97	0.37
Building Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Paving	Pavers	2	8	130	0.42
	Paving Equipment	2	8	132	0.36
	Rollers	2	8	80	0.38
Architectural Coating	Air Compressors	1	6	78	0.48

Source: Compiled by LSA Associates, Inc., using California Emission Estimator Model (CalEEMod) Version 2016.3.2 defaults (December 2019).

The construction calculations prepared for the project assumed that dust control measures (watering a minimum of three times daily) would be employed to reduce emissions of fugitive dust during site grading. Furthermore, all construction would need to comply with SCAQMD Rule 403 regarding the emission of fugitive dust. The most recent version of CalEEMod (Version 2016.3.2) was used to calculate the construction emissions (Table I). The emissions rates shown in Table I are from the CalEEMod output tables listed as Mitigated Construction, even though the only measures that have been applied to the analysis are fugitive dust prevention measures by means of watering, or standard conditions. CalEEMod emission modeling output files for construction are provided in Appendix A of this report.

Table I: Estimated Construction Emissions

Construction Phase	Total Regional Pollutant Emissions (lbs/day)							
	VOC	NO _x	CO	SO _x	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Site Preparation	4.17	42.48	22.25	0.04	7.25	2.20	3.93	2.02
Grading	4.55	50.26	32.78	0.06	3.61	2.18	1.46	2.00
Building Construction	2.42	20.92	19.27	0.04	0.65	1.13	0.18	1.06
Paving	1.09	10.23	15.07	0.02	0.17	0.51	0.04	0.47
Architectural Coating	28.49	1.33	2.13	0.00	0.11	0.07	0.03	0.07
Peak Daily	28.49	50.26	32.78	0.06	9.45		5.59	
SCAQMD Thresholds	75.00	100.00	550.00	150.00	150.00		55.00	
Significant Emissions?	No	No	No	No	No		No	

Source: Compiled by LSA Associates, Inc. (December 2019).

CO = carbon monoxide

lbs/day = pounds per day

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SCAQMD = South Coast Air Quality Management District

SO_x = sulfur oxides

VOC = volatile organic compound

As shown in Table I, no exceedances of any criteria pollutants are expected; therefore, no significant impacts would occur for project construction. Standard measures are discussed in the CalEEMod output included in Appendix A. Details of the emission factors and other assumptions are also included in Appendix A.

Fugitive Dust

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. The proposed project will be required to comply with SCAQMD Rule 403 to control fugitive dust.

Architectural Coatings

Architectural coatings contain VOCs that are part of the O₃ precursors. Based on the proposed project, it is estimated that application of the architectural coatings for the proposed peak construction day will result in a peak of 51 pounds per day (lbs/day) of VOCs. Therefore, VOC emissions from architectural coating application would not exceed the SCAQMD VOC threshold of 75 lbs/day.

Construction Localized Impact Analysis

A local significant impact may occur if construction of the project were to generate pollutant concentrations to a degree that would significantly affect sensitive receptors. Land uses that are considered more sensitive to changes in air quality than others are referred to as sensitive receptors. Land uses such as schools, hospitals, and convalescent homes are considered to be sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to

respiratory infections and other air quality related health problem than the general public. Residential homes are considered sensitive because people in residential areas are often at home for extended period of time, so they could be exposed to pollutants for extended periods. The nearest sensitive receptors to the project site are the existing off-site single-family residences located across the streets adjacent to the eastern and southern property boundary lines.

AERMOD is an EPA-approved air quality model that was used to calculate localized pollutant concentrations for construction and operational activity. Because precise construction phasing information is not available at this time, construction activities were modeled as an area source for the entire 35.80-acre project site.

For purposes of this construction emission analysis, nearest receptors are conservatively assumed to be located 10 feet from the project site.

An area source encompassing approximately 35.80 acres was modeled for construction grading activities. The urban option of the model was selected and receptor height was conservatively set at 1.8 meters (consistent with the document Final Localized Significance Threshold Methodology, SCAQMD, June 2003). For PM₁₀ and PM_{2.5}, a source release height of 0.0 meter was utilized consistent with SCAQMD methodology. For emissions of NO_x and CO released during construction activity, a source release height of 3.0 meters was utilized.

The actual emissions rate (in grams/second/m²) was utilized for emissions of CO, NO₂, PM₁₀, and PM_{2.5} and the output in micrograms per cubic meter (µg/m³) was then multiplied by the emissions conversion rate to parts per million (ppm) determined from the CalEEMod model outputs (and averaged over the appropriate time period and disturbance area). A summary of calculations from both the AERMOD output and calculations for the actual concentration for each pollutant are available for review in Appendix B.

Table J shows that the construction emission concentration would not exceed the SCAQMD LST for the residences located approximately 10 feet (3 meters) from the boundary of the proposed project. Table J also shows that the highest emissions of CO, NO₂, PM₁₀, and PM_{2.5} will result in concentrations at these nearest residences that are all below SCAQMD thresholds of significance.

Table J: Construction Localized Impacts Analysis

Emissions Sources	Pollutant Emissions				
	CO 1-hour (ppm)	CO 8-hour (ppm)	NO ₂ 1-hour (ppm)	PM ₁₀ 24-hour (µg/m ³)	PM _{2.5} 24-hour (µg/m ³)
On-Site Construction Emissions ¹	0.07	0.05	0.05	0.80	0.80
Background Concentration	2.40	2.00	0.07	—	—
SCAQMD Localized Significance Threshold	20.00	9.00	0.18	10.40	10.40
Significant Emissions?	No	No	No	No	No

Source: Compiled by LSA (December 2019).

Note: PM₁₀ and PM_{2.5} concentrations are expressed in µg/m³. All others are expressed in ppm.

¹ CalEEMod clearly delineates the on-site and off-site construction emissions; thus, this includes all on-site construction emissions without having to include a percentage of the mobile source emissions as is done for the operational LST.

CO = carbon monoxide
lbs/day = pounds per day
NO₂ = nitrogen dioxide

PM_{2.5} = particulate matter less than 2.5 microns in size
PM₁₀ = particulate matter less than 10 microns in size

Odors from Construction Activities

Heavy-duty equipment in the project area during construction would emit odors, primarily from the equipment exhaust. However, the construction activity would cease to occur after construction is completed. No other sources of objectionable odors have been identified for the proposed project, and no mitigation measures are required.

SCAQMD Rule 402 regarding nuisances states, “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.” The proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project.

Naturally Occurring Asbestos

The proposed project is located in Riverside County, which is among the counties found to have serpentine and ultramafic rock in their soils (California Department of Conservation 2019). However, according to the California Geological Survey, no such rock has been identified in the project vicinity. Therefore, the potential risk for naturally occurring asbestos during project construction is less than significant.

Construction Emissions Conclusions

As shown in Table I, daily regional construction emissions would not exceed the daily thresholds and the air quality standards of the CO, NO₂, PM₁₀, and PM_{2.5} pollutant emission thresholds established by SCAQMD. No additional mitigation is required for the construction equipment.

Heavy-duty equipment in the project area during construction would emit odors, primarily from the equipment exhaust. However, the construction activity would cease to occur after construction is completed. No other sources of objectionable odors have been identified for the proposed project, and no mitigation measures are required.

The potential risk for naturally occurring asbestos during project construction would be less than significant.

OPERATIONAL AIR QUALITY IMPACTS

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving project-related changes. The proposed project would result in net increases in both stationary- and mobile-source emissions. The stationary-source emissions would come from many sources, including the use of consumer products, landscaping equipment, general energy, and solid waste.

Based on the Traffic Impact Analysis for the proposed project (LSA 2019), the proposed project would generate approximately 1,303 trips per day. The project's average daily trips were entered in CalEEMod. Area sources include architectural coatings, consumer products, and landscaping. Energy sources include natural gas consumption for heating and cooking. CalEEMod results for the project are shown in Table K which demonstrates that none of the criteria pollutants would exceed SCAQMD emission thresholds. Therefore, project-related long-term air quality impacts would be less than significant, and no mitigation is required.

Table K: Regional Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Area	5.92	2.08	12.24	0.01	0.22	0.22
Energy	0.12	1.07	0.45	<0.01	0.09	0.09
Mobile	2.56	13.19	34.40	0.12	10.03	2.75
Total Project Emissions	8.60	16.33	47.10	0.14	10.34	3.06
SCAQMD Thresholds	55.00	55.00	550.00	150.00	150.00	55.00
Significant?	No	No	No	No	No	No

Source: Compiled by LSA Associates, Inc. (December 2019).

CO = carbon monoxide

lbs/day = pounds per day

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SCAQMD = South Coast Air Quality Management District

SO_x = sulfur oxides

VOC = volatile organic compound

Localized Impacts Analysis

CalEEMod was used to calculate localized NO₂, CO, PM₁₀, and PM_{2.5} pollutant concentrations for operational activities. Table L shows the modeled emissions for the proposed operational activities compared with the appropriate LSTs. By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. Motor vehicle emissions are estimated based on the average trip length for residential land

uses. The average trip length used in the CalEEMod does not break down the portion of the motor vehicle emissions generated on site. For a worst-case scenario vehicle emission assessment of the mobile source, the emissions shown in Table L include all on-site project-related area sources and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related new vehicle traffic that will occur on site. A total of 5 percent is considered conservative because the average round trip lengths assumed are 14.70 miles for home-work, 5.90 miles for home-shop, and 8.70 miles for home-other types of trips. It is unlikely that the average on-site distance driven will be even 1,000 feet, which is approximately 2 percent of the total miles traveled. Considering the total trip length included in the CalEEMod, the 5 percent assumption is conservative.

Table L shows that the operational emission rates would not exceed the LSTs for residents in the project area. Therefore, the proposed operational activity would not result in a locally significant air quality impact.

Table L: Operational Localized Impacts Analysis

Emissions Sources	NO _x (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
Maximum On-site Emissions	2.7	14	0.72	0.36
LST Thresholds – 5-acre site	270	1,577	4.0	3.0
Significant Emissions?	No	No	No	No

Source: Compiled by LSA (December 2019).

Note: Source Receptor Area – Metropolitan Riverside County, 5 acres, receptors at less than 3 meters.

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

LST = local significance threshold

PM₁₀ = particulate matter less than 10 microns in size

NO_x = nitrogen oxides

Odors from Operational Activities

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project may generate odors from garbage and green-waste collection. However, the odor would cease to occur after garbage and green-waste collection trucks remove the wastes from the individual homes each week. As such, proposed residential uses would not generate objectionable odors off site. No other sources of objectionable odors have been identified for the proposed project; therefore, the impacts associated with odors would be less than significant, and no mitigation measures are required.

LONG-TERM MICROSCALE (CO HOT SPOT) ANALYSIS

Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, CO

disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable LOS or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

At the time of the publishing of the *CEQA Air Quality Handbook* (1993), the Basin was designated as Nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Basin and in California have steadily declined. In 2007, SCAQMD was designated as Attainment for CO under both the CAAQS and NAAQS. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak CO concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. A CO hot-spot analysis was conducted at four busy intersections in Los Angeles County at the peak morning and afternoon periods and did not predict a violation of CO standards.¹ Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017). One of the four worst intersections in the Basin (i.e., Sunset Boulevard/Highland Avenue)² is located in Los Angeles, approximately 70 mi west of the proposed project. Since the SCAQMD modeled intersections do not exceed the CO standards, intersections within the proposed project study area with less volumes of traffic and under less extreme conditions would not exceed the CO standards. Buildout of the proposed project would not produce the volume of traffic, as described above, required to generate a CO hot spot. Therefore, implementation of the proposed project would not be expected to result in CO hot spots, and impacts would be less than significant. No mitigation is required.

AIR QUALITY MANAGEMENT PLAN CONSISTENCY

A consistency determination plays an essential role in local-agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local-agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

¹ The four intersections were Long Beach Boulevard/Imperial Highway, Wilshire Boulevard/Veteran Avenue, Sunset Boulevard/Highland Avenue, and La Cienega Boulevard/Century Boulevard. The busiest intersection evaluated (Wilshire Boulevard/Veteran Avenue) had a daily traffic volume of approximately 100,000 vehicles and level of service (LOS) E in the morning peak hour and LOS F in the evening peak hour.

² The intersection of Sunset Boulevard/Highland Avenue is within Los Angeles and is used to represent a condition where there is a high volume of traffic during the a.m. and p.m. peak hours to demonstrate that intersections that are below the volume of traffic at this particular intersection, under less severe atmospheric conditions (i.e., where vertical and horizontal air does not mix), would not result in a carbon monoxide hot spot.

The AQMP is based on regional growth projections developed by SCAG. The proposed project is a residential development of 138 single-family homes and would therefore be defined as a not regionally significant project under CEQA Section 15206 and does not meet SCAG's Intergovernmental Review criteria.

Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD *CEQA Air Quality Handbook*, consistency with the Basin 2016 AQMP is affirmed when a project meets the following standards: (1) it does not increase the frequency or severity of an air quality standards violation or cause a new violation; and (2) it is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. While the project with mitigation measures would result in short-term construction pollutant emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD, operational pollutant emissions would be less than SCAQMD significance thresholds; therefore, the project would not result in an increase in the frequency or severity of an air quality standards violation and would not cause a new air quality standard violation.
2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical-generating facilities, petroleum and gas refineries, designation of oil-drilling districts, water ports, solid-waste disposal sites, and offshore drilling facilities; therefore, the proposed project is not defined as significant.

With respect to the first criterion, Tables I and K show that criteria pollutants during construction and operation of the proposed project would not have the potential to cause or affect a violation of the AAQS. Because the proposed project would not introduce any substantial stationary sources of emissions, CO is the preferred benchmark pollutant for assessing local area pollutant impacts from post-construction motor vehicle operations. As indicated earlier, no intersections would require a CO hot-spot analysis, and impacts would be less than significant. Therefore, the proposed project would not increase the frequency or severity of an existing CO violation or cause or contribute to new CO violations.

With respect to the second criterion for determining consistency with AQMP growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2016 RTP/SCS regarding population, housing, and growth trends. According to the 2016 RTP/SCS, the forecast population for the Riverside County subregion in 2040 is approximately 3,167,584 persons. In 2021, the projected partial occupancy year of the proposed project, the Riverside County subregion is anticipated to have a population of approximately 2,393,815 persons. Therefore, the forecast population for the Riverside County subregion will grow by approximately 851,146 persons between 2018 and 2040. The proposed project's 138 single-family homes would introduce an estimated net residential population of approximately 395 persons, based on the household size of 2.86 persons per unit for housing units used in CalEEMod. Thus, project residents would account for 0.03 percent of the population growth forecast by SCAG in the Riverside County subregion between 2018 and 2040. Because similar projections form the basis of the 2016 AQMP, it can be concluded that the proposed project would be consistent with the projections in the AQMP.

GREENHOUSE GAS EMISSIONS

This section evaluates potential significant impacts related to GHG that could result from implementation of the proposed project. Because it is not possible to tie specific GHG emissions to actual changes in climate, this evaluation focuses on the project's emission of GHGs. Mitigation measures are identified as appropriate.

Greenhouse Gas Emissions Background

GHG emission estimates are provided herein for informational purposes only; there is no established quantified GHG emissions threshold. Bearing in mind that CEQA does not require "perfection" but instead "adequacy, completeness, and a good faith effort at full disclosure," the analysis below is based on methodologies and information available to the City and the applicant at the time this analysis was prepared. Estimation of GHG emissions in the future does not account for all changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that is worse than that which is likely to be encountered (after energy-efficient technologies have been implemented). While information is presented below to assist the public and decision-makers in understanding the project's potential contribution to GHG impacts, the information available to the cities is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, or between any particular proposed mitigation measure and any reduction in climate change impacts.

Construction and operation of the project would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the project's operation (as opposed to during its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings, and less than 20 percent of energy is consumed during construction (UNEP 2007). Overall, the following activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions:

- **Construction activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO₂, CH₄, and N₂O). Furthermore, CH₄ is emitted during the fueling of heavy equipment.
- **Gas, electricity, and water use:** Natural gas use results in the emission of two GHGs: CH₄ (the major component of natural gas) and CO₂ (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Preliminary estimates indicate that the total energy used to pump and treat this water exceeds 6.5 percent of the total electricity used in the State per year (State of California 2008).
- **Solid-waste disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. CH₄ is 25 times more potent a GHG than CO₂. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not

decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

- **Motor vehicle use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.

Preliminary guidance from the OPR and recent letters from the Attorney General of California critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities.

Construction GHG Emissions

The proposed project construction emissions were calculated using CalEEMod Version 2016.3.2. CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. GHG emissions during construction were forecast based on the proposed construction schedule and applying the mobile source derived from the SCAQMD-recommended CalEEMod. The calculations of the emissions generated during project construction activities reflect the types and quantities of construction equipment that would be used to grade and excavate the project site, construct the proposed building and related improvements, and plant new landscaping within the project site.

Table M lists the annual GHG emissions for each of the planned construction phases per year (details are provided in the CalEEMod output in Appendix A).

Table M: Construction Greenhouse Gas Emissions

Construction Phase	Emissions (MT)				Total Emissions (MT/CO ₂ e)
	CO ₂	CH ₄	N ₂ O	CO ₂ e	
Site Preparation	52.81	0.02	0	53.22	1,506.81
Grading	211.72	0.07	0	213.38	
Building Construction	1,166.07	0.22	0	1,171.55	
Paving	58.73	0.02	0	59.18	
Architectural Coatings	9.46	<0.01	0	9.47	
Total Construction Emissions Amortized over 30 years					50.23

Source: Compiled by LSA Associates, Inc. (December 2019).

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

MT/CO₂e = metric tons of carbon dioxide equivalent

MT = metric tons per year

N₂O = nitrous oxide

Operational Greenhouse Gas Emissions

Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. The emission calculations for the proposed project includes standard building construction and operational conditions consistent with current building requirements (such as roof top solar panels

as reflected under Title 24 standard effective January 1st, 2020). Operational and construction GHG emissions, as shown in Table N, were calculated using CalEEMod (Version 2016.3.2). Based on SCAQMD guidance, construction emissions were amortized over 30 years (a typical project lifetime) and added to the total project operational emissions. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with the residential uses.

Table N: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/yr)					
	Bio-CO ₂	NBio-CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
Construction Emissions Amortized over 30 Years	0	49.96	49.96	0.01	0	50.23
Operational Emissions						
Area	0	30.49	30.49	<0.01	<0.01	30.72
Energy	0	586.00	586.00	0.02	<0.01	588.06
Mobile	0	1,902.69	1,902.69	0.09	0	1,905.02
Waste	32.87	0	32.87	1.94	0	81.44
Water	2.28	61.56	63.84	0.23	<0.01	71.52
Total Project Emissions	35.73	2,765.60	2,801.33	2.36	0	2,726.99
SCAQMD Tier 3 Threshold						3,000
Significant?						No

Source: Compiled by LSA Associates, Inc. (December 2019).

Bio-CO₂ = biologically generated CO₂

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

MT/yr = metric tons per year

N₂O = nitrous oxide

NBio-CO₂ = non-biologically generated CO₂

SCAQMD = South Coast Air Quality Management District

Area-source emissions would be associated with activities including landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed project. As shown in Table N, the proposed project would generate 2,726.99 MT CO₂e/yr. The breakdown of emissions by source category shows approximately less than 1 percent from area sources; 22 percent from energy consumption; 70 percent from mobile sources; 3 percent from solid-waste generation; and 3 percent from water supply, treatment, and distribution.

The project's total emissions are less than the SCAQMD Tier 3 threshold of 3,000 MT CO₂e/yr for residential projects. Based on this GHG analysis, the proposed project impacts would be less than significant.

Consistency with Applicable Greenhouse Gas Reduction Plans and Policies

This section provides a consistency analysis that describes the extent to which the proposed project complies with or exceeds performance-based standards included in the regulations outlined in the applicable portions of the Climate Change Scoping Plan, RTP/SCS, and City's RRG-CAP. As shown

herein, the proposed project would be consistent with the applicable GHG reduction plans and policies.

Climate Change Scoping Plan

The goal to reduce emissions to 1990 levels by 2020 (EO S-3-05) was codified by the State legislature as the Global Warming Solutions Act of 2006 (AB 32). In 2008, the CARB approved the Scoping Plan as required by AB 32. The Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. The proposed project would implement several measures outlined in the Scoping Plan to reduce GHG emissions including the following:

- Pavley II (LEV III) Advanced Clean Cars Program;
- 2019 California Green Building Code Standards;
- Renewable Portfolio Standard;
- California Model Water Efficient Landscape Ordinance; and
- CalRecycle Waste Diversion and Recycling Mandate.

The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025, resulting in a 3 percent decrease in average vehicle emissions for all vehicles by 2020. The California Green Building Code Standards reduce GHGs by including a variety of different measures, including reduction of construction waste, wastewater, water use, and building energy use. The Renewable Portfolio Standard requires electricity purchased for use at the project site to be composed of at least 33 percent renewable energy. The Water Efficient Landscape Ordinance will reduce indoor water use by 20 percent, and the CalRecycle Waste Diversion and Recycling Mandate will reduce solid waste production by 25 percent. The project would implement all applicable requirements of Scoping Plan; and therefore would not conflict with the Scoping Plan's implementation.

Regional Transportation Plan/Sustainable Communities Strategy

The SCAG region was home to about 18.3 million people in 2012 and currently includes approximately 5.9 million homes and 7.4 million jobs. By 2040, the integrated growth forecast projects that these figures will increase by 3.8 million people and nearly 1.5 million homes and 2.4 million jobs. The 2016 RTP/SCS is the region's transportation and sustainability investment strategy for protecting and enhancing the region's quality of life and economic prosperity through this period. The 2016 RTP/SCS is also expected to help California reach its GHG reduction goals, with reductions in per capita transportation emissions of 9 percent by 2020 and 16 percent by 2035. In addition, the 2016 RTP/SCS GHG emissions reduction trajectory shows that more aggressive GHG emissions reductions are projected for 2040. The 2016 RTP/SCS would result in an estimated 8 percent decrease in per capita GHG emissions by 2020, 18 percent decrease in per capita GHG emissions by 2035, and 21 percent decrease in per capita GHG emissions by 2040. By meeting and exceeding the SB 375 targets for 2020 and 2035, as well as achieving an approximately 21 percent

decrease in per capita GHG emissions by 2040, the 2016 RTP/SCS is expected to fulfill and exceed its portion of SB 375 compliance with respect to meeting the State's GHG emission reduction goals.

At the regional level, the 2016 RTP/SCS is an applicable plan adopted for the purpose of reducing GHGs. Generally, projects are consistent with the provisions and general policies of applicable city and regional land use plans and regulations, such as SCAG's SCS, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals. Therefore, the proposed project would be consistent with the GHG reduction-related actions and strategies contained in the 2016 RTP/SCS.

Riverside Restorative Growthprint: Climate Action Plan

As discussed above, the RRG-CAP outlines a programmatic approach to review the potential GHG-related impacts associated with new development. To facilitate implementation of the RRG-CAP, the City mandated all new discretionary development projects to incorporate by reference the mandatory requirements of the 2019 CALGreen. The proposed project would comply with performance-based standards included in CALGreen (e.g., 2019 Building Energy Efficiency Standards). As shown in Table O, the project would be consistent with all applicable GHG reduction strategies of the RRG-CAP.

Table O: Riverside Restorative Growthprint Climate Action Plan Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
State and Regional Regulations	
Energy	
California Building Energy Efficiency Standards (Title 24, Part 6). Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).	Consistent. The proposed project will comply with the requirements of the 2019 California Building Energy Efficiency Standards (Title 24, Part 6) including the introduction of photovoltaic panels on each home into the prescriptive package, improvements for better duct sealing to limit air leakage, new insulation standards, low-flow water faucets, energy efficient water heating, and high-efficiency lighting.
Water	
Water Use Efficiency. Reduce per capita water use by 20 percent by 2020. SB X7-7 is part of a California legislative package passed in 2009 that requires urban retail water suppliers to reduce per capita water use by 20 percent by 2020. GAP Goal 16 directly aligns with SB X7-7. In Southern California, energy costs and GHG emissions associated with the transport, treatment, and delivery of water from outlying regions are high. Therefore, the region has extra incentive to reduce water consumption. While this is considered a state measure, it is up to the local water retailers, jurisdictions, and water users to meet these targets.	Consistent. The proposed project will comply with the requirements of Title 19, Article VIII, Chapter 19.570, Water Efficient Landscaping and Irrigation, including measures to increase water use efficiency. Water-efficient irrigation systems and devices and drought-tolerant landscaping will be installed on the project site.

Table O: Riverside Restorative Growthprint Climate Action Plan Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
Solid Waste	
Construction and Demolition Waste Diversion. Meet the mandatory requirement to divert 50 percent of construction and demolition waste from landfills by 2020, and exceed the requirement by diverting 90 percent of C&D waste from landfills by 2035.	Consistent. In compliance with CALGreen requirements, at least 65 percent of all nonhazardous construction waste generated by the proposed project would be recycled and/or salvaged (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). Furthermore, 100 percent of excavated soil shall be reused or recycled.
Transportation	
The Pavley Regulations and LCFS. The CARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.	Consistent. The project does not involve the manufacture, sale, or purchase of vehicles. However, vehicles that operate within and access the project site will comply with the Pavley regulations and LCFS.
RRG-CAP Measures	
Energy Measures	
E-1: Traffic and Street Lights. Replace traffic and street lights with high-efficiency bulbs.	Not Applicable. This objective is aimed at government agencies, not private developers. Nonetheless, the project would comply with applicable energy efficiency requirements related to lighting detailed in CALGreen (Title 24, CCR).
E-2: Shade Trees Strategically. Plant trees at new residential developments to reduce the urban heat island effect.	Consistent. The project would include trees and vegetation throughout the project site in various locations.
E-3: Local Utility Programs. Electricity financing and incentives for business and home owners to make energy efficient, renewable-energy, and water conservation improvements.	Not Applicable. This objective is aimed at government agencies, not private developers. Nonetheless, the project would comply with applicable energy efficiency requirements detailed in CALGreen (Title 24, CCR).
E-4: Renewable-Energy Production on Public Property. Large-scale renewable-energy installation on publicly owned property and in public rights-of-way.	Not Applicable. This objective is aimed at government agencies, not private developers.
E-5: UCR Carbon Neutrality. Collaborate with UCR to achieve a carbon-neutral campus.	Not Applicable. This objective is aimed at government agencies and UCR, not private developers.
E-6: RPU Technology Grants. RPU grant programs to foster research, development, and demonstration of innovative solutions to energy problems.	Not Applicable. This objective is aimed at government agencies, not private developers.
Transportation Measures	
T-1: Bicycle Infrastructure Improvements. Expand on-street and off-street bicycle infrastructure, including bicycle lanes and bicycle trails.	Consistent. The project would comply with RMC Chapter 10.64.240. Bicycle accessibility would be possible through share bike lane in roads on Lurin Avenue, Mariposa Avenue, and Cole Avenue. The City allows bicycles to travel on roads via shared lanes, in areas without designated bicycle lanes.
T-2: Bicycle Parking. Provide additional options for bicycle parking.	Consistent. The project would comply with RMC Chapter 10.64. Neighborhood parks will provide a post, or in some cases a corral, to afford the least obstruction to pedestrian traffic.

Table O: Riverside Restorative Growthprint Climate Action Plan Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
T-3: End-of-Trip Facilities. Encourage use of nonmotorized transportation modes by providing appropriate facilities and amenities for commuters	Not Applicable. This objective is aimed at large employment centers or commercial land uses.
T-4: Promotional TDM. Encourage TDM strategies.	Not Applicable. This objective is aimed at large employment centers with 100 or more employees. The project would not staff any on-site employees.
T-5: Traffic Signal Coordination. Incorporate technology to synchronize and coordinate traffic signals along local arterials.	Not Applicable. This objective is aimed at government agencies, not private developers.
T-6: Density. Improve the jobs–housing balance and reduce VMT by increasing household and employment densities.	Consistent. The project would provide a residential density of 3.7 dwelling units per acre and would increase the supply of housing units in Riverside by 138 dwelling units, adding approximately 395 residents to the City population. By providing housing units within 5 miles of metropolitan Riverside, the project would improve the jobs–housing balance and help reduce VMT by local residents.
T-7: Mixed-Use Development. Provide for a variety of development types and uses.	Not Applicable. The project is a single-family housing development.
T-8: Pedestrian-Only Areas. Encourage walking by providing pedestrian-only community areas.	Consistent. The neighborhood provides a pedestrian network along streets. Sidewalks are required on all arterial and collector streets. Inclusion of plans for pedestrian access and circulation for this project would be submitted for review and approval as a condition of the City’s Design Review Process. The project would also be required to comply with RMC Chapter 19.580.080 G regarding pedestrian access and circulation.
T-9: Limit Parking Requirements for New Development. Reduce requirements for vehicle parking in new development projects.	Not Applicable. The proposed project would meet the minimum parking spaces for residences.
T-10: High Frequency Transit Service. Implement bus rapid-transit service in the subregion to provide alternative transportation options.	Not Applicable. This objective is aimed at government agencies, not private developers. However, the proposed project would be located a half-mile from the Pierce Street bus stop, which would encourage employees and residents to use transit.
T-11: Voluntary TDM. Encourage employers to create TDM programs for their employees.	Not Applicable. This objective is aimed at large employment centers with 100 or more employees. The project would not have employees and would not be considered a large employment center.
T-12: Accelerated Bike Plan. Accelerate the implementation of all or specified components of a jurisdiction’s adopted bike plan.	Not Applicable. This objective is aimed at government agencies, not private developers. However, the proposed project would not obstruct the implementation of the adopted bike plan.
T-13: Fixed-Guideway Transit. By 2020, complete a feasibility study, and by 2025, introduce a fixed-route transit service in the jurisdiction.	Not Applicable. This objective is aimed at government agencies, not private developers.

Table O: Riverside Restorative Growthprint Climate Action Plan Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
T-14: NEV Programs. Implement development requirements to accommodate NEVs and supporting infrastructure.	Consistent. The project would provide electrical infrastructure for electric vehicle charging station in compliance with the 2019 Green Building Energy Efficiency Standard.
T-15: Subsidized Transit. Increase access to transit by providing free or reduced passes.	Not Applicable. This objective is aimed at large employment centers with 100 or more employees and is not applicable to the project.
T-16: Bike Share Program. Create nodes offering bike sharing at key locations throughout Riverside.	Not Applicable. This objective is aimed at government agencies, not private developers.
T-17: Car Share Program. Offer Riverside residents the opportunity to use car sharing to satisfy short-term mobility needs.	Consistent. The project would provide parking areas for residents and would not inhibit the opportunity to use car sharing.
T-18: SB 743—Alternative to LOS. Use SB 743 to incentivize development in the downtown area and other areas served by transit.	Not Applicable. This objective is aimed at government agencies, not private developers. Furthermore, the project is not located in a transit priority area.
T-19: Alternative Fuel and Vehicle Technology and Infrastructure. Promote the use of alternative-fuel vehicles such as those powered by electricity, natural gas, biodiesel, and fuel cells by Riverside residents and workers.	Consistent. The proposed project would be required to be consistent with applicable EV charging station requirements detailed in CALGreen (Title 24, CCR). As such, the project would be equipped with the EV charging infrastructure to support charging stations within each dwelling unit.
T-20: Eco-Corridor/Green Enterprise Zone. Create a geographically defined area(s) featuring best practices in sustainable urban design and green building focused on supporting both clean-tech and green businesses.	Not Applicable. This objective is aimed at government agencies, not private developers.
Water Measure	
W-1: Water Conservation and Efficiency. Reduce per capita water use by 20 percent by 2020.	Consistent. The proposed project would be required to be consistent with applicable water efficiency requirements detailed in CALGreen (Title 24, CCR). As such, the project would be equipped with low-flow plumbing fixtures that reduce water use.
Solid-Waste Measures	
SW-1: Yard Waste Collection. Provide green-waste collection bins community-wide.	Consistent. The project would comply with applicable solid-waste requirements.
SW-2: Food Scrap and Compostable Paper Diversion. Divert food and paper waste from landfills by implementing a commercial and residential collection program.	Consistent. The project would be required to participate in applicable waste diversion programs. The project would also be subject to all applicable State and City requirements for solid-waste reduction.
Food, Agriculture, and Urban-Forest Measures	
A-1: Local Food and Agriculture. Promote local food and agricultural programs.	Not Applicable. This objective is aimed at government agencies, not private developers.

Table O: Riverside Restorative Growthprint Climate Action Plan Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
A-2: Urban Forest. Augment the City's Urban and Community Forest Program to include an Urban Forest Management Plan.	Consistent. The project would be required to comply with the Orangecrest Neighborhood Plan Landscape Requirements, the City Landscape Design Guidelines, and Chapter 13.06 of the RMC.

Source: LSA Associates, Inc. (December 2019).

CALGreen = Green Building Standards Code

CARB = California Air Resources Board

CCR = California Code of Regulations

C&D = construction and demolition

City = City of Riverside

EV = electric vehicle

GAP = Green Accountability Performance

GHG = greenhouse gas

LCFS = Low Carbon Fuel Standard

NEV = neighborhood electric vehicle

LOS = level(s) of service

RMC = Riverside Municipal Code

RPU = Riverside Public Utilities

RRG-CAP = Riverside Regional Growthprint: Climate Action Plan

SB = Senate Bill

TDM = transportation demand management

UCR = University of California, Riverside

VMT = vehicle miles traveled

In summary, the regulatory compliance analysis provided above demonstrates that the proposed project would comply with the regulations and reduction actions/strategies outlined in the Scoping Plan, the RTP/SCS, and the City's RRG-CAP.

CUMULATIVE IMPACTS

In analyzing cumulative impacts from a proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the Basin is listed as Nonattainment for the State and federal AAQS. The proposed project would have a cumulatively considerable impact if project-generated emissions would exceed thresholds for NO_x, VOCs, PM₁₀, and/or PM_{2.5}. If the proposed project does not exceed thresholds and is determined to have less-than-significant project-specific impacts, it may still have a cumulatively considerable impact on air quality and GHG if the emissions from the project, in combination with emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the proposed project would be considered to have a cumulative impact only if its contribution accounts for a significant portion of the cumulative total emissions.

Background ambient air quality, as measured at the monitoring stations maintained and operated by SCAQMD, measures the concentrations of pollutants from existing sources; therefore, past and present project impacts are included in the background ambient air quality data.

The geographic extent for the analysis of cumulative impacts related to air quality includes the central area of the Basin. Due to the Nonattainment status of the Basin, the primary air pollutants of concern would be NO_x and VOCs, which are ozone precursors, and PM₁₀ and PM_{2.5}. Project-related NO_x and VOCs are primarily emitted from motor vehicles and construction equipment, while PM₁₀ and PM_{2.5} are emitted primarily as fugitive dust during construction. Because of the nature of ozone as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum ozone impacts generally occur downwind of the area in which the ozone precursors are released. PM₁₀ and PM_{2.5} impacts, on the other hand, would tend to occur

locally; thus, projects occurring in the same general area and in the same time period would tend to create cumulative air quality impacts.

The project would contribute criteria pollutants to the area during project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. However, each project would be required to comply with SCAQMD's standard construction measures. The proposed project's short-term construction CO, NO₂, PM₁₀, and PM_{2.5} emissions would not exceed SCAQMD's air quality thresholds. Therefore, construction of the proposed project would have a less-than-significant impact with regard to regional and localized emissions, and impacts would not be cumulatively considerable.

As climate change impacts are cumulative in nature, no typical single project can result in emissions of such a magnitude that it, in and by itself, would be significant on a project basis. The proposed project has incorporated sustainability design measures in accordance with regulatory requirements as provided throughout the analysis and to reduce the proposed project's potential impact with respect to GHG emissions. As GHG emissions would not exceed the SCAQMD Tier 3 numerical screening threshold and project design measures will be applied to lower the GHG emissions, the proposed project would result in a less-than-significant cumulative impact related to GHG emissions. The proposed project's GHG reduction measures make the proposed project consistent with AB 32, the 2016 RTP/SCS, and the City's RRG-CAP. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. Given this consistency, it is concluded that the proposed project's impacts are not cumulatively considerable.

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APPENDIX A

CALEEMOD PRINTOUTS

Cole Development Project - South Coast AQMD Air District, Annual

Cole Development Project
South Coast AQMD Air District, Annual**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	138.00	Dwelling Unit	35.80	248,400.00	395

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2021
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MW hr)	888.19	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Cole Development Project - South Coast AQMD Air District, Annual

Project Characteristics - CO2 Intensity Factor is based on 2020 forecast in City of Riverside General Plan, 33% RPS, Cap and Trade, and reduction in SF6.

Land Use - Total site area is 35.80 acres.

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Constuction equiptment doubled to accommodate the projected completion date.

Grading - Size of the project is 35.80 acres.

Vehicle Trips - Traffic analysis estimates peak daily traffic of 1303 trips.

Woodstoves - County of Riverside does not permit wood burning fire stoves or fireplace's.

Energy Use -

Sequestration -

Construction Off-road Equipment Mitigation - All off-road equiptment over 50 HP will utilize Tier 2 engines. Water exposed area at least three times daily.

Area Mitigation -

Energy Mitigation - New dwelling units built after January 1st, 2020 will have an energy reduction of 53% as implimentation of solar is mandatory under Title 24.

Water Mitigation - Low-flow water fixtures and irrigation systems will be implimented to meet state water reduction measures.

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Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblFireplaces	NumberWood	6.90	0.00
tblLandUse	LotAcreage	44.81	35.80
tblProjectCharacteristics	CO2IntensityFactor	1325.65	888.19
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	6.90	0.00
tblWoodstoves	NumberNoncatalytic	6.90	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Cole Development Project - South Coast AQMD Air District, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3929	3.9263	2.8421	5.4300e-003	0.6505	0.1902	0.8407	0.2984	0.1765	0.4749	0.0000	477.5200	477.5200	0.1230	0.0000	480.5954
2021	0.2808	2.4844	2.4374	4.7000e-003	0.0839	0.1260	0.2099	0.0226	0.1185	0.1411	0.0000	412.4351	412.4351	0.0776	0.0000	414.3757
2022	0.2525	2.2270	2.3806	4.6500e-003	0.0836	0.1060	0.1896	0.0225	0.0997	0.1222	0.0000	408.3230	408.3230	0.0766	0.0000	410.2373
2023	0.8893	0.9786	1.2376	2.2800e-003	0.0349	0.0460	0.0809	9.3500e-003	0.0431	0.0524	0.0000	200.5225	200.5225	0.0431	0.0000	201.5994
Maximum	0.8893	3.9263	2.8421	5.4300e-003	0.6505	0.1902	0.8407	0.2984	0.1765	0.4749	0.0000	477.5200	477.5200	0.1230	0.0000	480.5954

Cole Development Project - South Coast AQMD Air District, Annual

2.1 Overall Construction**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3929	3.9263	2.8421	5.4300e-003	0.2868	0.1902	0.4770	0.1253	0.1765	0.3018	0.0000	477.5195	477.5195	0.1230	0.0000	480.5949
2021	0.2808	2.4844	2.4374	4.7000e-003	0.0839	0.1260	0.2099	0.0226	0.1185	0.1411	0.0000	412.4348	412.4348	0.0776	0.0000	414.3754
2022	0.2525	2.2270	2.3806	4.6500e-003	0.0836	0.1060	0.1896	0.0225	0.0997	0.1222	0.0000	408.3227	408.3227	0.0766	0.0000	410.2369
2023	0.8893	0.9786	1.2376	2.2800e-003	0.0349	0.0460	0.0809	9.3500e-003	0.0431	0.0524	0.0000	200.5223	200.5223	0.0431	0.0000	201.5992
Maximum	0.8893	3.9263	2.8421	5.4300e-003	0.2868	0.1902	0.4770	0.1253	0.1765	0.3018	0.0000	477.5195	477.5195	0.1230	0.0000	480.5949

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	42.64	0.00	27.53	49.08	0.00	21.90	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2020	4-30-2020	1.6391	1.6391
2	5-1-2020	7-31-2020	1.4069	1.4069
3	8-1-2020	10-31-2020	0.7662	0.7662
4	11-1-2020	1-31-2021	0.7431	0.7431
5	2-1-2021	4-30-2021	0.6730	0.6730
6	5-1-2021	7-31-2021	0.6950	0.6950
7	8-1-2021	10-31-2021	0.6954	0.6954
8	11-1-2021	1-31-2022	0.6726	0.6726

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9	2-1-2022	4-30-2022	0.6058	0.6058
10	5-1-2022	7-31-2022	0.6256	0.6256
11	8-1-2022	10-31-2022	0.6259	0.6259
12	11-1-2022	1-31-2023	0.6073	0.6073
13	2-1-2023	4-30-2023	0.5465	0.5465
14	5-1-2023	7-31-2023	0.4841	0.4841
15	8-1-2023	9-30-2023	0.6389	0.6389
		Highest	1.6391	1.6391

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0214	0.0408	1.4366	2.3000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	30.4928	30.4928	2.7900e-003	5.2000e-004	30.7165
Energy	0.0228	0.1946	0.0828	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	709.9258	709.9258	0.0201	7.4000e-003	712.6358
Mobile	0.4109	2.3156	5.6378	0.0206	1.6825	0.0167	1.6992	0.4509	0.0156	0.4665	0.0000	1,902.6850	1,902.6850	0.0935	0.0000	1,905.0213
Waste						0.0000	0.0000		0.0000	0.0000	32.8744	0.0000	32.8744	1.9428	0.0000	81.4449
Water						0.0000	0.0000		0.0000	0.0000	2.8525	72.5383	75.3908	0.2954	7.4100e-003	84.9821
Total	1.4551	2.5509	7.1572	0.0221	1.6825	0.0423	1.7248	0.4509	0.0412	0.4921	35.7269	2,715.6418	2,751.3687	2.3546	0.0153	2,814.8006

Cole Development Project - South Coast AQMD Air District, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0214	0.0408	1.4366	2.3000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	30.4928	30.4928	2.7900e-003	5.2000e-004	30.7165
Energy	0.0131	0.1118	0.0476	7.1000e-004		9.0400e-003	9.0400e-003		9.0400e-003	9.0400e-003	0.0000	586.0011	586.0011	0.0174	5.4600e-003	588.0621
Mobile	0.4109	2.3156	5.6378	0.0206	1.6825	0.0167	1.6992	0.4509	0.0156	0.4665	0.0000	1,902.6850	1,902.6850	0.0935	0.0000	1,905.0213
Waste						0.0000	0.0000		0.0000	0.0000	32.8744	0.0000	32.8744	1.9428	0.0000	81.4449
Water						0.0000	0.0000		0.0000	0.0000	2.2820	61.5573	63.8393	0.2364	5.9500e-003	71.5223
Total	1.4454	2.4681	7.1220	0.0216	1.6825	0.0356	1.7181	0.4509	0.0345	0.4854	35.1564	2,580.7362	2,615.8926	2.2928	0.0119	2,676.7670

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.67	3.25	0.49	2.40	0.00	15.82	0.39	0.00	16.25	1.36	1.60	4.97	4.92	2.62	22.18	4.90

3.0 Construction Detail**Construction Phase**

Cole Development Project - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2020	3/13/2020	5	30	
2	Grading	Grading	3/14/2020	6/26/2020	5	75	
3	Building Construction	Building Construction	6/27/2020	4/28/2023	5	740	
4	Paving	Paving	4/29/2023	7/14/2023	5	55	
5	Architectural Coating	Architectural Coating	7/15/2023	9/29/2023	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 0

Residential Indoor: 503,010; Residential Outdoor: 167,670; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Cole Development Project - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0612	0.6363	0.3227	5.7000e-004		0.0330	0.0330		0.0303	0.0303	0.0000	50.1460	50.1460	0.0162	0.0000	50.5515
Total	0.0612	0.6363	0.3227	5.7000e-004	0.2710	0.0330	0.3040	0.1490	0.0303	0.1793	0.0000	50.1460	50.1460	0.0162	0.0000	50.5515

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3.2 Site Preparation - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	0.0102	3.0000e-005	2.9600e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6667	2.6667	8.0000e-005	0.0000	2.6686
Total	1.2100e-003	9.2000e-004	0.0102	3.0000e-005	2.9600e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6667	2.6667	8.0000e-005	0.0000	2.6686

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1057	0.0000	0.1057	0.0581	0.0000	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0612	0.6363	0.3227	5.7000e-004		0.0330	0.0330		0.0303	0.0303	0.0000	50.1460	50.1460	0.0162	0.0000	50.5514
Total	0.0612	0.6363	0.3227	5.7000e-004	0.1057	0.0330	0.1387	0.0581	0.0303	0.0884	0.0000	50.1460	50.1460	0.0162	0.0000	50.5514

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3.2 Site Preparation - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	0.0102	3.0000e-005	2.9600e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6667	2.6667	8.0000e-005	0.0000	2.6686
Total	1.2100e-003	9.2000e-004	0.0102	3.0000e-005	2.9600e-003	2.0000e-005	2.9900e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6667	2.6667	8.0000e-005	0.0000	2.6686

3.3 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3253	0.0000	0.3253	0.1349	0.0000	0.1349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1669	1.8824	1.1984	2.3300e-003		0.0815	0.0815		0.0750	0.0750	0.0000	204.3161	204.3161	0.0661	0.0000	205.9681
Total	0.1669	1.8824	1.1984	2.3300e-003	0.3253	0.0815	0.4068	0.1349	0.0750	0.2099	0.0000	204.3161	204.3161	0.0661	0.0000	205.9681

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3.3 Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.5700e-003	0.0284	8.0000e-005	8.2300e-003	6.0000e-005	8.2900e-003	2.1900e-003	6.0000e-005	2.2400e-003	0.0000	7.4075	7.4075	2.1000e-004	0.0000	7.4128
Total	3.3500e-003	2.5700e-003	0.0284	8.0000e-005	8.2300e-003	6.0000e-005	8.2900e-003	2.1900e-003	6.0000e-005	2.2400e-003	0.0000	7.4075	7.4075	2.1000e-004	0.0000	7.4128

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1269	0.0000	0.1269	0.0526	0.0000	0.0526	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1669	1.8824	1.1984	2.3300e-003		0.0815	0.0815		0.0750	0.0750	0.0000	204.3159	204.3159	0.0661	0.0000	205.9679
Total	0.1669	1.8824	1.1984	2.3300e-003	0.1269	0.0815	0.2084	0.0526	0.0750	0.1276	0.0000	204.3159	204.3159	0.0661	0.0000	205.9679

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3.3 Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.5700e-003	0.0284	8.0000e-005	8.2300e-003	6.0000e-005	8.2900e-003	2.1900e-003	6.0000e-005	2.2400e-003	0.0000	7.4075	7.4075	2.1000e-004	0.0000	7.4128
Total	3.3500e-003	2.5700e-003	0.0284	8.0000e-005	8.2300e-003	6.0000e-005	8.2900e-003	2.1900e-003	6.0000e-005	2.2400e-003	0.0000	7.4075	7.4075	2.1000e-004	0.0000	7.4128

3.4 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1420	1.2855	1.1289	1.8000e-003		0.0748	0.0748		0.0704	0.0704	0.0000	155.1787	155.1787	0.0379	0.0000	156.1251
Total	0.1420	1.2855	1.1289	1.8000e-003		0.0748	0.0748		0.0704	0.0704	0.0000	155.1787	155.1787	0.0379	0.0000	156.1251

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3.4 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.1073	0.0266	2.6000e-004	6.3300e-003	5.3000e-004	6.8600e-003	1.8300e-003	5.0000e-004	2.3300e-003	0.0000	24.7182	24.7182	1.6200e-003	0.0000	24.7587
Worker	0.0150	0.0115	0.1269	3.7000e-004	0.0368	2.8000e-004	0.0370	9.7600e-003	2.6000e-004	0.0100	0.0000	33.0868	33.0868	9.5000e-004	0.0000	33.1106
Total	0.0183	0.1187	0.1535	6.3000e-004	0.0431	8.1000e-004	0.0439	0.0116	7.6000e-004	0.0124	0.0000	57.8050	57.8050	2.5700e-003	0.0000	57.8693

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1420	1.2855	1.1289	1.8000e-003		0.0748	0.0748		0.0704	0.0704	0.0000	155.1785	155.1785	0.0379	0.0000	156.1250
Total	0.1420	1.2855	1.1289	1.8000e-003		0.0748	0.0748		0.0704	0.0704	0.0000	155.1785	155.1785	0.0379	0.0000	156.1250

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3.4 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3700e-003	0.1073	0.0266	2.6000e-004	6.3300e-003	5.3000e-004	6.8600e-003	1.8300e-003	5.0000e-004	2.3300e-003	0.0000	24.7182	24.7182	1.6200e-003	0.0000	24.7587
Worker	0.0150	0.0115	0.1269	3.7000e-004	0.0368	2.8000e-004	0.0370	9.7600e-003	2.6000e-004	0.0100	0.0000	33.0868	33.0868	9.5000e-004	0.0000	33.1106
Total	0.0183	0.1187	0.1535	6.3000e-004	0.0431	8.1000e-004	0.0439	0.0116	7.6000e-004	0.0124	0.0000	57.8050	57.8050	2.5700e-003	0.0000	57.8693

3.4 Building Construction - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099

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3.4 Building Construction - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5700e-003	0.1894	0.0470	4.9000e-004	0.0123	3.8000e-004	0.0127	3.5600e-003	3.6000e-004	3.9200e-003	0.0000	47.7917	47.7917	3.0200e-003	0.0000	47.8672
Worker	0.0272	0.0201	0.2274	6.9000e-004	0.0716	5.4000e-004	0.0721	0.0190	4.9000e-004	0.0195	0.0000	62.3568	62.3568	1.6700e-003	0.0000	62.3986
Total	0.0328	0.2095	0.2743	1.1800e-003	0.0839	9.2000e-004	0.0848	0.0226	8.5000e-004	0.0234	0.0000	110.1485	110.1485	4.6900e-003	0.0000	110.2659

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095

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3.4 Building Construction - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.5700e-003	0.1894	0.0470	4.9000e-004	0.0123	3.8000e-004	0.0127	3.5600e-003	3.6000e-004	3.9200e-003	0.0000	47.7917	47.7917	3.0200e-003	0.0000	47.8672
Worker	0.0272	0.0201	0.2274	6.9000e-004	0.0716	5.4000e-004	0.0721	0.0190	4.9000e-004	0.0195	0.0000	62.3568	62.3568	1.6700e-003	0.0000	62.3986
Total	0.0328	0.2095	0.2743	1.1800e-003	0.0839	9.2000e-004	0.0848	0.0226	8.5000e-004	0.0234	0.0000	110.1485	110.1485	4.6900e-003	0.0000	110.2659

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471

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3.4 Building Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.2000e-003	0.1789	0.0442	4.9000e-004	0.0123	3.3000e-004	0.0126	3.5500e-003	3.1000e-004	3.8600e-003	0.0000	47.1894	47.1894	2.9000e-003	0.0000	47.2618
Worker	0.0254	0.0181	0.2092	6.6000e-004	0.0713	5.2000e-004	0.0718	0.0189	4.8000e-004	0.0194	0.0000	59.8908	59.8908	1.5000e-003	0.0000	59.9284
Total	0.0306	0.1970	0.2534	1.1500e-003	0.0836	8.5000e-004	0.0845	0.0225	7.9000e-004	0.0233	0.0000	107.0802	107.0802	4.4000e-003	0.0000	107.1903

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467

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3.4 Building Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.2000e-003	0.1789	0.0442	4.9000e-004	0.0123	3.3000e-004	0.0126	3.5500e-003	3.1000e-004	3.8600e-003	0.0000	47.1894	47.1894	2.9000e-003	0.0000	47.2618
Worker	0.0254	0.0181	0.2092	6.6000e-004	0.0713	5.2000e-004	0.0718	0.0189	4.8000e-004	0.0194	0.0000	59.8908	59.8908	1.5000e-003	0.0000	59.9284
Total	0.0306	0.1970	0.2534	1.1500e-003	0.0836	8.5000e-004	0.0845	0.0225	7.9000e-004	0.0233	0.0000	107.0802	107.0802	4.4000e-003	0.0000	107.1903

3.4 Building Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0668	0.6114	0.6904	1.1500e-003		0.0297	0.0297		0.0280	0.0280	0.0000	98.5170	98.5170	0.0234	0.0000	99.1029
Total	0.0668	0.6114	0.6904	1.1500e-003		0.0297	0.0297		0.0280	0.0280	0.0000	98.5170	98.5170	0.0234	0.0000	99.1029

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3.4 Building Construction - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2700e-003	0.0440	0.0129	1.5000e-004	4.0200e-003	5.0000e-005	4.0700e-003	1.1600e-003	5.0000e-005	1.2100e-003	0.0000	14.9623	14.9623	8.2000e-004	0.0000	14.9829
Worker	7.8300e-003	5.3500e-003	0.0631	2.1000e-004	0.0233	1.7000e-004	0.0235	6.1900e-003	1.5000e-004	6.3400e-003	0.0000	18.8495	18.8495	4.4000e-004	0.0000	18.8606
Total	9.1000e-003	0.0494	0.0760	3.6000e-004	0.0273	2.2000e-004	0.0276	7.3500e-003	2.0000e-004	7.5500e-003	0.0000	33.8118	33.8118	1.2600e-003	0.0000	33.8434

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0668	0.6114	0.6904	1.1500e-003		0.0297	0.0297		0.0280	0.0280	0.0000	98.5169	98.5169	0.0234	0.0000	99.1028
Total	0.0668	0.6114	0.6904	1.1500e-003		0.0297	0.0297		0.0280	0.0280	0.0000	98.5169	98.5169	0.0234	0.0000	99.1028

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3.4 Building Construction - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2700e-003	0.0440	0.0129	1.5000e-004	4.0200e-003	5.0000e-005	4.0700e-003	1.1600e-003	5.0000e-005	1.2100e-003	0.0000	14.9623	14.9623	8.2000e-004	0.0000	14.9829
Worker	7.8300e-003	5.3500e-003	0.0631	2.1000e-004	0.0233	1.7000e-004	0.0235	6.1900e-003	1.5000e-004	6.3400e-003	0.0000	18.8495	18.8495	4.4000e-004	0.0000	18.8606
Total	9.1000e-003	0.0494	0.0760	3.6000e-004	0.0273	2.2000e-004	0.0276	7.3500e-003	2.0000e-004	7.5500e-003	0.0000	33.8118	33.8118	1.2600e-003	0.0000	33.8434

3.5 Paving - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0739	55.0739	0.0178	0.0000	55.5192
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0739	55.0739	0.0178	0.0000	55.5192

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3.5 Paving - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5200e-003	1.0400e-003	0.0122	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.6590	3.6590	9.0000e-005	0.0000	3.6612
Total	1.5200e-003	1.0400e-003	0.0122	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.6590	3.6590	9.0000e-005	0.0000	3.6612

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0738	55.0738	0.0178	0.0000	55.5191
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0738	55.0738	0.0178	0.0000	55.5191

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3.5 Paving - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5200e-003	1.0400e-003	0.0122	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.6590	3.6590	9.0000e-005	0.0000	3.6612
Total	1.5200e-003	1.0400e-003	0.0122	4.0000e-005	4.5300e-003	3.0000e-005	4.5600e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.6590	3.6590	9.0000e-005	0.0000	3.6612

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7772					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2700e-003	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0215	7.0215	4.2000e-004	0.0000	7.0320
Total	0.7824	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0215	7.0215	4.2000e-004	0.0000	7.0320

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3.6 Architectural Coating - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	6.9000e-004	8.1600e-003	3.0000e-005	3.0200e-003	2.0000e-005	3.0400e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.4393	2.4393	6.0000e-005	0.0000	2.4408
Total	1.0100e-003	6.9000e-004	8.1600e-003	3.0000e-005	3.0200e-003	2.0000e-005	3.0400e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.4393	2.4393	6.0000e-005	0.0000	2.4408

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.7772					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2700e-003	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0214	7.0214	4.2000e-004	0.0000	7.0319
Total	0.7824	0.0358	0.0498	8.0000e-005		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	7.0214	7.0214	4.2000e-004	0.0000	7.0319

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3.6 Architectural Coating - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e-003	6.9000e-004	8.1600e-003	3.0000e-005	3.0200e-003	2.0000e-005	3.0400e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.4393	2.4393	6.0000e-005	0.0000	2.4408
Total	1.0100e-003	6.9000e-004	8.1600e-003	3.0000e-005	3.0200e-003	2.0000e-005	3.0400e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.4393	2.4393	6.0000e-005	0.0000	2.4408

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4109	2.3156	5.6378	0.0206	1.6825	0.0167	1.6992	0.4509	0.0156	0.4665	0.0000	1,902.6850	1,902.6850	0.0935	0.0000	1,905.0213
Unmitigated	0.4109	2.3156	5.6378	0.0206	1.6825	0.0167	1.6992	0.4509	0.0156	0.4665	0.0000	1,902.6850	1,902.6850	0.0935	0.0000	1,905.0213

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,302.72	1,367.58	1189.56	4,428,014	4,428,014
Total	1,302.72	1,367.58	1,189.56	4,428,014	4,428,014

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.548858	0.043235	0.200706	0.120309	0.016131	0.005851	0.021034	0.033479	0.002070	0.001877	0.004817	0.000707	0.000925

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	456.5672	456.5672	0.0149	3.0800e-003	457.8589
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	484.6094	484.6094	0.0158	3.2700e-003	485.9805
NaturalGas Mitigated	0.0131	0.1118	0.0476	7.1000e-004		9.0400e-003	9.0400e-003		9.0400e-003	9.0400e-003	0.0000	129.4339	129.4339	2.4800e-003	2.3700e-003	130.2031
NaturalGas Unmitigated	0.0228	0.1946	0.0828	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.3163	225.3163	4.3200e-003	4.1300e-003	226.6553

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5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	4.22227e+006	0.0228	0.1946	0.0828	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.3163	225.3163	4.3200e-003	4.1300e-003	226.6553
Total		0.0228	0.1946	0.0828	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.3163	225.3163	4.3200e-003	4.1300e-003	226.6553

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	2.4255e+006	0.0131	0.1118	0.0476	7.1000e-004		9.0400e-003	9.0400e-003		9.0400e-003	9.0400e-003	0.0000	129.4339	129.4339	2.4800e-003	2.3700e-003	130.2031
Total		0.0131	0.1118	0.0476	7.1000e-004		9.0400e-003	9.0400e-003		9.0400e-003	9.0400e-003	0.0000	129.4339	129.4339	2.4800e-003	2.3700e-003	130.2031

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.20287e+006	484.6094	0.0158	3.2700e-003	485.9805
Total		484.6094	0.0158	3.2700e-003	485.9805

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.13327e+006	456.5672	0.0149	3.0800e-003	457.8589
Total		456.5672	0.0149	3.0800e-003	457.8589

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0214	0.0408	1.4366	2.3000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	30.4928	30.4928	2.7900e-003	5.2000e-004	30.7165
Unmitigated	1.0214	0.0408	1.4366	2.3000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	30.4928	30.4928	2.7900e-003	5.2000e-004	30.7165

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0777					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8976					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.8500e-003	0.0243	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1681	28.1681	5.4000e-004	5.2000e-004	28.3355
Landscaping	0.0432	0.0165	1.4262	8.0000e-005		7.8600e-003	7.8600e-003		7.8600e-003	7.8600e-003	0.0000	2.3247	2.3247	2.2500e-003	0.0000	2.3810
Total	1.0214	0.0408	1.4366	2.4000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	30.4928	30.4928	2.7900e-003	5.2000e-004	30.7165

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0777					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8976					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.8500e-003	0.0243	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1681	28.1681	5.4000e-004	5.2000e-004	28.3355
Landscaping	0.0432	0.0165	1.4262	8.0000e-005		7.8600e-003	7.8600e-003		7.8600e-003	7.8600e-003	0.0000	2.3247	2.3247	2.2500e-003	0.0000	2.3810
Total	1.0214	0.0408	1.4366	2.4000e-004		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	30.4928	30.4928	2.7900e-003	5.2000e-004	30.7165

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	63.8393	0.2364	5.9500e-003	71.5223
Unmitigated	75.3908	0.2954	7.4100e-003	84.9821

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	8.99126 / 5.6684	75.3908	0.2954	7.4100e-003	84.9821
Total		75.3908	0.2954	7.4100e-003	84.9821

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	7.193 / 5.32263	63.8393	0.2364	5.9500e-003	71.5223
Total		63.8393	0.2364	5.9500e-003	71.5223

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	32.8744	1.9428	0.0000	81.4449
Unmitigated	32.8744	1.9428	0.0000	81.4449

Cole Development Project - South Coast AQMD Air District, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	161.95	32.8744	1.9428	0.0000	81.4449
Total		32.8744	1.9428	0.0000	81.4449

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	161.95	32.8744	1.9428	0.0000	81.4449
Total		32.8744	1.9428	0.0000	81.4449

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Cole Development Project - South Coast AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Cole Development Project - South Coast AQMD Air District, Summer

Cole Development Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	138.00	Dwelling Unit	35.80	248,400.00	395

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2021
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MW hr)	888.19	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Cole Development Project - South Coast AQMD Air District, Summer

Project Characteristics - CO2 Intensity Factor is based on 2020 forecast in City of Riverside General Plan, 33% RPS, Cap and Trade, and reduction in SF6.

Land Use - Total site area is 35.80 acres.

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Constuction equiptment doubled to accommodate the projected completion date.

Grading - Size of the project is 35.80 acres.

Vehicle Trips - Traffic analysis estimates peak daily traffic of 1303 trips.

Woodstoves - County of Riverside does not permit wood burning fire stoves or fireplace's.

Energy Use -

Sequestration -

Construction Off-road Equipment Mitigation - All off-road equiptment over 50 HP will utilize Tier 2 engines. Water exposed area at least three times daily.

Area Mitigation -

Energy Mitigation - New dwelling units built after January 1st, 2020 will have an energy reduction of 53% as implimentation of solar is mandatory under Title 24.

Water Mitigation - Low-flow water fixtures and irrigation systems will be implimented to meet state water reduction measures.

Cole Development Project - South Coast AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblFireplaces	NumberWood	6.90	0.00
tblLandUse	LotAcreage	44.81	35.80
tblProjectCharacteristics	CO2IntensityFactor	1325.65	888.19
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	6.90	0.00
tblWoodstoves	NumberNoncatalytic	6.90	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Cole Development Project - South Coast AQMD Air District, Summer

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5406	50.2583	32.7759	0.0643	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	6,234.748 8	6,234.748 8	1.9490	0.0000	6,283.473 7
2021	2.1537	18.9996	18.7983	0.0363	0.6549	0.9656	1.6205	0.1759	0.9078	1.0837	0.0000	3,515.723 3	3,515.723 3	0.6556	0.0000	3,532.1139
2022	1.9434	17.0973	18.4260	0.0361	0.6549	0.8155	1.4704	0.1759	0.7672	0.9431	0.0000	3,493.284 2	3,493.284 2	0.6492	0.0000	3,509.514 2
2023	28.4889	15.5234	18.1416	0.0358	0.6549	0.7048	1.3597	0.1759	0.6631	0.8390	0.0000	3,461.976 6	3,461.976 6	0.7176	0.0000	3,477.994 9
Maximum	28.4889	50.2583	32.7759	0.0643	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	6,234.748 8	6,234.748 8	1.9490	0.0000	6,283.473 7

Cole Development Project - South Coast AQMD Air District, Summer

2.1 Overall Construction (Maximum Daily Emission)**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5406	50.2583	32.7759	0.0643	7.2470	2.1989	9.4460	3.9263	2.0230	5.9494	0.0000	6,234.748 8	6,234.748 8	1.9490	0.0000	6,283.473 7
2021	2.1537	18.9996	18.7983	0.0363	0.6549	0.9656	1.6205	0.1759	0.9078	1.0837	0.0000	3,515.723 3	3,515.723 3	0.6556	0.0000	3,532.1139
2022	1.9434	17.0973	18.4260	0.0361	0.6549	0.8155	1.4704	0.1759	0.7672	0.9431	0.0000	3,493.284 2	3,493.284 2	0.6492	0.0000	3,509.514 2
2023	28.4889	15.5234	18.1416	0.0358	0.6549	0.7048	1.3597	0.1759	0.6631	0.8390	0.0000	3,461.976 6	3,461.976 6	0.7176	0.0000	3,477.994 9
Maximum	28.4889	50.2583	32.7759	0.0643	7.2470	2.1989	9.4460	3.9263	2.0230	5.9494	0.0000	6,234.748 8	6,234.748 8	1.9490	0.0000	6,283.473 7

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	54.47	0.00	44.23	57.63	0.00	40.73	0.00	0.00	0.00	0.00	0.00	0.00

Cole Development Project - South Coast AQMD Air District, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0
Energy	0.1248	1.0661	0.4536	6.8000e- 003		0.0862	0.0862		0.0862	0.0862		1,360.924 6	1,360.924 6	0.0261	0.0250	1,369.0119
Mobile	2.5569	12.9125	34.4040	0.1245	9.9367	0.0968	10.0335	2.6587	0.0904	2.7492		12,658.50 00	12,658.50 00	0.6022		12,673.55 61
Total	8.5992	16.0561	47.0955	0.1443	9.9367	0.4032	10.3399	2.6587	0.3968	3.0556	0.0000	16,523.92 49	16,523.92 49	0.6958	0.0705	16,562.32 61

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0
Energy	0.0717	0.6124	0.2606	3.9100e- 003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348
Mobile	2.5569	12.9125	34.4040	0.1245	9.9367	0.0968	10.0335	2.6587	0.0904	2.7492		12,658.50 00	12,658.50 00	0.6022		12,673.55 61
Total	8.5462	15.6024	46.9025	0.1414	9.9367	0.3666	10.3032	2.6587	0.3602	3.0189	0.0000	15,944.78 93	15,944.78 93	0.6847	0.0599	15,979.74 90

Cole Development Project - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.62	2.83	0.41	2.00	0.00	9.10	0.35	0.00	9.24	1.20	0.00	3.50	3.50	1.60	15.07	3.52

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2020	3/13/2020	5	30	
2	Grading	Grading	3/14/2020	6/26/2020	5	75	
3	Building Construction	Building Construction	6/27/2020	4/28/2023	5	740	
4	Paving	Paving	4/29/2023	7/14/2023	5	55	
5	Architectural Coating	Architectural Coating	7/15/2023	9/29/2023	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 0

Residential Indoor: 503,010; Residential Outdoor: 167,670; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Cole Development Project - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Cole Development Project - South Coast AQMD Air District, Summer

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Cole Development Project - South Coast AQMD Air District, Summer

3.2 Site Preparation - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	7.0458	2.1974	9.2433	3.8730	2.0216	5.8946	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Cole Development Project - South Coast AQMD Air District, Summer

3.2 Site Preparation - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432

3.3 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	8.6733	2.1739	10.8472	3.5965	2.0000	5.5965		6,005.8653	6,005.8653	1.9424		6,054.4257

Cole Development Project - South Coast AQMD Air District, Summer

3.3 Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0905	0.0608	0.8176	2.3000e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		228.8835	228.8835	6.5800e-003		229.0480
Total	0.0905	0.0608	0.8176	2.3000e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		228.8835	228.8835	6.5800e-003		229.0480

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	3.3826	2.1739	5.5565	1.4026	2.0000	3.4026	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257

Cole Development Project - South Coast AQMD Air District, Summer

3.3 Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0905	0.0608	0.8176	2.3000e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		228.8835	228.8835	6.5800e-003		229.0480
Total	0.0905	0.0608	0.8176	2.3000e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		228.8835	228.8835	6.5800e-003		229.0480

3.4 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0493	1.5740	0.3748	3.8600e-003	0.0960	7.8000e-003	0.1038	0.0276	7.4600e-003	0.0351		411.6727	411.6727	0.0259		412.3189
Worker	0.2262	0.1521	2.0441	5.7400e-003	0.5589	4.2400e-003	0.5631	0.1482	3.9000e-003	0.1521		572.2087	572.2087	0.0165		572.6200
Total	0.2755	1.7261	2.4189	9.6000e-003	0.6549	0.0120	0.6669	0.1759	0.0114	0.1872		983.8814	983.8814	0.0423		984.9389

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0493	1.5740	0.3748	3.8600e-003	0.0960	7.8000e-003	0.1038	0.0276	7.4600e-003	0.0351		411.6727	411.6727	0.0259		412.3189
Worker	0.2262	0.1521	2.0441	5.7400e-003	0.5589	4.2400e-003	0.5631	0.1482	3.9000e-003	0.1521		572.2087	572.2087	0.0165		572.6200
Total	0.2755	1.7261	2.4189	9.6000e-003	0.6549	0.0120	0.6669	0.1759	0.0114	0.1872		983.8814	983.8814	0.0423		984.9389

3.4 Building Construction - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0417	1.4306	0.3395	3.8300e-003	0.0960	2.8800e-003	0.0989	0.0276	2.7600e-003	0.0304		408.6577	408.6577	0.0247		409.2757
Worker	0.2111	0.1369	1.8836	5.5600e-003	0.5589	4.1100e-003	0.5630	0.1482	3.7900e-003	0.1520		553.7017	553.7017	0.0149		554.0739
Total	0.2528	1.5675	2.2231	9.3900e-003	0.6549	6.9900e-003	0.6619	0.1759	6.5500e-003	0.1824		962.3594	962.3594	0.0396		963.3496

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0417	1.4306	0.3395	3.8300e-003	0.0960	2.8800e-003	0.0989	0.0276	2.7600e-003	0.0304		408.6577	408.6577	0.0247		409.2757
Worker	0.2111	0.1369	1.8836	5.5600e-003	0.5589	4.1100e-003	0.5630	0.1482	3.7900e-003	0.1520		553.7017	553.7017	0.0149		554.0739
Total	0.2528	1.5675	2.2231	9.3900e-003	0.6549	6.9900e-003	0.6619	0.1759	6.5500e-003	0.1824		962.3594	962.3594	0.0396		963.3496

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0391	1.3580	0.3209	3.7900e-003	0.0960	2.5000e-003	0.0985	0.0276	2.3900e-003	0.0300		405.0887	405.0887	0.0238		405.6836
Worker	0.1980	0.1237	1.7418	5.3600e-003	0.5589	4.0000e-003	0.5629	0.1482	3.6800e-003	0.1519		533.8620	533.8620	0.0135		534.1984
Total	0.2371	1.4817	2.0626	9.1500e-003	0.6549	6.5000e-003	0.6614	0.1759	6.0700e-003	0.1819		938.9507	938.9507	0.0373		939.8820

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0391	1.3580	0.3209	3.7900e-003	0.0960	2.5000e-003	0.0985	0.0276	2.3900e-003	0.0300		405.0887	405.0887	0.0238		405.6836
Worker	0.1980	0.1237	1.7418	5.3600e-003	0.5589	4.0000e-003	0.5629	0.1482	3.6800e-003	0.1519		533.8620	533.8620	0.0135		534.1984
Total	0.2371	1.4817	2.0626	9.1500e-003	0.6549	6.5000e-003	0.6614	0.1759	6.0700e-003	0.1819		938.9507	938.9507	0.0373		939.8820

3.4 Building Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0292	1.0267	0.2891	3.6700e-003	0.0960	1.1500e-003	0.0972	0.0276	1.1000e-003	0.0287		392.8016	392.8016	0.0208		393.3204
Worker	0.1861	0.1119	1.6085	5.1600e-003	0.5589	3.8900e-003	0.5628	0.1482	3.5800e-003	0.1518		513.9651	513.9651	0.0121		514.2685
Total	0.2153	1.1385	1.8976	8.8300e-003	0.6549	5.0400e-003	0.6599	0.1759	4.6800e-003	0.1805		906.7667	906.7667	0.0329		907.5889

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Cole Development Project - South Coast AQMD Air District, Summer

3.4 Building Construction - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0292	1.0267	0.2891	3.6700e-003	0.0960	1.1500e-003	0.0972	0.0276	1.1000e-003	0.0287		392.8016	392.8016	0.0208		393.3204
Worker	0.1861	0.1119	1.6085	5.1600e-003	0.5589	3.8900e-003	0.5628	0.1482	3.5800e-003	0.1518		513.9651	513.9651	0.0121		514.2685
Total	0.2153	1.1385	1.8976	8.8300e-003	0.6549	5.0400e-003	0.6599	0.1759	4.6800e-003	0.1805		906.7667	906.7667	0.0329		907.5889

3.5 Paving - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

Cole Development Project - South Coast AQMD Air District, Summer

3.5 Paving - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806
Total	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

Cole Development Project - South Coast AQMD Air District, Summer

3.5 Paving - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806
Total	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	28.2600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	28.4517	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Cole Development Project - South Coast AQMD Air District, Summer

3.6 Architectural Coating - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0224	0.3217	1.0300e-003	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		102.7930	102.7930	2.4300e-003		102.8537
Total	0.0372	0.0224	0.3217	1.0300e-003	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		102.7930	102.7930	2.4300e-003		102.8537

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	28.2600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	28.4517	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Cole Development Project - South Coast AQMD Air District, Summer

3.6 Architectural Coating - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0224	0.3217	1.0300e-003	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		102.7930	102.7930	2.4300e-003		102.8537
Total	0.0372	0.0224	0.3217	1.0300e-003	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		102.7930	102.7930	2.4300e-003		102.8537

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Cole Development Project - South Coast AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.5569	12.9125	34.4040	0.1245	9.9367	0.0968	10.0335	2.6587	0.0904	2.7492		12,658.5000	12,658.5000	0.6022		12,673.5561
Unmitigated	2.5569	12.9125	34.4040	0.1245	9.9367	0.0968	10.0335	2.6587	0.0904	2.7492		12,658.5000	12,658.5000	0.6022		12,673.5561

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,302.72	1,367.58	1189.56	4,428,014	4,428,014
Total	1,302.72	1,367.58	1,189.56	4,428,014	4,428,014

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.548858	0.043235	0.200706	0.120309	0.016131	0.005851	0.021034	0.033479	0.002070	0.001877	0.004817	0.000707	0.000925

5.0 Energy Detail

Historical Energy Use: N

Cole Development Project - South Coast AQMD Air District, Summer

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348
NaturalGas Unmitigated	0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.9246	1,360.9246	0.0261	0.0250	1,369.0119

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	11567.9	0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.9246	1,360.9246	0.0261	0.0250	1,369.0119
Total		0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.9246	1,360.9246	0.0261	0.0250	1,369.0119

Cole Development Project - South Coast AQMD Air District, Summer

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	6.64521	0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348
Total		0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.5002	2,504.5002	0.0675	0.0455	2,519.7580
Unmitigated	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.5002	2,504.5002	0.0675	0.0455	2,519.7580

Cole Development Project - South Coast AQMD Air District, Summer

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4258					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.9183					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2277	1.9458	0.8280	0.0124		0.1573	0.1573		0.1573	0.1573	0.0000	2,484.000 0	2,484.000 0	0.0476	0.0455	2,498.761 2
Landscaping	0.3457	0.1317	11.4099	6.0000e-004		0.0629	0.0629		0.0629	0.0629		20.5002	20.5002	0.0199		20.9969
Total	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0

Cole Development Project - South Coast AQMD Air District, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4258					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.9183					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2277	1.9458	0.8280	0.0124		0.1573	0.1573		0.1573	0.1573	0.0000	2,484.000 0	2,484.000 0	0.0476	0.0455	2,498.761 2
Landscaping	0.3457	0.1317	11.4099	6.0000e-004		0.0629	0.0629		0.0629	0.0629		20.5002	20.5002	0.0199		20.9969
Total	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Cole Development Project - South Coast AQMD Air District, Summer

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Cole Development Project - South Coast AQMD Air District, Winter

Cole Development Project
South Coast AQMD Air District, Winter**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	138.00	Dwelling Unit	35.80	248,400.00	395

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2021
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MW hr)	888.19	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Cole Development Project - South Coast AQMD Air District, Winter

Project Characteristics - CO2 Intensity Factor is based on 2020 forecast in City of Riverside General Plan, 33% RPS, Cap and Trade, and reduction in SF6.

Land Use - Total site area is 35.80 acres.

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Constuction equiptment doubled to accommodate the projected completion date.

Grading - Size of the project is 35.80 acres.

Vehicle Trips - Traffic analysis estimates peak daily traffic of 1303 trips.

Woodstoves - County of Riverside does not permit wood burning fire stoves or fireplace's.

Energy Use -

Sequestration -

Construction Off-road Equipment Mitigation - All off-road equiptment over 50 HP will utilize Tier 2 engines. Water exposed area at least three times daily.

Area Mitigation -

Energy Mitigation - New dwelling units built after January 1st, 2020 will have an energy reduction of 53% as implimentation of solar is mandatory under Title 24.

Water Mitigation - Low-flow water fixtures and irrigation systems will be implimented to meet state water reduction measures.

Cole Development Project - South Coast AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblFireplaces	NumberWood	6.90	0.00
tblLandUse	LotAcreage	44.81	35.80
tblProjectCharacteristics	CO2IntensityFactor	1325.65	888.19
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	6.90	0.00
tblWoodstoves	NumberNoncatalytic	6.90	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Cole Development Project - South Coast AQMD Air District, Winter

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5488	50.2641	32.6945	0.0642	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	6,219.938 3	6,219.938 3	1.9486	0.0000	6,268.652 2
2021	2.1755	19.0080	18.6478	0.0358	0.6549	0.9657	1.6206	0.1759	0.9079	1.0838	0.0000	3,468.023 1	3,468.023 1	0.6564	0.0000	3,484.434 2
2022	1.9643	17.1035	18.2850	0.0356	0.6549	0.8156	1.4705	0.1759	0.7673	0.9432	0.0000	3,446.893 2	3,446.893 2	0.6500	0.0000	3,463.143 7
2023	28.4926	15.5274	18.0016	0.0353	0.6549	0.7048	1.3597	0.1759	0.6632	0.8390	0.0000	3,417.400 6	3,417.400 6	0.7174	0.0000	3,433.431 9
Maximum	28.4926	50.2641	32.6945	0.0642	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	6,219.938 3	6,219.938 3	1.9486	0.0000	6,268.652 2

Cole Development Project - South Coast AQMD Air District, Winter

2.1 Overall Construction (Maximum Daily Emission)**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5488	50.2641	32.6945	0.0642	7.2470	2.1989	9.4460	3.9263	2.0230	5.9494	0.0000	6,219.938 3	6,219.938 3	1.9486	0.0000	6,268.652 2
2021	2.1755	19.0080	18.6478	0.0358	0.6549	0.9657	1.6206	0.1759	0.9079	1.0838	0.0000	3,468.023 1	3,468.023 1	0.6564	0.0000	3,484.434 2
2022	1.9643	17.1035	18.2850	0.0356	0.6549	0.8156	1.4705	0.1759	0.7673	0.9432	0.0000	3,446.893 2	3,446.893 2	0.6500	0.0000	3,463.143 7
2023	28.4926	15.5274	18.0016	0.0353	0.6549	0.7048	1.3597	0.1759	0.6632	0.8390	0.0000	3,417.400 6	3,417.400 6	0.7174	0.0000	3,433.431 9
Maximum	28.4926	50.2641	32.6945	0.0642	7.2470	2.1989	9.4460	3.9263	2.0230	5.9494	0.0000	6,219.938 3	6,219.938 3	1.9486	0.0000	6,268.652 2

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	54.47	0.00	44.23	57.63	0.00	40.73	0.00	0.00	0.00	0.00	0.00	0.00

Cole Development Project - South Coast AQMD Air District, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0
Energy	0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.924 6	1,360.924 6	0.0261	0.0250	1,369.0119
Mobile	2.4325	13.1890	32.1654	0.1178	9.9367	0.0974	10.0341	2.6587	0.0910	2.7497		11,986.895 6	11,986.895 6	0.6010		12,001.92 05
Total	8.4749	16.3325	44.8570	0.1376	9.9367	0.4038	10.3405	2.6587	0.3974	3.0561	0.0000	15,852.32 05	15,852.32 05	0.6946	0.0705	15,890.69 04

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0
Energy	0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348
Mobile	2.4325	13.1890	32.1654	0.1178	9.9367	0.0974	10.0341	2.6587	0.0910	2.7497		11,986.895 6	11,986.895 6	0.6010		12,001.92 05
Total	8.4218	15.8789	44.6639	0.1347	9.9367	0.3671	10.3038	2.6587	0.3607	3.0194	0.0000	15,273.18 49	15,273.18 49	0.6835	0.0599	15,308.11 33

Cole Development Project - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.63	2.78	0.43	2.10	0.00	9.08	0.35	0.00	9.23	1.20	0.00	3.65	3.65	1.60	15.07	3.67

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2020	3/13/2020	5	30	
2	Grading	Grading	3/14/2020	6/26/2020	5	75	
3	Building Construction	Building Construction	6/27/2020	4/28/2023	5	740	
4	Paving	Paving	4/29/2023	7/14/2023	5	55	
5	Architectural Coating	Architectural Coating	7/15/2023	9/29/2023	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 187.5

Acres of Paving: 0

Residential Indoor: 503,010; Residential Outdoor: 167,670; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Cole Development Project - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	15.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Cole Development Project - South Coast AQMD Air District, Winter

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Cole Development Project - South Coast AQMD Air District, Winter

3.2 Site Preparation - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	7.0458	2.1974	9.2433	3.8730	2.0216	5.8946	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Cole Development Project - South Coast AQMD Air District, Winter

3.2 Site Preparation - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038

3.3 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	8.6733	2.1739	10.8472	3.5965	2.0000	5.5965		6,005.8653	6,005.8653	1.9424		6,054.4257

Cole Development Project - South Coast AQMD Air District, Winter

3.3 Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265
Total	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	3.3826	2.1739	5.5565	1.4026	2.0000	3.4026	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257

Cole Development Project - South Coast AQMD Air District, Winter

3.3 Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265
Total	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265

3.4 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0516	1.5724	0.4179	3.7500e-003	0.0960	7.9100e-003	0.1039	0.0276	7.5700e-003	0.0352		399.7692	399.7692	0.0278		400.4632
Worker	0.2467	0.1665	1.8404	5.3700e-003	0.5589	4.2400e-003	0.5631	0.1482	3.9000e-003	0.1521		535.1825	535.1825	0.0154		535.5662
Total	0.2983	1.7389	2.2583	9.1200e-003	0.6549	0.0122	0.6670	0.1759	0.0115	0.1873		934.9517	934.9517	0.0431		936.0294

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0516	1.5724	0.4179	3.7500e-003	0.0960	7.9100e-003	0.1039	0.0276	7.5700e-003	0.0352		399.7692	399.7692	0.0278		400.4632
Worker	0.2467	0.1665	1.8404	5.3700e-003	0.5589	4.2400e-003	0.5631	0.1482	3.9000e-003	0.1521		535.1825	535.1825	0.0154		535.5662
Total	0.2983	1.7389	2.2583	9.1200e-003	0.6549	0.0122	0.6670	0.1759	0.0115	0.1873		934.9517	934.9517	0.0431		936.0294

3.4 Building Construction - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0439	1.4261	0.3799	3.7200e-003	0.0960	2.9700e-003	0.0990	0.0276	2.8400e-003	0.0305		396.8253	396.8253	0.0266		397.4891
Worker	0.2306	0.1498	1.6927	5.2000e-003	0.5589	4.1100e-003	0.5630	0.1482	3.7900e-003	0.1520		517.8339	517.8339	0.0139		518.1809
Total	0.2745	1.5759	2.0726	8.9200e-003	0.6549	7.0800e-003	0.6620	0.1759	6.6300e-003	0.1825		914.6592	914.6592	0.0404		915.6700

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0439	1.4261	0.3799	3.7200e-003	0.0960	2.9700e-003	0.0990	0.0276	2.8400e-003	0.0305		396.8253	396.8253	0.0266		397.4891
Worker	0.2306	0.1498	1.6927	5.2000e-003	0.5589	4.1100e-003	0.5630	0.1482	3.7900e-003	0.1520		517.8339	517.8339	0.0139		518.1809
Total	0.2745	1.5759	2.0726	8.9200e-003	0.6549	7.0800e-003	0.6620	0.1759	6.6300e-003	0.1825		914.6592	914.6592	0.0404		915.6700

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0412	1.3526	0.3592	3.6800e-003	0.0960	2.5800e-003	0.0986	0.0276	2.4700e-003	0.0301		393.2913	393.2913	0.0255		393.9299
Worker	0.2169	0.1353	1.5624	5.0100e-003	0.5589	4.0000e-003	0.5629	0.1482	3.6800e-003	0.1519		499.2683	499.2683	0.0125		499.5816
Total	0.2581	1.4879	1.9216	8.6900e-003	0.6549	6.5800e-003	0.6615	0.1759	6.1500e-003	0.1820		892.5596	892.5596	0.0381		893.5115

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0412	1.3526	0.3592	3.6800e-003	0.0960	2.5800e-003	0.0986	0.0276	2.4700e-003	0.0301		393.2913	393.2913	0.0255		393.9299
Worker	0.2169	0.1353	1.5624	5.0100e-003	0.5589	4.0000e-003	0.5629	0.1482	3.6800e-003	0.1519		499.2683	499.2683	0.0125		499.5816
Total	0.2581	1.4879	1.9216	8.6900e-003	0.6549	6.5800e-003	0.6615	0.1759	6.1500e-003	0.1820		892.5596	892.5596	0.0381		893.5115

3.4 Building Construction - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0308	1.0201	0.3177	3.5700e-003	0.0960	1.2100e-003	0.0972	0.0276	1.1600e-003	0.0288		381.5425	381.5425	0.0221		382.0953
Worker	0.2045	0.1224	1.4400	4.8200e-003	0.5589	3.8900e-003	0.5628	0.1482	3.5800e-003	0.1518		480.6482	480.6482	0.0113		480.9305
Total	0.2353	1.1425	1.7576	8.3900e-003	0.6549	5.1000e-003	0.6600	0.1759	4.7400e-003	0.1806		862.1907	862.1907	0.0334		863.0258

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Cole Development Project - South Coast AQMD Air District, Winter

3.4 Building Construction - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0308	1.0201	0.3177	3.5700e-003	0.0960	1.2100e-003	0.0972	0.0276	1.1600e-003	0.0288		381.5425	381.5425	0.0221		382.0953
Worker	0.2045	0.1224	1.4400	4.8200e-003	0.5589	3.8900e-003	0.5628	0.1482	3.5800e-003	0.1518		480.6482	480.6482	0.0113		480.9305
Total	0.2353	1.1425	1.7576	8.3900e-003	0.6549	5.1000e-003	0.6600	0.1759	4.7400e-003	0.1806		862.1907	862.1907	0.0334		863.0258

3.5 Paving - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

Cole Development Project - South Coast AQMD Air District, Winter

3.5 Paving - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792
Total	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

Cole Development Project - South Coast AQMD Air District, Winter

3.5 Paving - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792
Total	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	28.2600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	28.4517	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Cole Development Project - South Coast AQMD Air District, Winter

3.6 Architectural Coating - 2023**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0409	0.0245	0.2880	9.6000e-004	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		96.1296	96.1296	2.2600e-003		96.1861
Total	0.0409	0.0245	0.2880	9.6000e-004	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		96.1296	96.1296	2.2600e-003		96.1861

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	28.2600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	28.4517	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Cole Development Project - South Coast AQMD Air District, Winter

3.6 Architectural Coating - 2023**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0409	0.0245	0.2880	9.6000e-004	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		96.1296	96.1296	2.2600e-003		96.1861
Total	0.0409	0.0245	0.2880	9.6000e-004	0.1118	7.8000e-004	0.1126	0.0296	7.2000e-004	0.0304		96.1296	96.1296	2.2600e-003		96.1861

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Cole Development Project - South Coast AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.4325	13.1890	32.1654	0.1178	9.9367	0.0974	10.0341	2.6587	0.0910	2.7497		11,986.8956	11,986.8956	0.6010		12,001.9205
Unmitigated	2.4325	13.1890	32.1654	0.1178	9.9367	0.0974	10.0341	2.6587	0.0910	2.7497		11,986.8956	11,986.8956	0.6010		12,001.9205

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,302.72	1,367.58	1189.56	4,428,014	4,428,014
Total	1,302.72	1,367.58	1,189.56	4,428,014	4,428,014

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.548858	0.043235	0.200706	0.120309	0.016131	0.005851	0.021034	0.033479	0.002070	0.001877	0.004817	0.000707	0.000925

5.0 Energy Detail

Historical Energy Use: N

Cole Development Project - South Coast AQMD Air District, Winter

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348
NaturalGas Unmitigated	0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.9246	1,360.9246	0.0261	0.0250	1,369.0119

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	11567.9	0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.9246	1,360.9246	0.0261	0.0250	1,369.0119
Total		0.1248	1.0661	0.4536	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.9246	1,360.9246	0.0261	0.0250	1,369.0119

Cole Development Project - South Coast AQMD Air District, Winter

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	6.64521	0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348
Total		0.0717	0.6124	0.2606	3.9100e-003		0.0495	0.0495		0.0495	0.0495		781.7890	781.7890	0.0150	0.0143	786.4348

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.5002	2,504.5002	0.0675	0.0455	2,519.7580
Unmitigated	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.5002	2,504.5002	0.0675	0.0455	2,519.7580

Cole Development Project - South Coast AQMD Air District, Winter

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4258					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.9183					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2277	1.9458	0.8280	0.0124		0.1573	0.1573		0.1573	0.1573	0.0000	2,484.000 0	2,484.000 0	0.0476	0.0455	2,498.761 2
Landscaping	0.3457	0.1317	11.4099	6.0000e-004		0.0629	0.0629		0.0629	0.0629		20.5002	20.5002	0.0199		20.9969
Total	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0

Cole Development Project - South Coast AQMD Air District, Winter

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4258					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.9183					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2277	1.9458	0.8280	0.0124		0.1573	0.1573		0.1573	0.1573	0.0000	2,484.000 0	2,484.000 0	0.0476	0.0455	2,498.761 2
Landscaping	0.3457	0.1317	11.4099	6.0000e-004		0.0629	0.0629		0.0629	0.0629		20.5002	20.5002	0.0199		20.9969
Total	5.9176	2.0775	12.2379	0.0130		0.2202	0.2202		0.2202	0.2202	0.0000	2,504.500 2	2,504.500 2	0.0675	0.0455	2,519.758 0

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Cole Development Project - South Coast AQMD Air District, Winter

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

APPENDIX B

AERSCREEN PRINTOUTS

```

**
*****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.0
** Lakes Environmental Software Inc.
** Date: 12/9/2019
** File: C:\Lakes\AERMOD View\Cole Development CO\Cole Development CO.ADI
**
*****
**
**
*****
** AERMOD Control Pathway
*****
**
**
CO STARTING
  TITLEONE C:\Lakes\AERMOD View\Cole Development CO\Cole Development
CO.isc
  MODELOPT CONC FLAT SCREEN FASTAREA
  AVERTIME 1
  URBANOPT 327728 City_of_Riverside_Population_(2017)
  POLLUTID CO
  RUNORNOT RUN
  ERRORFIL "Cole Development CO.err"
CO FINISHED
**
*****
** AERMOD Source Pathway
*****
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION PAREAl      AREAPOLY      470154.410   3748520.611           0.0
** DESCRSRC Cole Project Site boundary
** Source Parameters **
  SRCPARAM PAREAl      2.4885E-06      3.000      10
  AREAVERT PAREAl      470154.410 3748520.611 470060.292 3748520.611
  AREAVERT PAREAl      470058.331 3748318.650 469879.900 3748316.689
  AREAVERT PAREAl      469877.939 3748397.082 469848.527 3748397.082
  AREAVERT PAREAl      469846.566 3748514.729 469654.409 3748512.768
  AREAVERT PAREAl      469652.448 3748124.532 470148.528 3748126.493
  URBANSRC ALL
  SRCGROUP ALL
SO FINISHED
**
*****
** AERMOD Receptor Pathway
*****
**
**

```

RE STARTING

** DESCRREC "" ""

DISCCART	469863.71	3748482.47
DISCCART	469890.24	3748484.36
DISCCART	469921.51	3748470.15
DISCCART	469699.80	3748548.79
DISCCART	469522.63	3748280.66
DISCCART	469513.16	3748166.02
DISCCART	469459.15	3748158.44
DISCCART	469473.36	3748268.34
DISCCART	469521.68	3748083.59
DISCCART	469581.37	3748082.64
DISCCART	469804.97	3748083.59
DISCCART	470012.46	3748042.85
DISCCART	470067.41	3748046.64
DISCCART	470183.95	3748079.80
DISCCART	470190.58	3748170.75
DISCCART	470300.49	3748171.70
DISCCART	469726.33	3747992.63
DISCCART	469620.22	3747954.74
DISCCART	469574.74	3747952.84
DISCCART	469522.63	3747936.73
DISCCART	469371.99	3747924.42
DISCCART	469371.99	3747952.84
DISCCART	469369.14	3748003.06
DISCCART	469363.46	3748032.43
DISCCART	469375.77	3748086.43
DISCCART	469872.24	3748544.05
DISCCART	469868.45	3748580.05
DISCCART	469871.29	3748607.53
DISCCART	469878.87	3748644.48
DISCCART	469928.14	3748543.10
DISCCART	469926.24	3748573.42
DISCCART	469934.77	3748599.00
DISCCART	469934.77	3748620.79
DISCCART	469949.93	3748642.58
DISCCART	469966.98	3748545.94
DISCCART	469966.98	3748571.53
DISCCART	469970.77	3748599.00
DISCCART	469976.46	3748629.32
DISCCART	470001.09	3748634.06
DISCCART	470033.31	3748637.85
DISCCART	470064.57	3748639.74
DISCCART	470090.15	3748639.74
DISCCART	470122.37	3748634.06
DISCCART	470129.95	3748599.95
DISCCART	470112.89	3748580.05
DISCCART	470127.10	3748552.58
DISCCART	470101.52	3748549.73
DISCCART	470074.05	3748584.79
DISCCART	470075.94	3748547.84
DISCCART	470045.62	3748581.95
DISCCART	470048.47	3748554.47
DISCCART	470017.20	3748581.95

```

DISCCART      470017.20    3748551.63
DISCCART      470186.79    3748548.79
DISCCART      470184.90    3748584.79
DISCCART      470218.06    3748548.79
DISCCART      470249.32    3748546.89
DISCCART      470279.64    3748548.79
DISCCART      470215.22    3748582.90
DISCCART      470243.64    3748582.90
DISCCART      470313.75    3748548.79
DISCCART      470342.17    3748549.73
DISCCART      470377.23    3748546.89
DISCCART      470299.54    3748582.90
DISCCART      470331.75    3748581.95
DISCCART      470486.19    3748418.99
RE FINISHED
**
*****
** AERMOD Meteorology Pathway
*****
**
**
ME STARTING
SURFFILE KRAL_v9.SFC
PROFFILE KRAL_v9.PFL
SURFDATA 03171 2012 Riverside_Airport
UAIRDATA 16216 2012
PROFBASE 245.0 METERS
ME FINISHED
**
*****
** AERMOD Output Pathway
*****
**
**
OU STARTING
RECTABLE ALLAVE 1ST
RECTABLE 1 1ST
** Auto-Generated Plotfiles
PLOTFILE 1 ALL 1ST "COLE DEVELOPMENT CO.AD\01H1GALL.PLT" 31
SUMMFILE "Cole Development CO.sum"
OU FINISHED

```

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

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

```

A Total of          0 Fatal Error Message(s)
A Total of          4 Warning Message(s)
A Total of          0 Informational Message(s)

```

```

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

```

```
***** WARNING MESSAGES *****
ME W186      135      MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used      0.50
ME W187      135      MEOPEN: ADJ_U* Option for Stable Low Winds used in
AERMET
ME W397      135      MEOPEN: SCREEN option used without use of SCREEN
Met Data      16216
ME W530      135      MEOPEN: CAUTION! Met Station ID Mismatch with
SURFFILE for      UAIRDATA
```

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development CO\Cole Development CO.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
*** 15:59:27

PAGE 1

*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN 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 1 Source(s),
for Total of 1 Urban Area(s):

Urban Population = 327728.0 ; Urban Roughness Length = 1.000 m

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Assumes Receptors on FLAT Terrain.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Used.

**Other Options Specified:

NOCHKD - Suppresses checking of date sequence in meteorology
files
FASTAREA - Use hybrid approach to optimize AREA sources;
also applies to LINE sources (formerly TOXICS option)
SCREEN - Use screening option
which forces calculation of centerline values
ADJ_U* - Use ADJ_U* option for SBL in AERMET
CCVR_Sub - Meteorological data includes CCVR substitutions
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: CO

**Model Calculates 1 Short Term Average(s) of: 1-HR

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

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 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 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 Highest Short Term Values by Receptor
(RECTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting
(PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values
(SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for
Calm Hours

m for
Missing Hours

b for
Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 245.00 ;

Decay Coef. = 0.000 ; Rot. Angle = 0.0

Emission Units = GRAMS/SEC

; Emission Rate Unit Factor = 0.10000E+07

Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: Cole Development CO.err

**File for Summary of Results: Cole Development CO.sum

```

*** AERMOD - VERSION 19191 ***    *** C:\Lakes\AERMOD View\Cole
Development CO\Cole Development CO.isc    ***    12/09/19
*** AERMET - VERSION 16216 ***    ***
***    15:59:27

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PAGE      2
*** MODELOPTs:      NonDEFAULT  CONC  FLAT  NOCHKD  FASTAREA  SCREEN  URBAN
ADJ_U*

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***
*** AREAPOLY SOURCE DATA

```

NUMBER	NUMBER	EMISSION	RATE	LOCATION OF AREA		BASE	RELEASE
INIT.	URBAN	EMISSION	RATE				
SOURCE	PART.	(GRAMS/SEC	X	Y	ELEV.	HEIGHT	
OF VERTS.	SZ	SOURCE	SCALAR	VARY			
ID	CATS.	/METER**2)	(METERS)	(METERS)	(METERS)	(METERS)	
(METERS)	BY						

PAREA1	0	0.24885E-05	470154.4	3748520.6	245.0	3.00	
10	0.00	YES					

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Development CO\Cole Development CO.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** SOURCE IDs DEFINING SOURCE

GROUPS ***

SRCGROUP ID

SOURCE IDs

ALL PAREA1 ,

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** SOURCE IDs DEFINED AS URBAN

SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
-----	-----	-----
	327728.	PAREA1 ,

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

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*** DISCRETE CARTESIAN
RECEPTORS ***
(X-COORD, Y-COORD, ZELEV,
ZHILL, ZFLAG)
(METERS)

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( 469863.7, 3748482.5, 245.0, 245.0, 0.0); (
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( 469921.5, 3748470.1, 245.0, 245.0, 0.0); (
469699.8, 3748548.8, 245.0, 245.0, 0.0); (
( 469522.6, 3748280.7, 245.0, 245.0, 0.0); (
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( 469970.8, 3748599.0, 245.0, 245.0, 0.0); (
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(470064.6, 3748639.7, 245.0, 245.0, 0.0); (

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(470112.9, 3748580.0, 245.0, 245.0, 0.0); (

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(470313.8, 3748548.8, 245.0, 245.0, 0.0); (

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(470377.2, 3748546.9, 245.0, 245.0, 0.0); (

470299.5, 3748582.9, 245.0, 245.0, 0.0);

(470331.8, 3748581.9, 245.0, 245.0, 0.0); (

470486.2, 3748419.0, 245.0, 245.0, 0.0);

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 *** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

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

Surface file: KRAL_v9.SFC
 Met Version: 16216
 Profile file: KRAL_v9.PFL
 Surface format: FREE
 Profile format: FREE
 Surface station no.: 3171 Upper air station no.:
 16216
 Name: RIVERSIDE_AIRPORT Name:
 UNKNOWN
 Year: 2012 Year:
 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0
BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA	HT					
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	01	01	1	01	-25.6	0.266	-9.000	-9.000	-999.	330.	77.9	0.15	
2.40	1.00			2.93	55.	10.1	288.1	2.0					
12	01	01	1	02	-26.8	0.277	-9.000	-9.000	-999.	351.	84.7	0.15	
2.40	1.00			3.05	55.	10.1	287.0	2.0					
12	01	01	1	03	-21.5	0.221	-9.000	-9.000	-999.	250.	53.5	0.15	
2.40	1.00			2.45	74.	10.1	284.2	2.0					
12	01	01	1	04	-22.0	0.227	-9.000	-9.000	-999.	260.	56.8	0.15	
2.40	1.00			2.52	77.	10.1	285.9	2.0					
12	01	01	1	05	-20.0	0.206	-9.000	-9.000	-999.	225.	46.8	0.15	
2.40	1.00			2.30	80.	10.1	285.4	2.0					
12	01	01	1	06	-14.4	0.171	-9.000	-9.000	-999.	170.	32.1	0.15	
2.40	1.00			1.93	79.	10.1	287.0	2.0					
12	01	01	1	07	-14.9	0.174	-9.000	-9.000	-999.	174.	33.2	0.15	
2.40	1.00			1.96	77.	10.1	284.2	2.0					
12	01	01	1	08	-11.9	0.169	-9.000	-9.000	-999.	167.	36.1	0.15	
2.40	0.53			1.89	77.	10.1	288.1	2.0					
12	01	01	1	09	40.4	0.234	0.359	0.006	40.	272.	-28.1	0.15	
2.40	0.31			2.10	81.	10.1	289.2	2.0					
12	01	01	1	10	112.6	0.246	0.742	0.005	129.	293.	-11.8	0.15	
2.40	0.24			1.99	101.	10.1	296.4	2.0					
12	01	01	1	11	161.0	0.402	1.188	0.005	369.	611.	-35.6	0.15	
2.40	0.21			3.68	78.	10.1	298.8	2.0					
12	01	01	1	12	184.7	0.337	1.516	0.005	668.	473.	-18.4	0.15	
2.40	0.20			2.89	68.	10.1	300.4	2.0					

12	01	01	1	13	183.9	0.310	1.809	0.005	1139.	414.	-14.2	0.15
2.40		0.20			2.57	64.	10.1	302.5	2.0			
12	01	01	1	14	156.6	0.374	1.852	0.005	1434.	549.	-29.5	0.15
2.40		0.22			3.37	63.	10.1	303.1	2.0			
12	01	01	1	15	104.3	0.382	1.658	0.005	1546.	567.	-47.2	0.15
2.40		0.25			3.59	62.	10.1	302.5	2.0			
12	01	01	1	16	31.8	0.374	1.123	0.005	1573.	550.	-145.8	0.15
2.40		0.34			3.76	69.	10.1	300.9	2.0			
12	01	01	1	17	-23.3	0.276	-9.000	-9.000	-999.	354.	84.0	0.15
2.40		0.62			3.03	59.	10.1	297.5	2.0			
12	01	01	1	18	-21.5	0.229	-9.000	-9.000	-999.	264.	57.8	0.15
2.40		1.00			2.54	54.	10.1	295.4	2.0			
12	01	01	1	19	-19.3	0.204	-9.000	-9.000	-999.	221.	45.6	0.15
2.40		1.00			2.27	79.	10.1	292.0	2.0			
12	01	01	1	20	-20.7	0.218	-9.000	-9.000	-999.	244.	52.2	0.15
2.40		1.00			2.42	79.	10.1	292.5	2.0			
12	01	01	1	21	-19.7	0.206	-9.000	-9.000	-999.	225.	46.9	0.15
2.40		1.00			2.30	95.	10.1	290.9	2.0			
12	01	01	1	22	-17.6	0.190	-9.000	-9.000	-999.	199.	39.8	0.15
2.40		1.00			2.13	78.	10.1	290.4	2.0			
12	01	01	1	23	-20.3	0.211	-9.000	-9.000	-999.	233.	49.0	0.15
2.40		1.00			2.35	52.	10.1	289.2	2.0			
12	01	01	1	24	-16.4	0.183	-9.000	-9.000	-999.	189.	37.0	0.15
2.40		1.00			2.06	75.	10.1	288.8	2.0			

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	10.1	1	55.	2.93	288.2	99.0	-99.00	-99.00

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

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 *** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE
 CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
 INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN
 RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-
COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	
469863.71	3748482.47	69.97919	(12070706)	
469890.24	3748484.36	53.68447	(12070706)	
469921.51	3748470.15	46.22232	(12113008)	
469699.80	3748548.79	74.87332	(13062106)	
469522.63	3748280.66	52.70565	(12061606)	
469513.16	3748166.02	48.45549	(13100807)	
469459.15	3748158.44	41.02407	(13100807)	
469473.36	3748268.34	45.89755	(12061606)	
469521.68	3748083.59	44.53492	(12092507)	
469581.37	3748082.64	58.22967	(12092507)	
469804.97	3748083.59	61.42712	(12032807)	
470012.46	3748042.85	52.29856	(12070806)	
470067.41	3748046.64	52.61715	(12070806)	
470183.95	3748079.80	58.91296	(13051106)	
470190.58	3748170.75	75.49382	(12060406)	
470300.49	3748171.70	47.11616	(12100507)	
469726.33	3747992.63	39.63669	(12080606)	
469620.22	3747954.74	35.61884	(13032107)	
469574.74	3747952.84	35.28065	(16062606)	
469522.63	3747936.73	32.44774	(12092507)	
469371.99	3747924.42	29.25717	(12092507)	
469371.99	3747952.84	29.56447	(12092507)	
469369.14	3748003.06	28.15304	(12092507)	
469363.46	3748032.43	27.91539	(13012608)	
469375.77	3748086.43	31.04126	(12101107)	
469872.24	3748544.05	60.50857	(12070706)	
469868.45	3748580.05	51.27552	(12070706)	
469871.29	3748607.53	43.77987	(12070706)	
469878.87	3748644.48	38.48063	(13062906)	
469928.14	3748543.10	42.12080	(12113008)	

469926.24	3748573.42	41.77485	(12070706)
469934.77	3748599.00	39.16333	(12070706)
469934.77	3748620.79	37.76744	(12070706)
469949.93	3748642.58	34.79965	(12070706)
469966.98	3748545.94	36.21829	(12113008)
469966.98	3748571.53	35.45784	(12113008)
469970.77	3748599.00	34.17111	(12070706)
469976.46	3748629.32	32.85603	(12070706)
470001.09	3748634.06	29.96891	(12070706)
470033.31	3748637.85	28.33854	(12072006)
470064.57	3748639.74	30.95482	(12072006)
470090.15	3748639.74	31.54293	(12070406)
470122.37	3748634.06	36.21639	(13062906)
470129.95	3748599.95	45.24461	(13062906)
470112.89	3748580.05	49.02787	(13062906)
470127.10	3748552.58	63.18178	(13062906)
470101.52	3748549.73	59.89039	(13062906)
470074.05	3748584.79	42.57099	(12072006)
470075.94	3748547.84	57.94087	(12072006)
470045.62	3748581.95	36.93112	(12072006)
470048.47	3748554.47	42.84278	(13062106)
470017.20	3748581.95	32.29672	(13062106)
470017.20	3748551.63	36.15814	(13062106)
470186.79	3748548.79	56.81300	(12070706)
470184.90	3748584.79	50.16532	(12070706)
470218.06	3748548.79	51.21679	(12032907)
470249.32	3748546.89	45.72275	(12071006)
470279.64	3748548.79	40.66415	(12071006)
470215.22	3748582.90	46.19098	(12113008)
470243.64	3748582.90	42.48480	(12113008)
470313.75	3748548.79	36.11346	(14060406)
470342.17	3748549.73	34.07406	(12071206)
470377.23	3748546.89	32.24415	(12071206)
470299.54	3748582.90	37.11584	(12071006)
470331.75	3748581.95	34.10039	(12071006)
470486.19	3748418.99	28.39358	(12092607)

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Development CO\Cole Development CO.isc *** 12/09/19
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** THE SUMMARY OF
HIGHEST 1-HR RESULTS ***

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

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

ALL HIGH 1ST HIGH VALUE IS 75.49382 ON 12060406: AT (
470190.58, 3748170.75, 245.00, 245.00, 0.00) DC

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development CO\Cole Development CO.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** Message Summary : AERMOD Model Execution ***

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

A Total of 0 Fatal Error Message(s)
A Total of 4 Warning Message(s)
A Total of 1638 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 1039 Calm Hours Identified

A Total of 599 Missing Hours Identified (1.37 Percent)

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

***** WARNING MESSAGES *****
ME W186 135 MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used 0.50
ME W187 135 MEOPEN: ADJ_U* Option for Stable Low Winds used in
AERMET
ME W397 135 MEOPEN: SCREEN option used without use of SCREEN
Met Data 16216
ME W530 135 MEOPEN: CAUTION! Met Station ID Mismatch with
SURFFILE for UAIRDATA

*** AERMOD Finishes Successfully ***

```

**
*****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.0
** Lakes Environmental Software Inc.
** Date: 12/9/2019
** File: C:\Lakes\AERMOD View\Cole Development NOx\Cole Development
NOx.ADI
**
*****
**
**
*****
** AERMOD Control Pathway
*****
**
**
CO STARTING
  TITLEONE C:\Lakes\AERMOD View\Cole Development NOx\Cole Development
NOx.isc
  MODELOPT CONC FLAT SCREEN FASTAREA
  AVERTIME 1
  URBANOPT 327728 City_of_Riverside_Population_(2017)
  POLLUTID NOX
  RUNORNOT RUN
  ERRORFIL "Cole Development NOx.err"
CO FINISHED
**
*****
** AERMOD Source Pathway
*****
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION PAREA1      AREAPOLY      470154.410      3748520.611      0.0
** DESCRSRC Cole Project Site boundary
** Source Parameters **
  SRCPARAM PAREA1      2.0312E-06      3.000      10
  AREAVERT PAREA1      470154.410 3748520.611 470060.292 3748520.611
  AREAVERT PAREA1      470058.331 3748318.650 469879.900 3748316.689
  AREAVERT PAREA1      469877.939 3748397.082 469848.527 3748397.082
  AREAVERT PAREA1      469846.566 3748514.729 469654.409 3748512.768
  AREAVERT PAREA1      469652.448 3748124.532 470148.528 3748126.493
  URBANSRC ALL
  SRCGROUP ALL
SO FINISHED
**
*****
** AERMOD Receptor Pathway
*****
**

```

**

RE STARTING

** DESCRREC " " "

DISCCART	469863.71	3748482.47
DISCCART	469890.24	3748484.36
DISCCART	469921.51	3748470.15
DISCCART	469699.80	3748548.79
DISCCART	469522.63	3748280.66
DISCCART	469513.16	3748166.02
DISCCART	469459.15	3748158.44
DISCCART	469473.36	3748268.34
DISCCART	469521.68	3748083.59
DISCCART	469581.37	3748082.64
DISCCART	469804.97	3748083.59
DISCCART	470012.46	3748042.85
DISCCART	470067.41	3748046.64
DISCCART	470183.95	3748079.80
DISCCART	470190.58	3748170.75
DISCCART	470300.49	3748171.70
DISCCART	469726.33	3747992.63
DISCCART	469620.22	3747954.74
DISCCART	469574.74	3747952.84
DISCCART	469522.63	3747936.73
DISCCART	469371.99	3747924.42
DISCCART	469371.99	3747952.84
DISCCART	469369.14	3748003.06
DISCCART	469363.46	3748032.43
DISCCART	469375.77	3748086.43
DISCCART	469872.24	3748544.05
DISCCART	469868.45	3748580.05
DISCCART	469871.29	3748607.53
DISCCART	469878.87	3748644.48
DISCCART	469928.14	3748543.10
DISCCART	469926.24	3748573.42
DISCCART	469934.77	3748599.00
DISCCART	469934.77	3748620.79
DISCCART	469949.93	3748642.58
DISCCART	469966.98	3748545.94
DISCCART	469966.98	3748571.53
DISCCART	469970.77	3748599.00
DISCCART	469976.46	3748629.32
DISCCART	470001.09	3748634.06
DISCCART	470033.31	3748637.85
DISCCART	470064.57	3748639.74
DISCCART	470090.15	3748639.74
DISCCART	470122.37	3748634.06
DISCCART	470129.95	3748599.95
DISCCART	470112.89	3748580.05
DISCCART	470127.10	3748552.58
DISCCART	470101.52	3748549.73
DISCCART	470074.05	3748584.79
DISCCART	470075.94	3748547.84
DISCCART	470045.62	3748581.95
DISCCART	470048.47	3748554.47

```

DISCCART      470017.20    3748581.95
DISCCART      470017.20    3748551.63
DISCCART      470186.79    3748548.79
DISCCART      470184.90    3748584.79
DISCCART      470218.06    3748548.79
DISCCART      470249.32    3748546.89
DISCCART      470279.64    3748548.79
DISCCART      470215.22    3748582.90
DISCCART      470243.64    3748582.90
DISCCART      470313.75    3748548.79
DISCCART      470342.17    3748549.73
DISCCART      470377.23    3748546.89
DISCCART      470299.54    3748582.90
DISCCART      470331.75    3748581.95
DISCCART      470486.19    3748418.99
RE FINISHED
**
*****
** AERMOD Meteorology Pathway
*****
**
**
ME STARTING
SURFFILE KRAL_v9.SFC
PROFFILE KRAL_v9.PFL
SURFDATA 03171 2012 Riverside_Airport
UAIRDATA 16216 2012
PROFBASE 245.0 METERS
ME FINISHED
**
*****
** AERMOD Output Pathway
*****
**
**
OU STARTING
RECTABLE ALLAVE 1ST
RECTABLE 1 1ST
** Auto-Generated Plotfiles
PLOTFILE 1 ALL 1ST "COLE DEVELOPMENT NOX.AD\01H1GALL.PLT" 31
SUMMFILE "Cole Development NOx.sum"
OU FINISHED

```

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

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

```

A Total of          0 Fatal Error Message(s)
A Total of          4 Warning Message(s)
A Total of          0 Informational Message(s)

```

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

*** NONE ***

```
***** WARNING MESSAGES *****
ME W186      135      MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used      0.50
ME W187      135      MEOPEN: ADJ_U* Option for Stable Low Winds used in
AERMET
ME W397      135      MEOPEN: SCREEN option used without use of SCREEN
Met Data      16216
ME W530      135      MEOPEN: CAUTION! Met Station ID Mismatch with
SURFFILE for      UAIRDATA
```

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development NOx\Cole Development NOx.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
*** 15:53:08

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN 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 1 Source(s),
for Total of 1 Urban Area(s):

Urban Population = 327728.0 ; Urban Roughness Length = 1.000 m

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Assumes Receptors on FLAT Terrain.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Used.

**Other Options Specified:

NOCHKD - Suppresses checking of date sequence in meteorology
files
FASTAREA - Use hybrid approach to optimize AREA sources;
also applies to LINE sources (formerly TOXICS option)
SCREEN - Use screening option
which forces calculation of centerline values
ADJ_U* - Use ADJ_U* option for SBL in AERMET
CCVR_Sub - Meteorological data includes CCVR substitutions
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: NOX

**Model Calculates 1 Short Term Average(s) of: 1-HR

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

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 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 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 Highest Short Term Values by Receptor
(RECTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting
(PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values
(SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for
Calm Hours

m for
Missing Hours

b for
Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 245.00 ;

Decay Coef. = 0.000 ; Rot. Angle = 0.0

Emission Units = GRAMS/SEC

; Emission Rate Unit Factor = 0.10000E+07

Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: Cole Development NOx.err

**File for Summary of Results: Cole Development NOx.sum

```

*** AERMOD - VERSION 19191 ***      *** C:\Lakes\AERMOD View\Cole
Development NOx\Cole Development NOx.isc      ***      12/09/19
*** AERMET - VERSION 16216 ***      ***
***      15:53:08

```

```

PAGE      2
*** MODELOPTs:      NonDEFAULT  CONC  FLAT  NOCHKD  FASTAREA  SCREEN  URBAN
ADJ_U*

```

```

*** AREAPOLY SOURCE DATA
***

```

NUMBER	NUMBER	EMISSION	RATE	LOCATION OF AREA		BASE	RELEASE
INIT.	URBAN	EMISSION	RATE				
SOURCE	PART.	(GRAMS/SEC	X	Y	ELEV.	HEIGHT	
OF VERTS.	SZ	SOURCE	SCALAR	VARY			
ID	CATS.	/METER**2)	(METERS)	(METERS)	(METERS)	(METERS)	
(METERS)	BY						

PAREA1	0	0.20312E-05	470154.4	3748520.6	245.0	3.00	
10	0.00	YES					

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** SOURCE IDs DEFINING SOURCE

GROUPS ***

SRCGROUP ID

SOURCE IDs

ALL PAREA1 ,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** SOURCE IDs DEFINED AS URBAN

SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
-----	-----	-----
	327728.	PAREA1 ,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

*** DISCRETE CARTESIAN

RECEPTORS ***

(X-COORD, Y-COORD, ZELEV,

ZHILL, ZFLAG)

(METERS)

(469863.7, 3748482.5,	245.0,	245.0,	0.0);	(
469890.2, 3748484.4,	245.0,	245.0,	0.0);	(
(469921.5, 3748470.1,	245.0,	245.0,	0.0);	(
469699.8, 3748548.8,	245.0,	245.0,	0.0);	(
(469522.6, 3748280.7,	245.0,	245.0,	0.0);	(
469513.2, 3748166.0,	245.0,	245.0,	0.0);	(
(469459.1, 3748158.4,	245.0,	245.0,	0.0);	(
469473.4, 3748268.3,	245.0,	245.0,	0.0);	(
(469521.7, 3748083.6,	245.0,	245.0,	0.0);	(
469581.4, 3748082.6,	245.0,	245.0,	0.0);	(
(469805.0, 3748083.6,	245.0,	245.0,	0.0);	(
470012.5, 3748042.8,	245.0,	245.0,	0.0);	(
(470067.4, 3748046.6,	245.0,	245.0,	0.0);	(
470184.0, 3748079.8,	245.0,	245.0,	0.0);	(
(470190.6, 3748170.8,	245.0,	245.0,	0.0);	(
470300.5, 3748171.7,	245.0,	245.0,	0.0);	(
(469726.3, 3747992.6,	245.0,	245.0,	0.0);	(
469620.2, 3747954.7,	245.0,	245.0,	0.0);	(
(469574.7, 3747952.8,	245.0,	245.0,	0.0);	(
469522.6, 3747936.7,	245.0,	245.0,	0.0);	(
(469372.0, 3747924.4,	245.0,	245.0,	0.0);	(
469372.0, 3747952.8,	245.0,	245.0,	0.0);	(
(469369.1, 3748003.1,	245.0,	245.0,	0.0);	(
469363.5, 3748032.4,	245.0,	245.0,	0.0);	(
(469375.8, 3748086.4,	245.0,	245.0,	0.0);	(
469872.2, 3748544.0,	245.0,	245.0,	0.0);	(
(469868.5, 3748580.0,	245.0,	245.0,	0.0);	(
469871.3, 3748607.5,	245.0,	245.0,	0.0);	(
(469878.9, 3748644.5,	245.0,	245.0,	0.0);	(
469928.1, 3748543.1,	245.0,	245.0,	0.0);	(
(469926.2, 3748573.4,	245.0,	245.0,	0.0);	(
469934.8, 3748599.0,	245.0,	245.0,	0.0);	(
(469934.8, 3748620.8,	245.0,	245.0,	0.0);	(
469949.9, 3748642.6,	245.0,	245.0,	0.0);	(
(469967.0, 3748545.9,	245.0,	245.0,	0.0);	(
469967.0, 3748571.5,	245.0,	245.0,	0.0);	(
(469970.8, 3748599.0,	245.0,	245.0,	0.0);	(
469976.5, 3748629.3,	245.0,	245.0,	0.0);	(

(470001.1, 3748634.1, 245.0, 245.0, 0.0); (

470033.3, 3748637.8, 245.0, 245.0, 0.0);

(470064.6, 3748639.7, 245.0, 245.0, 0.0); (

470090.1, 3748639.7, 245.0, 245.0, 0.0);

(470122.4, 3748634.1, 245.0, 245.0, 0.0); (

470130.0, 3748599.9, 245.0, 245.0, 0.0);

(470112.9, 3748580.0, 245.0, 245.0, 0.0); (

470127.1, 3748552.6, 245.0, 245.0, 0.0);

(470101.5, 3748549.7, 245.0, 245.0, 0.0); (

470074.0, 3748584.8, 245.0, 245.0, 0.0);

(470075.9, 3748547.8, 245.0, 245.0, 0.0); (

470045.6, 3748581.9, 245.0, 245.0, 0.0);

(470048.5, 3748554.5, 245.0, 245.0, 0.0); (

470017.2, 3748581.9, 245.0, 245.0, 0.0);

(470017.2, 3748551.6, 245.0, 245.0, 0.0); (

470186.8, 3748548.8, 245.0, 245.0, 0.0);

(470184.9, 3748584.8, 245.0, 245.0, 0.0); (

470218.1, 3748548.8, 245.0, 245.0, 0.0);

(470249.3, 3748546.9, 245.0, 245.0, 0.0); (

470279.6, 3748548.8, 245.0, 245.0, 0.0);

(470215.2, 3748582.9, 245.0, 245.0, 0.0); (

470243.6, 3748582.9, 245.0, 245.0, 0.0);

(470313.8, 3748548.8, 245.0, 245.0, 0.0); (

470342.2, 3748549.7, 245.0, 245.0, 0.0);

(470377.2, 3748546.9, 245.0, 245.0, 0.0); (

470299.5, 3748582.9, 245.0, 245.0, 0.0);

(470331.8, 3748581.9, 245.0, 245.0, 0.0); (

470486.2, 3748419.0, 245.0, 245.0, 0.0);

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

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

Surface file: KRAL_v9.SFC
 Met Version: 16216
 Profile file: KRAL_v9.PFL
 Surface format: FREE
 Profile format: FREE
 Surface station no.: 3171 Upper air station no.:
 16216
 Name: RIVERSIDE_AIRPORT Name:
 UNKNOWN
 Year: 2012 Year:
 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0
BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA	HT					
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	01	01	1	01	-25.6	0.266	-9.000	-9.000	-999.	330.	77.9	0.15	
2.40	1.00			2.93	55.	10.1	288.1	2.0					
12	01	01	1	02	-26.8	0.277	-9.000	-9.000	-999.	351.	84.7	0.15	
2.40	1.00			3.05	55.	10.1	287.0	2.0					
12	01	01	1	03	-21.5	0.221	-9.000	-9.000	-999.	250.	53.5	0.15	
2.40	1.00			2.45	74.	10.1	284.2	2.0					
12	01	01	1	04	-22.0	0.227	-9.000	-9.000	-999.	260.	56.8	0.15	
2.40	1.00			2.52	77.	10.1	285.9	2.0					
12	01	01	1	05	-20.0	0.206	-9.000	-9.000	-999.	225.	46.8	0.15	
2.40	1.00			2.30	80.	10.1	285.4	2.0					
12	01	01	1	06	-14.4	0.171	-9.000	-9.000	-999.	170.	32.1	0.15	
2.40	1.00			1.93	79.	10.1	287.0	2.0					
12	01	01	1	07	-14.9	0.174	-9.000	-9.000	-999.	174.	33.2	0.15	
2.40	1.00			1.96	77.	10.1	284.2	2.0					
12	01	01	1	08	-11.9	0.169	-9.000	-9.000	-999.	167.	36.1	0.15	
2.40	0.53			1.89	77.	10.1	288.1	2.0					
12	01	01	1	09	40.4	0.234	0.359	0.006	40.	272.	-28.1	0.15	
2.40	0.31			2.10	81.	10.1	289.2	2.0					
12	01	01	1	10	112.6	0.246	0.742	0.005	129.	293.	-11.8	0.15	
2.40	0.24			1.99	101.	10.1	296.4	2.0					
12	01	01	1	11	161.0	0.402	1.188	0.005	369.	611.	-35.6	0.15	
2.40	0.21			3.68	78.	10.1	298.8	2.0					
12	01	01	1	12	184.7	0.337	1.516	0.005	668.	473.	-18.4	0.15	
2.40	0.20			2.89	68.	10.1	300.4	2.0					

12	01	01	1	13	183.9	0.310	1.809	0.005	1139.	414.	-14.2	0.15
2.40		0.20			2.57	64.	10.1	302.5	2.0			
12	01	01	1	14	156.6	0.374	1.852	0.005	1434.	549.	-29.5	0.15
2.40		0.22			3.37	63.	10.1	303.1	2.0			
12	01	01	1	15	104.3	0.382	1.658	0.005	1546.	567.	-47.2	0.15
2.40		0.25			3.59	62.	10.1	302.5	2.0			
12	01	01	1	16	31.8	0.374	1.123	0.005	1573.	550.	-145.8	0.15
2.40		0.34			3.76	69.	10.1	300.9	2.0			
12	01	01	1	17	-23.3	0.276	-9.000	-9.000	-999.	354.	84.0	0.15
2.40		0.62			3.03	59.	10.1	297.5	2.0			
12	01	01	1	18	-21.5	0.229	-9.000	-9.000	-999.	264.	57.8	0.15
2.40		1.00			2.54	54.	10.1	295.4	2.0			
12	01	01	1	19	-19.3	0.204	-9.000	-9.000	-999.	221.	45.6	0.15
2.40		1.00			2.27	79.	10.1	292.0	2.0			
12	01	01	1	20	-20.7	0.218	-9.000	-9.000	-999.	244.	52.2	0.15
2.40		1.00			2.42	79.	10.1	292.5	2.0			
12	01	01	1	21	-19.7	0.206	-9.000	-9.000	-999.	225.	46.9	0.15
2.40		1.00			2.30	95.	10.1	290.9	2.0			
12	01	01	1	22	-17.6	0.190	-9.000	-9.000	-999.	199.	39.8	0.15
2.40		1.00			2.13	78.	10.1	290.4	2.0			
12	01	01	1	23	-20.3	0.211	-9.000	-9.000	-999.	233.	49.0	0.15
2.40		1.00			2.35	52.	10.1	289.2	2.0			
12	01	01	1	24	-16.4	0.183	-9.000	-9.000	-999.	189.	37.0	0.15
2.40		1.00			2.06	75.	10.1	288.8	2.0			

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	10.1	1	55.	2.93	288.2	99.0	-99.00	-99.00

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
 Development NOx\Cole Development NOx.isc *** 12/09/19
 *** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE
 CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
 INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN
 RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-
COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	
469863.71	3748482.47	57.11944	(12070706)	
469890.24	3748484.36	43.81913	(12070706)	
469921.51	3748470.15	37.72826	(12113008)	
469699.80	3748548.79	61.11420	(13062106)	
469522.63	3748280.66	43.02018	(12061606)	
469513.16	3748166.02	39.55106	(13100807)	
469459.15	3748158.44	33.48526	(13100807)	
469473.36	3748268.34	37.46317	(12061606)	
469521.68	3748083.59	36.35094	(12092507)	
469581.37	3748082.64	47.52907	(12092507)	
469804.97	3748083.59	50.13894	(12032807)	
470012.46	3748042.85	42.68789	(12070806)	
470067.41	3748046.64	42.94794	(12070806)	
470183.95	3748079.80	48.08680	(13051106)	
470190.58	3748170.75	61.62067	(12060406)	
470300.49	3748171.70	38.45784	(12100507)	
469726.33	3747992.63	32.35284	(12080606)	
469620.22	3747954.74	29.07333	(13032107)	
469574.74	3747952.84	28.79729	(16062606)	
469522.63	3747936.73	26.48497	(12092507)	
469371.99	3747924.42	23.88072	(12092507)	
469371.99	3747952.84	24.13154	(12092507)	
469369.14	3748003.06	22.97948	(12092507)	
469363.46	3748032.43	22.78551	(13012608)	
469375.77	3748086.43	25.33695	(12101107)	
469872.24	3748544.05	49.38920	(12070706)	
469868.45	3748580.05	41.85286	(12070706)	
469871.29	3748607.53	35.73465	(12070706)	
469878.87	3748644.48	31.40923	(13062906)	
469928.14	3748543.10	34.38046	(12113008)	

	469926.24	3748573.42	34.09808	(12070706)
469934.77	3748599.00	31.96647	(12070706)	
	469934.77	3748620.79	30.82709	(12070706)
469949.93	3748642.58	28.40468	(12070706)	
	469966.98	3748545.94	29.56262	(12113008)
469966.98	3748571.53	28.94191	(12113008)	
	469970.77	3748599.00	27.89165	(12070706)
469976.46	3748629.32	26.81823	(12070706)	
	470001.09	3748634.06	24.46166	(12070706)
470033.31	3748637.85	23.13090	(12072006)	
	470064.57	3748639.74	25.26640	(12072006)
470090.15	3748639.74	25.74644	(12070406)	
	470122.37	3748634.06	29.56107	(13062906)
470129.95	3748599.95	36.93022	(13062906)	
	470112.89	3748580.05	40.01825	(13062906)
470127.10	3748552.58	51.57116	(13062906)	
	470101.52	3748549.73	48.88461	(13062906)
470074.05	3748584.79	34.74792	(12072006)	
	470075.94	3748547.84	47.29335	(12072006)
470045.62	3748581.95	30.14446	(12072006)	
	470048.47	3748554.47	34.96977	(13062106)
470017.20	3748581.95	26.36170	(13062106)	
	470017.20	3748551.63	29.51353	(13062106)
470186.79	3748548.79	46.37274	(12070706)	
	470184.90	3748584.79	40.94667	(12070706)
470218.06	3748548.79	41.80492	(12032907)	
	470249.32	3748546.89	37.32050	(12071006)
470279.64	3748548.79	33.19149	(12071006)	
	470215.22	3748582.90	37.70268	(12113008)
470243.64	3748582.90	34.67757	(12113008)	
	470313.75	3748548.79	29.47706	(14060406)
470342.17	3748549.73	27.81243	(12071206)	
	470377.23	3748546.89	26.31879	(12071206)
470299.54	3748582.90	30.29524	(12071006)	
	470331.75	3748581.95	27.83392	(12071006)
470486.19	3748418.99	23.17582	(12092607)	

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
 Development NOx\Cole Development NOx.isc *** 12/09/19
 *** AERMET - VERSION 16216 *** ***
 *** 15:53:08

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 *** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

*** THE SUMMARY OF
 HIGHEST 1-HR RESULTS ***

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

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

ALL HIGH 1ST HIGH VALUE IS 61.62067 ON 12060406: AT (
 470190.58, 3748170.75, 245.00, 245.00, 0.00) DC

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development NOx\Cole Development NOx.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
*** 15:53:08

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** Message Summary : AERMOD Model Execution ***

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

A Total of 0 Fatal Error Message(s)
A Total of 4 Warning Message(s)
A Total of 1638 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 1039 Calm Hours Identified

A Total of 599 Missing Hours Identified (1.37 Percent)

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

***** WARNING MESSAGES *****
ME W186 135 MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used 0.50
ME W187 135 MEOPEN: ADJ_U* Option for Stable Low Winds used in
AERMET
ME W397 135 MEOPEN: SCREEN option used without use of SCREEN
Met Data 16216
ME W530 135 MEOPEN: CAUTION! Met Station ID Mismatch with
SURFFILE for UAIRDATA

*** AERMOD Finishes Successfully ***

```

**
*****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.8.0
** Lakes Environmental Software Inc.
** Date: 12/9/2019
** File: C:\Lakes\AERMOD View\Cole Development PM10\Cole Development
PM10.ADI
**
*****
**
**
*****
** AERMOD Control Pathway
*****
**
**
CO STARTING
  TITLEONE C:\Lakes\AERMOD View\Cole Development PM10\Cole Development
PM10.isc
  MODELOPT CONC FLAT SCREEN FASTAREA
  AVERTIME 1
  URBANOPT 327728 City_of_Riverside_Population_(2017)
  POLLUTID PM_10
  RUNORNOT RUN
  ERRORFIL "Cole Development PM10.err"
CO FINISHED
**
*****
** AERMOD Source Pathway
*****
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION PAREA1      AREAPOLY      470154.410   3748520.611           0.0
** DESCRSRC Cole Project Site boundary
** Source Parameters **
  SRCPARAM PAREA1      6.6067E-08      3.000      10
  AREAVERT PAREA1      470154.410 3748520.611 470060.292 3748520.611
  AREAVERT PAREA1      470058.331 3748318.650 469879.900 3748316.689
  AREAVERT PAREA1      469877.939 3748397.082 469848.527 3748397.082
  AREAVERT PAREA1      469846.566 3748514.729 469654.409 3748512.768
  AREAVERT PAREA1      469652.448 3748124.532 470148.528 3748126.493
  URBANSRC ALL
  SRCGROUP ALL
SO FINISHED
**
*****
** AERMOD Receptor Pathway
*****
**

```


★ ★

RE STARTING

★ ★ DESCRREC " " " "

DISCCART	469863.71	3748482.47
DISCCART	469890.24	3748484.36
DISCCART	469921.51	3748470.15
DISCCART	469699.80	3748548.79
DISCCART	469522.63	3748280.66
DISCCART	469513.16	3748166.02
DISCCART	469459.15	3748158.44
DISCCART	469473.36	3748268.34
DISCCART	469521.68	3748083.59
DISCCART	469581.37	3748082.64
DISCCART	469804.97	3748083.59
DISCCART	470012.46	3748042.85
DISCCART	470067.41	3748046.64
DISCCART	470183.95	3748079.80
DISCCART	470190.58	3748170.75
DISCCART	470300.49	3748171.70
DISCCART	469726.33	3747992.63
DISCCART	469620.22	3747954.74
DISCCART	469574.74	3747952.84
DISCCART	469522.63	3747936.73
DISCCART	469371.99	3747924.42
DISCCART	469371.99	3747952.84
DISCCART	469369.14	3748003.06
DISCCART	469363.46	3748032.43
DISCCART	469375.77	3748086.43
DISCCART	469872.24	3748544.05
DISCCART	469868.45	3748580.05
DISCCART	469871.29	3748607.53
DISCCART	469878.87	3748644.48
DISCCART	469928.14	3748543.10
DISCCART	469926.24	3748573.42
DISCCART	469934.77	3748599.00
DISCCART	469934.77	3748620.79
DISCCART	469949.93	3748642.58
DISCCART	469966.98	3748545.94
DISCCART	469966.98	3748571.53
DISCCART	469970.77	3748599.00
DISCCART	469976.46	3748629.32
DISCCART	470001.09	3748634.06
DISCCART	470033.31	3748637.85
DISCCART	470064.57	3748639.74
DISCCART	470090.15	3748639.74
DISCCART	470122.37	3748634.06
DISCCART	470129.95	3748599.95
DISCCART	470112.89	3748580.05
DISCCART	470127.10	3748552.58
DISCCART	470101.52	3748549.73
DISCCART	470074.05	3748584.79
DISCCART	470075.94	3748547.84
DISCCART	470045.62	3748581.95
DISCCART	470048.47	3748554.47

```

DISCCART      470017.20    3748581.95
DISCCART      470017.20    3748551.63
DISCCART      470186.79    3748548.79
DISCCART      470184.90    3748584.79
DISCCART      470218.06    3748548.79
DISCCART      470249.32    3748546.89
DISCCART      470279.64    3748548.79
DISCCART      470215.22    3748582.90
DISCCART      470243.64    3748582.90
DISCCART      470313.75    3748548.79
DISCCART      470342.17    3748549.73
DISCCART      470377.23    3748546.89
DISCCART      470299.54    3748582.90
DISCCART      470331.75    3748581.95
DISCCART      470486.19    3748418.99
RE FINISHED
**
*****
** AERMOD Meteorology Pathway
*****
**
**
ME STARTING
SURFFILE KRAL_v9.SFC
PROFFILE KRAL_v9.PFL
SURFDATA 03171 2012 Riverside_Airport
UAIRDATA 16216 2012
PROFBASE 245.0 METERS
ME FINISHED
**
*****
** AERMOD Output Pathway
*****
**
**
OU STARTING
RECTABLE ALLAVE 1ST
RECTABLE 1 1ST
** Auto-Generated Plotfiles
PLOTFILE 1 ALL 1ST "COLE DEVELOPMENT PM10.AD\01H1GALL.PLT" 31
SUMMFILE "Cole Development PM10.sum"
OU FINISHED

```

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

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

```

A Total of          0 Fatal Error Message(s)
A Total of          4 Warning Message(s)
A Total of          0 Informational Message(s)

```

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

*** NONE ***

```
***** WARNING MESSAGES *****
ME W186      135      MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used      0.50
ME W187      135      MEOPEN: ADJ_U* Option for Stable Low Winds used in
AERMET
ME W397      135      MEOPEN: SCREEN option used without use of SCREEN
Met Data      16216
ME W530      135      MEOPEN: CAUTION! Met Station ID Mismatch with
SURFFILE for      UAIRDATA
```

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

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development PM10\Cole Development PM10.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
*** 16:18:03

PAGE 1

*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN 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 1 Source(s),
for Total of 1 Urban Area(s):

Urban Population = 327728.0 ; Urban Roughness Length = 1.000 m

**Model Allows User-Specified Options:

1. Stack-tip Downwash.
2. Model Assumes Receptors on FLAT Terrain.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Used.

**Other Options Specified:

NOCHKD - Suppresses checking of date sequence in meteorology
files

FASTAREA - Use hybrid approach to optimize AREA sources;
also applies to LINE sources (formerly TOXICS option)

SCREEN - Use screening option
which forces calculation of centerline values

ADJ_U* - Use ADJ_U* option for SBL in AERMET

CCVR_Sub - Meteorological data includes CCVR substitutions

TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: PM₁₀

**Model Calculates 1 Short Term Average(s) of: 1-HR

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

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 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 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 Highest Short Term Values by Receptor
(RECTABLE Keyword)

Model Outputs External File(s) of High Values for Plotting
(PLOTFILE Keyword)

Model Outputs Separate Summary File of High Ranked Values
(SUMMFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for
Calm Hours

m for
Missing Hours

b for
Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 245.00 ;

Decay Coef. = 0.000 ; Rot. Angle = 0.0

Emission Units = GRAMS/SEC

; Emission Rate Unit Factor = 0.10000E+07

Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: Cole Development PM10.err

**File for Summary of Results: Cole Development PM10.sum

```

*** AERMOD - VERSION 19191 ***    *** C:\Lakes\AERMOD View\Cole
Development PM10\Cole Development PM10.isc ***    12/09/19
*** AERMET - VERSION 16216 ***    ***
***    16:18:03

```

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```

*** MODELOPTs:      NonDEFAULT  CONC  FLAT  NOCHKD  FASTAREA  SCREEN  URBAN
ADJ_U*

```

*** AREAPOLY SOURCE DATA

NUMBER	INIT.	NUMBER	EMISSION RATE	LOCATION OF AREA		BASE	RELEASE
SOURCE	PART.	URBAN	EMISSION RATE	X	Y	ELEV.	HEIGHT
OF VERTS.	SZ	SOURCE	SCALAR VARY				
ID	CATS.	/METER**2)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)
(METERS)	BY						
PAREA1	0	0.66067E-07	470154.4	3748520.6	245.0	3.00	
10	0.00	YES					

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development PM10\Cole Development PM10.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
*** 16:18:03

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** SOURCE IDs DEFINING SOURCE

GROUPS ***

SRCGROUP ID

SOURCE IDs

ALL PAREA1 ,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
Development PM10\Cole Development PM10.isc *** 12/09/19
*** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
ADJ_U*

*** SOURCE IDs DEFINED AS URBAN

SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
-----	-----	-----
	327728.	PAREA1 ,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
 Development PM10\Cole Development PM10.isc *** 12/09/19
 *** AERMET - VERSION 16216 *** ***
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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

RECEPTORS ***
 (X-COORD, Y-COORD, ZELEV,
 ZHILL, ZFLAG)
 (METERS)

(469863.7, 3748482.5,	245.0,	245.0,	0.0);	(
469890.2, 3748484.4,	245.0,	245.0,	0.0);	(
(469921.5, 3748470.1,	245.0,	245.0,	0.0);	(
469699.8, 3748548.8,	245.0,	245.0,	0.0);	(
(469522.6, 3748280.7,	245.0,	245.0,	0.0);	(
469513.2, 3748166.0,	245.0,	245.0,	0.0);	(
(469459.1, 3748158.4,	245.0,	245.0,	0.0);	(
469473.4, 3748268.3,	245.0,	245.0,	0.0);	(
(469521.7, 3748083.6,	245.0,	245.0,	0.0);	(
469581.4, 3748082.6,	245.0,	245.0,	0.0);	(
(469805.0, 3748083.6,	245.0,	245.0,	0.0);	(
470012.5, 3748042.8,	245.0,	245.0,	0.0);	(
(470067.4, 3748046.6,	245.0,	245.0,	0.0);	(
470184.0, 3748079.8,	245.0,	245.0,	0.0);	(
(470190.6, 3748170.8,	245.0,	245.0,	0.0);	(
470300.5, 3748171.7,	245.0,	245.0,	0.0);	(
(469726.3, 3747992.6,	245.0,	245.0,	0.0);	(
469620.2, 3747954.7,	245.0,	245.0,	0.0);	(
(469574.7, 3747952.8,	245.0,	245.0,	0.0);	(
469522.6, 3747936.7,	245.0,	245.0,	0.0);	(
(469372.0, 3747924.4,	245.0,	245.0,	0.0);	(
469372.0, 3747952.8,	245.0,	245.0,	0.0);	(
(469369.1, 3748003.1,	245.0,	245.0,	0.0);	(
469363.5, 3748032.4,	245.0,	245.0,	0.0);	(
(469375.8, 3748086.4,	245.0,	245.0,	0.0);	(
469872.2, 3748544.0,	245.0,	245.0,	0.0);	(
(469868.5, 3748580.0,	245.0,	245.0,	0.0);	(
469871.3, 3748607.5,	245.0,	245.0,	0.0);	(
(469878.9, 3748644.5,	245.0,	245.0,	0.0);	(
469928.1, 3748543.1,	245.0,	245.0,	0.0);	(
(469926.2, 3748573.4,	245.0,	245.0,	0.0);	(
469934.8, 3748599.0,	245.0,	245.0,	0.0);	(
(469934.8, 3748620.8,	245.0,	245.0,	0.0);	(
469949.9, 3748642.6,	245.0,	245.0,	0.0);	(
(469967.0, 3748545.9,	245.0,	245.0,	0.0);	(
469967.0, 3748571.5,	245.0,	245.0,	0.0);	(
(469970.8, 3748599.0,	245.0,	245.0,	0.0);	(
469976.5, 3748629.3,	245.0,	245.0,	0.0);	(

(470001.1, 3748634.1, 245.0, 245.0, 0.0); (

470033.3, 3748637.8, 245.0, 245.0, 0.0);

(470064.6, 3748639.7, 245.0, 245.0, 0.0); (

470090.1, 3748639.7, 245.0, 245.0, 0.0);

(470122.4, 3748634.1, 245.0, 245.0, 0.0); (

470130.0, 3748599.9, 245.0, 245.0, 0.0);

(470112.9, 3748580.0, 245.0, 245.0, 0.0); (

470127.1, 3748552.6, 245.0, 245.0, 0.0);

(470101.5, 3748549.7, 245.0, 245.0, 0.0); (

470074.0, 3748584.8, 245.0, 245.0, 0.0);

(470075.9, 3748547.8, 245.0, 245.0, 0.0); (

470045.6, 3748581.9, 245.0, 245.0, 0.0);

(470048.5, 3748554.5, 245.0, 245.0, 0.0); (

470017.2, 3748581.9, 245.0, 245.0, 0.0);

(470017.2, 3748551.6, 245.0, 245.0, 0.0); (

470186.8, 3748548.8, 245.0, 245.0, 0.0);

(470184.9, 3748584.8, 245.0, 245.0, 0.0); (

470218.1, 3748548.8, 245.0, 245.0, 0.0);

(470249.3, 3748546.9, 245.0, 245.0, 0.0); (

470279.6, 3748548.8, 245.0, 245.0, 0.0);

(470215.2, 3748582.9, 245.0, 245.0, 0.0); (

470243.6, 3748582.9, 245.0, 245.0, 0.0);

(470313.8, 3748548.8, 245.0, 245.0, 0.0); (

470342.2, 3748549.7, 245.0, 245.0, 0.0);

(470377.2, 3748546.9, 245.0, 245.0, 0.0); (

470299.5, 3748582.9, 245.0, 245.0, 0.0);

(470331.8, 3748581.9, 245.0, 245.0, 0.0); (

470486.2, 3748419.0, 245.0, 245.0, 0.0);

8.23, 10.80, 1.54, 3.09, 5.14,

*** AERMOD - VERSION 19191 *** *** C:\Lakes\AERMOD View\Cole
 Development PM10\Cole Development PM10.isc *** 12/09/19
 *** AERMET - VERSION 16216 *** ***
 *** 16:18:03

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

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

Surface file: KRAL_v9.SFC
 Met Version: 16216
 Profile file: KRAL_v9.PFL
 Surface format: FREE
 Profile format: FREE
 Surface station no.: 3171 Upper air station no.:
 16216
 Name: RIVERSIDE_AIRPORT Name:
 UNKNOWN
 Year: 2012 Year:
 2012

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0
BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA	HT					
12	01	01	1	01	-25.6	0.266	-9.000	-9.000	-999.	330.	77.9	0.15	
2.40	1.00			2.93	55.	10.1	288.1	2.0					
12	01	01	1	02	-26.8	0.277	-9.000	-9.000	-999.	351.	84.7	0.15	
2.40	1.00			3.05	55.	10.1	287.0	2.0					
12	01	01	1	03	-21.5	0.221	-9.000	-9.000	-999.	250.	53.5	0.15	
2.40	1.00			2.45	74.	10.1	284.2	2.0					
12	01	01	1	04	-22.0	0.227	-9.000	-9.000	-999.	260.	56.8	0.15	
2.40	1.00			2.52	77.	10.1	285.9	2.0					
12	01	01	1	05	-20.0	0.206	-9.000	-9.000	-999.	225.	46.8	0.15	
2.40	1.00			2.30	80.	10.1	285.4	2.0					
12	01	01	1	06	-14.4	0.171	-9.000	-9.000	-999.	170.	32.1	0.15	
2.40	1.00			1.93	79.	10.1	287.0	2.0					
12	01	01	1	07	-14.9	0.174	-9.000	-9.000	-999.	174.	33.2	0.15	
2.40	1.00			1.96	77.	10.1	284.2	2.0					
12	01	01	1	08	-11.9	0.169	-9.000	-9.000	-999.	167.	36.1	0.15	
2.40	0.53			1.89	77.	10.1	288.1	2.0					
12	01	01	1	09	40.4	0.234	0.359	0.006	40.	272.	-28.1	0.15	
2.40	0.31			2.10	81.	10.1	289.2	2.0					
12	01	01	1	10	112.6	0.246	0.742	0.005	129.	293.	-11.8	0.15	
2.40	0.24			1.99	101.	10.1	296.4	2.0					
12	01	01	1	11	161.0	0.402	1.188	0.005	369.	611.	-35.6	0.15	
2.40	0.21			3.68	78.	10.1	298.8	2.0					
12	01	01	1	12	184.7	0.337	1.516	0.005	668.	473.	-18.4	0.15	
2.40	0.20			2.89	68.	10.1	300.4	2.0					

12	01	01	1	13	183.9	0.310	1.809	0.005	1139.	414.	-14.2	0.15
2.40		0.20			2.57	64.	10.1	302.5	2.0			
12	01	01	1	14	156.6	0.374	1.852	0.005	1434.	549.	-29.5	0.15
2.40		0.22			3.37	63.	10.1	303.1	2.0			
12	01	01	1	15	104.3	0.382	1.658	0.005	1546.	567.	-47.2	0.15
2.40		0.25			3.59	62.	10.1	302.5	2.0			
12	01	01	1	16	31.8	0.374	1.123	0.005	1573.	550.	-145.8	0.15
2.40		0.34			3.76	69.	10.1	300.9	2.0			
12	01	01	1	17	-23.3	0.276	-9.000	-9.000	-999.	354.	84.0	0.15
2.40		0.62			3.03	59.	10.1	297.5	2.0			
12	01	01	1	18	-21.5	0.229	-9.000	-9.000	-999.	264.	57.8	0.15
2.40		1.00			2.54	54.	10.1	295.4	2.0			
12	01	01	1	19	-19.3	0.204	-9.000	-9.000	-999.	221.	45.6	0.15
2.40		1.00			2.27	79.	10.1	292.0	2.0			
12	01	01	1	20	-20.7	0.218	-9.000	-9.000	-999.	244.	52.2	0.15
2.40		1.00			2.42	79.	10.1	292.5	2.0			
12	01	01	1	21	-19.7	0.206	-9.000	-9.000	-999.	225.	46.9	0.15
2.40		1.00			2.30	95.	10.1	290.9	2.0			
12	01	01	1	22	-17.6	0.190	-9.000	-9.000	-999.	199.	39.8	0.15
2.40		1.00			2.13	78.	10.1	290.4	2.0			
12	01	01	1	23	-20.3	0.211	-9.000	-9.000	-999.	233.	49.0	0.15
2.40		1.00			2.35	52.	10.1	289.2	2.0			
12	01	01	1	24	-16.4	0.183	-9.000	-9.000	-999.	189.	37.0	0.15
2.40		1.00			2.06	75.	10.1	288.8	2.0			

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	10.1	1	55.	2.93	288.2	99.0	-99.00	-99.00

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

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

*** THE 1ST HIGHEST 1-HR AVERAGE
 CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
 INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN
 RECEPTOR POINTS ***

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

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-
COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	
469863.71	3748482.47	1.85787	(12070706)	
469890.24	3748484.36	1.42527	(12070706)	
469921.51	3748470.15	1.22715	(12113008)	
469699.80	3748548.79	1.98781	(13062106)	
469522.63	3748280.66	1.39928	(12061606)	
469513.16	3748166.02	1.28644	(13100807)	
469459.15	3748158.44	1.08914	(13100807)	
469473.36	3748268.34	1.21853	(12061606)	
469521.68	3748083.59	1.18235	(12092507)	
469581.37	3748082.64	1.54594	(12092507)	
469804.97	3748083.59	1.63082	(12032807)	
470012.46	3748042.85	1.38847	(12070806)	
470067.41	3748046.64	1.39693	(12070806)	
470183.95	3748079.80	1.56408	(13051106)	
470190.58	3748170.75	2.00428	(12060406)	
470300.49	3748171.70	1.25088	(12100507)	
469726.33	3747992.63	1.05231	(12080606)	
469620.22	3747954.74	0.94564	(13032107)	
469574.74	3747952.84	0.93666	(16062606)	
469522.63	3747936.73	0.86145	(12092507)	
469371.99	3747924.42	0.77675	(12092507)	
469371.99	3747952.84	0.78490	(12092507)	
469369.14	3748003.06	0.74743	(12092507)	
469363.46	3748032.43	0.74112	(13012608)	
469375.77	3748086.43	0.82411	(12101107)	
469872.24	3748544.05	1.60644	(12070706)	
469868.45	3748580.05	1.36131	(12070706)	
469871.29	3748607.53	1.16231	(12070706)	
469878.87	3748644.48	1.02162	(13062906)	
469928.14	3748543.10	1.11826	(12113008)	

	469926.24	3748573.42	1.10908	(12070706)
469934.77	3748599.00	1.03974	(12070706)	
	469934.77	3748620.79	1.00268	(12070706)
469949.93	3748642.58	0.92389	(12070706)	
	469966.98	3748545.94	0.96156	(12113008)
469966.98	3748571.53	0.94137	(12113008)	
	469970.77	3748599.00	0.90721	(12070706)
469976.46	3748629.32	0.87229	(12070706)	
	470001.09	3748634.06	0.79564	(12070706)
470033.31	3748637.85	0.75236	(12072006)	
	470064.57	3748639.74	0.82182	(12072006)
470090.15	3748639.74	0.83743	(12070406)	
	470122.37	3748634.06	0.96151	(13062906)
470129.95	3748599.95	1.20120	(13062906)	
	470112.89	3748580.05	1.30164	(13062906)
470127.10	3748552.58	1.67741	(13062906)	
	470101.52	3748549.73	1.59003	(13062906)
470074.05	3748584.79	1.13021	(12072006)	
	470075.94	3748547.84	1.53827	(12072006)
470045.62	3748581.95	0.98048	(12072006)	
	470048.47	3748554.47	1.13743	(13062106)
470017.20	3748581.95	0.85744	(13062106)	
	470017.20	3748551.63	0.95996	(13062106)
470186.79	3748548.79	1.50832	(12070706)	
	470184.90	3748584.79	1.33184	(12070706)
470218.06	3748548.79	1.35975	(12032907)	
	470249.32	3748546.89	1.21389	(12071006)
470279.64	3748548.79	1.07959	(12071006)	
	470215.22	3748582.90	1.22632	(12113008)
470243.64	3748582.90	1.12793	(12113008)	
	470313.75	3748548.79	0.95877	(14060406)
470342.17	3748549.73	0.90463	(12071206)	
	470377.23	3748546.89	0.85605	(12071206)
470299.54	3748582.90	0.98539	(12071006)	
	470331.75	3748581.95	0.90533	(12071006)
470486.19	3748418.99	0.75382	(12092607)	

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 *** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
 ADJ_U*

*** THE SUMMARY OF
 HIGHEST 1-HR RESULTS ***

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

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

ALL HIGH 1ST HIGH VALUE IS 2.00428 ON 12060406: AT (
 470190.58, 3748170.75, 245.00, 245.00, 0.00) DC

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

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*** MODELOPTs: NonDEFAULT CONC FLAT NOCHKD FASTAREA SCREEN URBAN
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*** Message Summary : AERMOD Model Execution ***

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

A Total of 0 Fatal Error Message(s)
A Total of 4 Warning Message(s)
A Total of 1638 Informational Message(s)

A Total of 43848 Hours Were Processed

A Total of 1039 Calm Hours Identified

A Total of 599 Missing Hours Identified (1.37 Percent)

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

***** WARNING MESSAGES *****
ME W186 135 MEOPEN: THRESH_1MIN 1-min ASOS wind speed
threshold used 0.50
ME W187 135 MEOPEN: ADJ_U* Option for Stable Low Winds used in
AERMET
ME W397 135 MEOPEN: SCREEN option used without use of SCREEN
Met Data 16216
ME W530 135 MEOPEN: CAUTION! Met Station ID Mismatch with
SURFFILE for UAIRDATA

*** AERMOD Finishes Successfully ***
