Serena Village

Air Quality and Greenhouse Gas Impact Study

County of San Bernardino, CA

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GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
LST	Localized Significant Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the project would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is located at 8246 and 8260 Banana Avenue in the County of San Bernardino, California, as shown in Exhibit A. The southern portion of the project site is currently designated as multiple residential on the County of San Bernardino Land Use Plan (map FH29A Fontana) In addition, the City of Fontana General Plan Land Use map designates the project site as Walkable Mixed-Use Corridor & Downtown (WMXU-1). The proposed use is multiple family residential. Land uses surrounding the site include single-family residential to the south, single-family residential and a mobile home park to the west, single-family residential and Foothill Boulevard to the north, and single-family residential and Banana Avenue to the east.

1.2.2 Project Description

The Project consists of the following three villages for a total of 206 dwelling units.

- Serena Village North – 71 Dwelling Units
- Serena Village South – 112 Dwelling Units
- Serena Village East – 23 Dwelling Units

Exhibit B demonstrates the site plan for the project.

Construction activities within the Project area will consist of demolition, on-site grading, building, paving, and architectural coating. Table 1 summarizes the land use description for the Project Site.

<Table 1, next page>

Table 1: Land Use Summary

Land Use	Unit Amount	Size Metric
Serena Village North		
Other Non-Asphalt Surfaces (landscaping/open space)	1.02	Acres
Parking Lot	32	Spaces
Apartments Low Rise	71	Dwelling Units
Serena Village South		
Other Non-Asphalt Surfaces (landscaping/open space)	1.79	Acres
Parking Lot	87	Spaces
Apartments Low Rise	112	Dwelling Units
Serena Village East		
Other Non-Asphalt Surfaces (landscaping/open space)	0.26	Acres
Parking Lot	10	Spaces
Apartments Low Rise	23	Dwelling Units
[1] The total square footage/acreage in CalEEMod for the parking lots included paving of the on-site driveways as well as the parking lot spaces (see Appendix A for more detail).		

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptors (to the site area) are residential land uses located adjacent to the south, west, east and north of the project site. In addition, residential land uses are located approximately 40 feet east (across Banana Avenue) and 150 feet north (across Foothill Boulevard) of the project site.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions
Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

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

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

Operational-Source Emissions

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

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

Project-related GHG emissions for each of the proposed three Villages (Serena Village North, Serena Village South, and Serena Village East) meet the San Bernardino County and SCAQMD draft threshold individually; however, when the emissions of all three Villages are combined the San Bernardino County and SCAQMD draft threshold is exceeded. With incorporation of sustainable design and compliance with regulation, the project's total emissions (Serena Village North, Serena Village South, and Serena Village East combined) meet the San Bernardino County and SCAQMD draft threshold. Therefore, with incorporation of sustainable design and compliance with regulation, project emissions are considered to be less than significant. With incorporation of sustainable design and compliance with regulation, the project also complies with the goals of the CARB Scoping Plan, AB-32, SB-32 and County of San Bernardino Greenhouse Gas Emissions Reduction Plan.

Mitigation Measures

A. Construction Measures

Adherence to SCAQMD Rule 403 is required.

No construction mitigation required.

B. Operational Measures

Compliance with the performance standards for residential projects as detailed in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan is required.

The measures listed below are either required through regulation (compliance with Title 24, CALGreen for example) and/or part of the project's sustainable design.

Measure 1. The project applicant shall require that all faucets, toilets and showers installed in the proposed structures utilize low-flow fixtures that would reduce indoor water demand by 20% per CALGreen Standards.

Measure 2. The project applicant shall provide sidewalks on-site and connecting off-site.

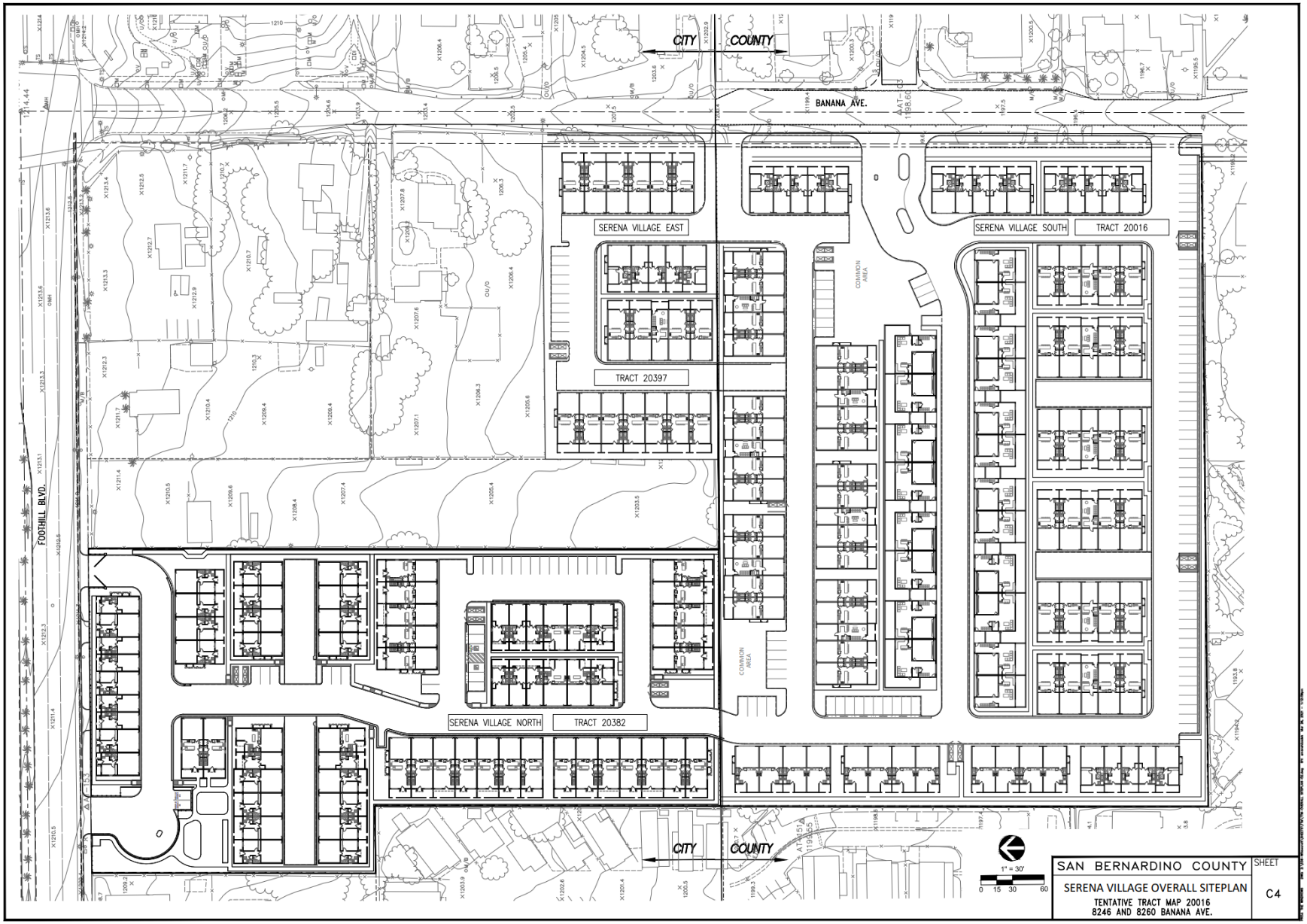
Measure 3. The project applicant shall require recycling programs that reduces waste to landfills by a minimum 75 percent per AB 341.

Exhibit A

Location Map

Exhibit B

Site Plan



2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The South Coast Air Quality Management District (SCAQMD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to project the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See http://www.arb.ca.gov/research/aaqs/aaqs.htm for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentrations[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O3)	1-Hour	0.09 ppm	Ultraviolet Photometry	- -	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[8]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µ/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		- -		
Fine Particulate Matter (PM2.5)[8]	24-Hour	- -	- -	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m³)	- -	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m³)		9 ppm (10 µg/m³)	- -	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m³)		- -	- -	
Nitrogen Dioxide (NO_2)[9]	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	- -	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1-Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	- -	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	- -		- -	0.5 ppm (1300 mg/m³)	
	24-Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	- -	
	Annual Arithmetic Mean	- -		0.130ppm (for certain areas)[10]	- -	
Lead[11,12]	30 Day Average	1.5 µg/m³	Atomic Absorption	- -		
	Calendar Qrtr	- -		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	- -		0.15 µg/m³		
Visibility Reducing Particles[13]	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Notes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three 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 one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in 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 which can be shown to the satisfaction of the ARB 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 U.S. 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 U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national 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 parts per billion (ppb). California standards are in units of parts per million (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.

10. 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 one year after an area is designated for the 2010 standard, except that in areas designated 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 parts per billion (ppb). California standards are in units of parts per million (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.

11. The ARB 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.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile 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.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

Every three (3) years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon.

On March 23, 2017 CARB approved the 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. The primary goal of the 2016 AQMP is to meet clean air standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. If approved by EPA, the plan becomes federally enforceable.

South Coast AQMD has initiated the development of the 2022 AQMP to address the attainment of the 2015 8-hour ozone standard (70 ppb) for South Coast Air Basin and Coachella Valley. To support the development of mobile source strategies for the 2022 AQMP, South Coast AQMD, in conjunction with California Air Resources Board, has established Mobile Source Working Groups which are open to all interested parties. South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. Some of the rules and regulations that apply to this Project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are indicated below and include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, san, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-iste streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets.

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

Idling Diesel Vehicle Trucks – Idling for more than 5 minutes in any one location is prohibited within California borders.

Rule 2702. The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific,

technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an

estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[1]

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: https://www.epa.gov/arc-x/planning-climate-change-adaptation

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

2.2.3 California

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

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013, 2016, and 2019 standards have been approved and became effective July 1, 2014, January 1, 2016, and January 1, 2020, respectively.

California Code of Regulations (CCR) Title 24, Part 11.
All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following links provide more information on Title 24, Part 11:
https://www.dgs.ca.gov/BSC/Codeshttps://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

California Green Building Standards.
On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle, during the 2016 to 2017 fiscal year. During the 2019-2020 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle.

The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials

that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The 2019 CalGreen Code includes the following changes and/or additional regulations:

Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades[2].

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

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

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

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

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water

[2] https://ww2.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regards to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regards to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:
http://www.bsc.ca.gov/Home/CALGreen.aspx

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

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

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

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments

to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

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

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

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

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

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate

specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:
Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO2e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 MMTCO2e.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO2e by 2020, representing approximately 25 percent of the 2020 target.

The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan

identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- 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; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

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

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

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements.

On September 3, 2020, SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than $638 billion in transportation system investments through 2045. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Assembly Bill 939, Assembly Bill, and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. AB 341 requires at least 75 percent of generated waste be source reduced, recycled, or composted by the year 2020. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

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

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

Executive Order N-79-20. Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

2.2.4 South Coast Air Quality Management District

The Project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD Regulation XXVII currently includes three rules:

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

SCAQMD Threshold Development

The SCAQMD has established recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"). SCAQMD has published a five-tiered draft GHG threshold which includes a 10,000 metric ton of CO_2e per year for stationary/industrial sources and 3,000 metric tons of CO_2e per year significance threshold for residential/commercial projects (South Coast Air Quality Management District 2010c). Tier 3 is anticipated to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90-precent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to CEQA analysis. The 90-percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD's annual Emissions Reporting Program.

The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO2e per year
  - Based on land use types: residential is 3,500 MTCO2e per year; commercial is 1,400 MTCO2e per year; and mixed use is 3,000 MTCO2e per year
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3: Year 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO2e/SP/year for projects and 6.6 MTCO2e/SP/year for plans;
  - Option 3, 2035 target: 3.0 MTCO2e/SP/year for projects and 4.1 MTCO2e/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

2.2.5 County of San Bernardino

County of San Bernardino General Plan

Local jurisdictions, such as the County of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the County is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The

County is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

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

The County of San Bernardino General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

Goal CO 4 The County will ensure good air quality for its residents, businesses, and visitors to reduce impacts on human health and the economy.

Policies

CO 4.1 Because developments can add to the wind hazard (due to increased dust, the removal of wind breaks, and other factors), the County will require either as mitigation measures in the appropriate environmental analysis required by the County for the development proposal or as conditions of approval if no environmental document is required, that developments in areas identified as susceptible to wind hazards to address site-specific analysis of:

a. Grading restrictions and/or controls on the basis of soil types, topography or season.
b. Landscaping methods, plant varieties, and scheduling to maximize successful revegetation.
c. Dust-control measures during grading, heavy truck travel, and other dust generating activities.

CO 4.2 Coordinate air quality improvement technologies with the South Coast Air Quality Management District (SCAQMD) and the Mojave Air Quality Management District (MAQMD) to improve air quality through reductions in pollutants from the region.

CO 4.4 Because congestion resulting from growth is expected to result in a significant increase in the air quality degradation, the County may manage growth by insuring the timely provision of infrastructure to serve new development.

Programs

1. Consistent with the land use designations in the Land Use Policy Map (see the Land Use Element) that will improve growth management at a subregional level in relation to major activity centers, review new development to encourage new intensified development around transit nodes and along transit corridors.

2. Locate and design new development in a manner that will minimize direct and indirect emission of air contaminants through such means as:

    a. Promoting mixed-use development to reduce the length and frequency of vehicle trips;
    b. Providing for increased intensity of development along existing and proposed transit corridors; and
    c. Providing for the location of ancillary employee services (including but not limited to child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.
    d. The County shall comply, to the extent feasible, with the recommendations on siting new sensitive land uses, as recommended in California Air Resources Board's Air Quality and Land Use Handbook: A Community Health Perspective, which includes the following:

    Notable siting recommendations include avoiding siting new sensitive land uses within:

    - 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day;
    - 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration units exceed 300 hours per week);
    - 1,000 feet of a chrome plater;
    - 300 feet of any dry cleaning operation; and 300 feet of a large gas station (defined as a facility with a through put of 3.6 million gallons per year or greater); a 50 foot separation is recommended for typical gas dispensing facilities.

3. Incorporate phasing policies and requirements in the General Plan and development plans to achieve timely provision of infrastructure (particularly transportation facilities) to serve development through:

    a. Tying growth to Level of Service (LOS) standards; and
    b. Using phasing areas to manage growth.

CO 4.5 Reduce emissions through reduced energy consumption.

Programs

1. Implement programs to phase in energy conservation improvements through the annual budget process.

CO 4.6 Provide incentives such as preferential parking for alternative-fuel vehicles (e.g., CNG or hydrogen).

CO 4.12 Provide incentives to promote siting or use of clean air technologies (e.g., fuel cell technologies, renewable energy sources, UV coatings, and hydrogen fuel).

CO 4.13 Reduce Greenhouse Gas (GHG) emissions within the County boundaries.

Programs

1. Emission Inventories. The County will prepare GHG emissions inventories including emissions produced by: (1) the County's operational activities, services and facilities, over which the County has direct responsibility and control, and (2) private industry and development, that is located within the area subject to the County's discretionary land use authority.

    a. Establish an inventory of existing GHG emissions.
    b. Establish a projected inventory for year 2020.

2. GHG Emissions Reduction Plan. The County will adopt a GHG Emissions Reduction Plan that includes:

    a. Measures to reduce GHG emissions attributable to the County's operational activities, services and facilities, over which the County has direct responsibility and control; and,
    b. Measures to reduce GHG emissions produced by private industry and development that is located within the area subject to the County's discretionary land use authority and ministerial building permit authority; and,
    c. Implementation and monitoring procedures to provide periodic review of the plan's progress and allow for adjustments overtime to ensure fulfillment of the plan's objectives.

County of San Bernardino Climate Action Plan

The County of San Bernardino adopted its "Greenhouse Gas Emissions Reduction Plan" in December in 2011. An update to the GHG Emissions Development Review Process was made in The purpose of the GHG Plan is to reduce the County's internal and external GHG emissions by 15 percent below current

(2011) levels by year 2020. The GHG Plan includes a two-tiered development review procedure to determine if a project could result in a significant impact related greenhouse gas emissions or otherwise comply with the Plan pursuant to Section 15183.5 of the state CEQA Guidelines.

The initial screening procedure is to determine if a project will emit 3,000 metric tons of carbon dioxide equivalent (MTCO2e) per year or more. Projects that do not exceed this threshold require no further climate change analysis. Projects exceeding this threshold must meet a minimum 31 percent emissions reduction in order to garner a less than significant determination. This can be met by either (1) achieving 100 points from a menu of mitigation options provided in the GHG Plan or (2) quantifying proposed reduction measures. Projects failing to meet the 31 percent reduction threshold would have a potentially significant impact related to climate change and greenhouse gas emissions. An update to the GHG Emissions Development Review Process was made in March 2015 to both improve upon the menu of options available in the screening tables and to bring performance standards up to current code.

Therefore, to determine whether the project's GHG emissions are significant, this analysis uses the County of San Bernardino and SCAQMD draft local agency tier 3 threshold screening threshold of 3,000 MTCO2e per year for all land use types.

The project will be subject to the latest requirements of the California Green Building and Title 24 Energy Efficiency Standards (currently 2019) which would reduce project-related greenhouse gas emissions.

3.0 Setting

3.1 Existing Physical Setting

The project site is located in the southwestern portion of County of San Bernardino, which is part of the South Coast Air Basin (SCAB) that includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the South Coast Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the project site is located. The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthful air. Strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high

enough to pass over the mountains and ultimately dilute the smog cloudtrap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of Fontana, closest monitoring station to the project site, are in Table 3. Table 3 shows that August is typically the warmest month and December and January are typically the coolest months. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 3: Meteorological Summary

Month	Temperature (˚F)		Average Precipitation (inches)
	Average High	Average Low	
January	66.4	41.5	3.17
February	68.9	42.6	3.27
March	68.5	43.9	4.13
April	72.8	45.9	1.31
May	80.3	51.5	0.31
June	86.5	56.1	0.00
July	95.0	59.5	0.00
August	96.2	62.4	0.28
September	90.0	60.2	0.62
October	80.4	52.5	0.77
November	68.7	43.5	2.59
December	66.0	41.7	2.33
Annual Average	**78.5**	**50.3**	**18.8**

Notes:
[1] Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3120

3.1.2 Local Air Quality

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in the City of Fontana in the Central San Bernardino Valley (Area 34). The nearest air monitoring station to the project site is the Fontana-Arrow Highway Station (Fontana Station). The Fontana Station is located

approximately 0.42 miles southeast of the project site; however, this location does not provide all ambient weather data. Therefore, additional data was pulled from the SCAQMD historical data for the Central San Bernardino Valley (Area 34) for both sulfur dioxide and carbon monoxide to provide the existing levels. Table 4 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table 4: Local Area Air Quality Levels from the Fontana Monitoring Station

Pollutant (Standard)[2]	Year		
	2017	2018	2019
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.137	0.141	0.124
Days > CAAQS (0.09 ppm)	**33**	**38**	**41**
Maximum 8-Hour Concentration (ppm)	0.118	0.111	0.109
Days > NAAQS (0.07 ppm)	**49**	**69**	**67**
Days > CAAQS (0.070 ppm)	**38**	**47**	**46**
Carbon Monoxide:			
Maximum 1-Hour Concentration (ppm)	2.5	2.7	2.7
Days > NAAQS (20 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	2.30	2.50	1.1
Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.069	0.063	0.076
Days > NAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.0039	0.0029	0.0024
Days > CAAQS (0.04 ppm)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration (ug/m^3)	75.3	64.1	88.8
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	**8**	**8**	**11**
Annual Average (ug/m^3)	39.8	34.6	35.3
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour Concentration (ug/m^3)	39.2	29.2	81.3
Days > NAAQS (35 ug/m^3)	**1**	0	**3**
Annual Average (ug/m^3)	12.9	11.1	11.3
Annual > NAAQS (15 ug/m3)	No	No	No
Annual > CAAQS (12 ug/m^3)	**Yes**	No	No

[1] Source: obtained from https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year and /or https://www.arb.ca.gov/adam/topfour/topfour1.php
[2] CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million
[3] No data available.

The monitoring data presented in Table 4 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone
During the 2017 to 2019 monitoring period, the State 1-hour concentration standard for ozone has been exceeded between 33 and 41 days each year at the Fontana Station. The State 8-hour concentration standard for ozone has been exceeded between 38 and 47 days each year over the past three years at the Fontana Station. The Federal 8-hour concentration standard for ozone has been exceeded between 49 and 69 days each year over the past three years at the Fontana Station.

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

Carbon Monoxide
CO is another important pollutant that is due mainly to motor vehicles. The Central San Bernardino Valley Area did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last three years.

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

Sulfur Dioxide
The Central San Bernardino Valley area did not record an exceedance of the State SO_2 standards for the last three years.

Particulate Matter
During the 2017 to 2019 monitoring period, the State 24-hour concentration standard for PM10 was exceeded between 8 and 11 days each year at the Fontana Station. Over the same time period the Federal 24-hour standards for PM10 have not been exceeded at the Fontana Station.

During the 2017 to 2019 monitoring period, the Federal 24-hour standard for PM2.5 was exceeded for one day in 2017 and three days in 2019 at the Fontana Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered

sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard. Table 5 lists the attainment status for the criteria pollutants in the basin.

Table 5: South Coast Air Basin Attainment Status

Pollutant	Standard[1]	Averaging Time	Designation[2]	Attainment Date[3]
1-Hour Ozone	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (not attained)[4]
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[5]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Nonattainment (Extreme)	8/3/2038
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO_2 [6]	NAAQS	1-Hour (0.1 ppm)	Unclassifiable/Attainment	N/A (attained)
	NAAQS	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-hour (0.18 ppm) Annual (0.030 ppm)	Attainment	-
SO_2[7]	NAAQS	1-Hour (75 ppb)	Designations Pending (expect Uncl./Attainment)	N/A (attained)
	NAAQS	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-Hour (150 µg/m^3)	Attainment (Maintenance)[8]	7/26/2013 (attained)
	CAAQS	24-Hour (50 µg/m^3) Annual (20 µg/m^3)	Nonattainment	N/A
PM2.5 [9]	NAAQS	2006 24-Hour (35 µg/m^3)	Nonattainment (Serious)	12/31/2019

	NAAQS	1997 Annual (15.0 µg/m^3)	Attainment	8/24/2016
	NAAQS	2021 Annual (12.0 µg/m^3)	Nonattainment (Serious)	12/31/2025
	CAAQS	Annual (12.0 µg/m^3)	Nonattainment	N/A
Lead	NAAQS	3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial)[10]	12/31/2015

Notes:
Source: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf
[1] NAAQS = National Ambient Air Quality Standards, CAAQS = California Ambient Air Quality Standards
[2] U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.
[3] A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.
[4] 1-hour O3 standard (0.12 ppm) was revoked, effective June 15, 2005 ; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements.
[5] 1997 8-hour O3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O3 standard is still subject to anti-backsliding requirements.
[6] New NO2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO2 standard retained.
[7] The 1971 annual and 24-hour SO2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.
[8] Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.
[9] Attainment deadline for the 2006 24-Hour PM2.5 NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM2.5 standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 µg/m3. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.
[10] Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect redesignation to attainment based on current monitoring data.

3.2 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NO_2) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: https://www.arb.ca.gov/cc/inventory/data/data.htm

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N_20),also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_20.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH_4 is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Notes:

1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

4.0 Modeling Parameters and Assumptions

4.1 Construction

Typical emission rates from construction activities were obtained from CalEEMod Version 2016.3.2 CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for the southwestern portion of Riverside County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed project as indicated in Table 1. Per the phasing plan prepared for the proposed project Serena Village North is to be operational late 2022, Serena Village south late 2023, and Serena Village north early 2024. Grading of the entire project site (Serena Village North, Serena Village South, and Serena Village East) is to occur all at once at the beginning of construction along with all project demolition. To account for this, a separate CalEEMod run was calculated for grading and demolition of the entire approximately 11.54-acre project site (3.77 acres for Serena Village North, 6.65 acres for Serena Village South, and 1.12 acres for Serena Village East). Therefore, the phases of the construction activities which have been analyzed below are: 1) demolition, 2) grading, 3) building, 4) paving, and 5) architectural coating for Serena Village North; 1) building, 2) paving, and 3) architectural coating for Serena Village South; and 1) building, 2) paving, and 3) architectural coating for Serena Village North. The entire project site is estimated to include approximately 1,232 cubic yards of export during grading. It was assumed that, other than site grading and demolition, construction of the three villages would not overlap. For details on construction modeling and construction equipment for each phase, please see Appendix A.

The project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area (approximately 3.77 acres for Serena Village North, 6.65 acres for Serena Village North, and 1.12 acres for Serena Village East for a total of approximately 11.54 acres) and the fact that the project won't export more than 5,000 cubic yards of material a day a Fugitive Dust Control Plan or Large Operation Notification would not be required.

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

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, hearths, from landscaping emissions, and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project are based upon the trip generation rates give in the project-specific trip generation analysis (TJW Engineering, Inc.) which uses the ITE 10th Trip Generation Manual. The trip generation analysis shows a trip generation rate of 7.32 trips per dwelling unit per day for the proposed multi-family residential uses.

The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A and B for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less for buildings and 100 grams per liter or less for parking lot striping. No changes were made to the CalEEMod architectural coating default values.

Energy Usage

2016.3.2 CalEEMod defaults were utilized.

4.3 Localized Construction Analysis

The SCAQMD has published a "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

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

The construction equipment showing the equipment associated with the maximum area of disturbance is shown in Table 7.

Table 7: Construction Equipment Assumptions[1]

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Demolition[2]	Rubber Tired Dozers	2	0.5	1
Total Per Phase				1
Grading[2]	Graders	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
	Scrapers	2	1	2
	Tractors/Loaders/Backhoes	2	0.5	1.0
Total Per Phase				4

Notes:

[1.] Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2

[2] Includes grading and demolition o f the entire project site (Serena Village North, Serena Village South, and Serena Village East).

As shown in Table 7, the maximum number of acres disturbed in a day would be 4 acres during grading of the entire project site (Serena Village North, Serena Village South, and Serena Village East).

The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds

were based on the Central San Bernardino Valley source receptor area (SRA 34) and a disturbance of 2 acres per day (to be conservative) at a distance of 25 meters (82 feet). According to LST methodology, any receptor located closer than 25 meters should be based on the 25 meter threshold. The closest receptors are adjacent to the south, north, east and west of the overall project site area.

4.4 Localized Operational Analysis

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

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The 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.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;

c) Expose sensitive receptors to substantial pollutant concentrations; or

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the basin.

5.1.2 Regional Significance Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions are established for the Basin:

- 75 pounds per day (lbs/day) of VOC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM_{10}
- 55 lbs/day of $PM_{2.5}$
- 150 lbs/day of SO_2

Projects in the basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under SCAQMD guidelines.

5.1.3 Regional Significance Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the basin are as follows:

- 55 pounds per day (lbs/day) of VOC
- 55 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM_{10}
- 55 lbs/day of $PM_{2.5}$
- 150 lbs/day of SO_2

Local Microscale Concentration Standards 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:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

5.1.4 Thresholds for Localized Significance

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO2, CO, PM10, and PM2.5.

The emission thresholds were calculated based on the Central San Bernardino Valley source receptor area (SRA 34) and a disturbance of 2 acres per day (to be conservative) at a distance of 25 meters (82 feet), for construction.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

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 greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines 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. As previously discussed (Section 2.2.4 of this report), SCAQMD has drafted interim thresholds. The screening threshold of 3,000 MTCO2e per year for all land uses was used in this analysis.

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate Rule 402 and 403. Rule 402 and 403 (fugitive dust) are not considered mitigation measures as the project by default is required to incorporate these rules during construction.

6.1.1 Regional Construction Emissions

The construction-related criteria pollutant emissions are shown in Table 8 for Serena Village North, in Table 9 for Serena Village South, and in Table 10 for Serena Village East. As stated previously, grading of the entire project site (Serena Village North, Serena Village South, and Serena Village East) is to occur all at once at the beginning of construction along with all project demolition. In addition, it has been assumed that other than demolition and site grading, construction of the three Villages would not overlap. As shown in Tables 8 through 10, the construction emissions for each of the three Villages would not exceed the SCAQMD's daily emission thresholds at the regional level, and therefore would be considered less than significant.

Table 8: Regional Significance - Construction Emissions (pounds/day) for Serena Village North

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Demolition[2]						
On-Site[3]	3.17	31.44	21.57	0.04	2.14	1.53
Off-Site[4]	0.09	0.68	0.72	0.00	0.22	0.06
Total	**3.26**	**32.12**	**22.28**	**0.04**	**2.36**	**1.59**
Grading[2]						
On-Site[3]	3.62	38.84	29.04	0.06	10.31	5.10
Off-Site[4]	0.12	0.91	0.90	0.01	0.30	0.08
Total	**3.74**	**39.76**	**29.94**	**0.07**	**10.61**	**5.18**
Building Construction						
On-Site[3]	1.71	15.62	16.36	0.03	0.81	0.76
Off-Site[4]	0.51	2.46	3.98	0.02	1.21	0.33
Total	**2.22**	**18.08**	**20.34**	**0.04**	**2.02**	**1.09**
Paving						
On-Site[3]	1.17	9.52	12.19	0.02	0.49	0.45
Off-Site[4]	0.10	0.06	0.76	0.00	0.22	0.06
Total	**1.26**	**9.58**	**12.95**	**0.02**	**0.71**	**0.51**
Architectural Coating						
On-Site[3]	37.36	1.41	1.81	0.00	0.08	0.08
Off-Site[4]	0.09	0.06	0.72	0.00	0.21	0.06
Total	**37.45**	**1.46**	**2.54**	**0.00**	**0.30**	**0.14**
Total of overlapping phases[5]	**40.93**	**29.12**	**35.83**	**0.07**	**3.03**	**1.74**
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	0.09	0.68	0.72	0.00	0.22	0.06

Notes:
[1] Source: CalEEMod Version 2016.3.2

[2] Demolition and grading include emissions from the entire site (Serena Village North, Serena Village South, & Serena Village East) as all associated project demolition and grading of the entire site is to occur at once during the first phase of the project.
[3] On-site emissions from equipment operated on-site that is not operated on public roads.
[4] Off-site emissions from equipment operated on public roads.
[5] Construction, architectural coatings and paving phases may overlap.

Table 9: Regional Significance - Construction Emissions (pounds/day) for Serena Village South

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Building Construction						
On-Site[2]	1.71	15.62	16.36	0.03	0.81	0.76
Off-Site[3]	0.85	4.19	6.62	0.03	2.02	0.55
Total	**2.55**	**19.81**	**22.98**	**0.05**	**2.83**	**1.31**
Paving						
On-Site[2]	1.34	10.19	14.58	0.02	0.51	0.47
Off-Site[3]	0.07	0.04	0.52	0.00	0.17	0.05
Total	**1.41**	**10.23**	**15.11**	**0.02**	**0.68**	**0.51**
Architectural Coating						
On-Site[2]	40.95	1.30	1.81	0.00	0.07	0.07
Off-Site[3]	0.14	0.08	1.08	0.00	0.35	0.09
Total	**41.09**	**1.39**	**2.89**	**0.01**	**0.42**	**0.16**
Total of overlapping phases[4]	**45.05**	**31.42**	**40.99**	**0.08**	**3.93**	**1.99**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2016.3.2
[2] On-site emissions from equipment operated on-site that is not operated on public roads.
[3] Off-site emissions from equipment operated on public roads.
[4] Construction, architectural coatings and paving phases may overlap.

Table 10: Regional Significance - Construction Emissions (pounds/day) for Serena Village East

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Building Construction						
On-Site[2]	2.54	20.58	21.87	0.04	0.92	0.88
Off-Site[3]	0.14	0.57	1.08	0.00	0.36	0.10
Total	**2.68**	**21.15**	**22.95**	**0.04**	**1.28**	**0.98**
Paving						
On-Site[2]	0.72	5.86	8.83	0.01	0.28	0.26
Off-Site[3]	0.05	0.03	0.42	0.00	0.15	0.04
Total	**0.78**	**5.89**	**9.25**	**0.01**	**0.43**	**0.30**
Architectural Coating						
On-Site[2]	26.58	1.22	1.81	0.00	0.06	0.06
Off-Site[3]	0.03	0.01	0.20	0.00	0.07	0.02
Total	**26.60**	**1.23**	**2.01**	**0.00**	**0.13**	**0.08**
Total of overlapping phases[4]	**30.06**	**28.27**	**34.20**	**0.06**	**1.83**	**1.36**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds	No	No	No	No	No	No

Notes:

[1] Source: CalEEMod Version 2016.3.2
[2] On-site emissions from equipment operated on-site that is not operated on public roads.
[3] Off-site emissions from equipment operated on public roads.
[4] Construction, architectural coatings and paving phases may overlap.

6.1.2 Localized Construction Emissions

The data provided in Table 11 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Table 11: Localized Significance – Construction

Phase	On-Site Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Serena Village North				
Demolition	31.44	21.57	2.14	1.53
Grading	38.84	29.04	10.31	5.10
Building Construction	15.62	16.36	0.81	0.76
Paving	9.52	12.19	0.49	0.45
Architectural Coating	1.41	1.81	0.08	0.08
Total of overlapping phases	26.55	30.37	1.38	1.29
SCAQMD Threshold for 25 meters (82 feet) or less[2]	**170**	**972**	**7**	**4**
Exceeds Threshold?	No	No	No	No
Serena Village South				
Building Construction	15.62	16.36	0.81	0.76
Paving	10.19	14.58	0.51	0.47
Architectural Coating	1.30	1.81	0.07	0.07
Total of overlapping phases	27.11	32.76	1.39	1.30
SCAQMD Threshold for 25 meters (82 feet) or less[2]	**170**	**972**	**7**	**4**
Exceeds Threshold?	No	No	No	No
Serena Village East				
Building Construction	20.58	21.87	0.92	0.88
Paving	5.86	8.83	0.28	0.26
Architectural Coating	1.22	1.81	0.06	0.06
Total of overlapping phases	27.66	32.50	1.26	1.20
SCAQMD Threshold for 25 meters (82 feet) or less[2]	**170**	**972**	**7**	**4**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for two acres, to be conservative, in Central San Bernardino Valley Source Receptor Area (SRA 34). Project will disturb a maximum of 4 acres per day (see Table 7).
[2] The nearest sensitive receptors are located adjacent to the south, west, and north of the project site area, however according to LST methodology any receptor located closer than 25 meters should be based on the 25-meter threshold.

6.1.3 Construction-Related Human Health Impacts

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

6.1.4 Odors

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

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

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

6.1.5 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited number of heavy-duty construction equipment and construction schedule, the proposed project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2022 for Serena Village North, year 2023 for Serena Village South, and year 2024 for Serena Village East. The summer and winter emissions created by the proposed project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 12.

Table 12: Regional Significance - Unmitigated Operational Emissions (lbs/day)

Activity	Pollutant Emissions (pounds/day)[1]					
	VOC	NOx	CO	SO2	PM10	PM2.5
Serena Village North						
Area Sources[2]	3.44	1.13	6.32	0.01	0.12	0.12
Energy Usage[3]	0.03	0.28	0.12	0.00	0.02	0.02
Mobile Sources[4]	1.09	7.06	13.00	0.05	3.82	1.05
Total Emissions	**4.57**	**8.47**	**19.44**	**0.06**	**3.96**	**1.19**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No
Serena Village South						
Area Sources[2]	5.29	1.78	9.96	0.01	0.19	0.19
Energy Usage[3]	0.05	0.44	0.19	0.00	0.04	0.04
Mobile Sources[4]	1.56	8.68	18.90	0.08	6.02	1.64
Total Emissions	**6.90**	**10.90**	**29.05**	**0.09**	**6.24**	**1.86**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No
Serena Village East						
Area Sources[2]	0.99	0.37	2.04	0.00	0.04	0.04
Energy Usage[3]	0.01	0.09	0.04	0.00	0.01	0.01
Mobile Sources[4]	0.30	1.74	3.65	0.02	1.24	0.34
Total Emissions	**1.30**	**2.20**	**5.73**	**0.02**	**1.28**	**0.38**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Totals for Serena Village North, South & East	12.77	21.56	54.22	0.17	11.48	3.43
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No
Notes:						

[1] Source: CalEEMod Version 2016.3.2
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from on-site natural gas usage.
[4] Mobile sources consist of emissions from vehicles and road dust.

Table 12 provides the project's unmitigated operational emissions for each Village individually as well as the operational emissions of the total project (Serena Village North, Serena Village South, and Serena Village East). Table 12 shows that the project does not exceed the SCAQMD daily emission threshold and regional operational emissions are considered to be less than significant.

Table 13: Overlapping Regional Construction and Operational Emissions1

Activity	Pollutant Emissions (pounds/day)					
	VOC	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Total for operation of Serena Village North plus construction Serena Village South	49.62	39.89	60.43	0.15	7.89	3.18
Total for operation of Serena Village North and Serena Village South plus construction Serena Village East	38.26	41.37	68.98	0.17	9.36	3.60
SCAQMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Overlapping emissions calculated from the highest emissions levels during construction and the active operational phase(s).

As shown in Table 13, when the overlapping emissions from the operational phases that have been completed and the phases undergoing construction are added together, project emissions still do not exceed SCAQMD daily thresholds.

6.2.2 Localized Operational Emissions

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

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

6.2.3 Operations-Related Human Health Impacts

As stated previously, regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air

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

6.3 CO Hot Spot Emissions

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented in above in Section 5.0.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section 5.0, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

Micro-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Riverside County. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts will be below thresholds.

The project-specific trip generation analysis showed that the project is only anticipated to generate 1,120 daily vehicle trips. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. The volume of traffic at project buildout would be well below 100,000 vehicles and below the necessary volume to even get close to causing a violation of the CO standard. Therefore no CO "hot spot" modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

6.4 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The project does not exceed any of the thresholds of significance and therefore is considered less than significant.

6.5 Air Quality Compliance

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

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

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

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

A. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this Air Analysis, neither short-term construction impacts, nor long-term operations will result in significant impacts based on the SCAQMD regional and local thresholds of significance.

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

B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016-2040 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, 2016, includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the County of San Bernardino Land Use Plan defines the assumptions that are represented in the AQMP.

The southern portion of the project site is currently designated as multiple residential on the County of San Bernardino Land Use Plan (map FH29A Fontana). In addition, the City of Fontana General Plan Land Use map designates the project site as Walkable Mixed Use Corridor & Downtown (WMXU-1). As stated in the City of Fontana General Plan, the WMXU-1 land use designation allows for a variety of medium- to high-density residential types, retail and services, office, entertainment, education, civic, and open space with residential densities ranging from three to 39 dwelling units per acre. The proposed project is consistent with both the County of San Bernardino and the City of Fontana's current land use designations. Therefore, it is not anticipated that the project would exceed the AQMP assumptions for the project site, and is found to be consistent with the AQMP for the second criterion.

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

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 14 for Serena Village North, Serena Village South, Serena Village East and for the entire project (all three Villages). The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 18.44 metric tons of CO_2e per year for Serena Village North, 18.89 metric tons of CO_2e per year for Serena Village South, 3.94 metric tons of CO_2e per year for Serena Village East, and 41.27 metric tons of CO_2e per year for the entire project (Serena Village North, Serena Village South, and Serena Village East). Annual CalEEMod output calculations are provided in Appendix B.

Table 14: Construction Greenhouse Gas Emissions

Activity	Emissions ($MTCO_2e$)[1]		
	Onsite	**Offsite**	**Total**
Serena Village North[2]			
Demolition	34.2	3.4	37.6
Grading	82.5	7.1	89.6
Building Construction	250.6	153.8	404.4
Paving	14.9	1.6	16.4
Coating	3.2	2.1	5.3
Total	385.4	168.0	553.3
Averaged over 30 years[3]	13	6	18.44
Serena Village South			
Building Construction	268.2	268.1	536.2
Paving	20.2	1.3	21.5
Coating	4.5	4.6	9.1
Total	292.8	273.9	566.7
Averaged over 30 years[3]	10	9	18.89
Serena Village East			
Building Construction	98.1	12.1	110.2
Paving	5.9	0.5	6.5
Coating	1.3	0.2	1.5
Total	105.3	12.8	118.1
Averaged over 30 years[3]	4	0	3.94
Total for Serena Village North, South, & East	783.5	454.7	1,238.2
Averaged over 30 years[2]	26	15	41.27

Notes:
[1.] $MTCO_2e$=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
[2.] Construction of Serena Village North includes emissions from demolition and grading of the entire project site (Serena Village North, South, and East).
[3.] The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD.
* CalEEMod output (Appendix B)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the project. The unmitigated operational emissions for Serena Village North are 1,078.54 metric tons of CO_2e per year; for Serena Village South are 1,650.38 metric tons of CO_2e per year; for Serena Village East are 333.13 metric tons of CO_2e per year; and for the entire project (all three Villages combined) are 3,062.05 metric tons of CO_2e per year (as shown in Table 15). Therefore, each of the Villages individually do not exceed the San Bernardino County and SCAQMD draft screening threshold for all land uses of 3,000 metric tons of CO_2e per year; however, the combined emission from all three Villages (Serena Village North, Serena Village South, and Serena Village East) would exceed the SCAQMD screening threshold for all land uses of 3,000 metric tons of CO_2e per year Therefore, as the total emissions for the entire proposed project combined would exceed the screening threshold of 3,000 MTCO2e per year, emissions reductions are required.

<Table 15, next page>

Table 15: Opening Year Unmitigated Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year)[1]					
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	CO_2e
Serena Village North						
Area Sources[2]	0.00	16.54	16.54	0.00	0.00	16.66
Energy Usage[3]	0.00	175.37	175.37	0.01	0.00	176.14
Mobile Sources[4]	0.00	813.91	813.91	0.04	0.00	814.96
Solid Waste[5]	6.63	0.00	6.63	0.39	0.00	16.42
Water[6]	1.47	29.52	30.98	0.15	0.00	35.92
Construction[7]	0.00	18.35	18.35	0.00	0.00	18.44
Total Emissions	8.10	1,053.70	1,061.79	0.60	0.01	**1,078.54**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**No**
Serena Village South						
Area Sources[2]	0.00	26.09	26.09	0.00	0.00	26.28
Energy Usage[3]	0.00	277.84	277.84	0.01	0.00	279.06
Mobile Sources[4]	0.00	1,242.14	1,242.14	0.06	0.00	1,243.57
Solid Waste[5]	10.46	0.00	10.46	0.62	0.00	25.91
Water[6]	2.32	46.56	48.87	0.24	0.01	56.66
Construction[7]	0.00	18.82	18.82	0.00	0.00	18.89
Total Emissions	12.77	1,611.46	1,624.24	0.93	0.01	**1,650.38**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**No**
Serena Village East						
Area Sources[2]	0.00	5.36	5.36	0.00	0.00	5.40
Energy Usage[3]	0.00	56.64	56.64	0.00	0.00	56.89
Mobile Sources[4]	0.00	249.67	249.67	0.01	0.00	249.95
Solid Waste[5]	2.15	0.00	2.15	0.13	0.00	5.32
Water[6]	0.48	9.56	10.04	0.05	0.00	11.64
Construction[7]	0.00	3.92	3.92	0.00	0.00	3.94
Total Emissions	2.62	325.15	327.77	0.19	0.00	**333.13**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**No**
Total Emissions for Serena Village North, South, & East						**3,062.05**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**Yes**

Notes:
[1] Source: CalEEMod Version 2016.3.2
[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.
[3] Energy usage consist of GHG emissions from electricity and natural gas usage.
[4] Mobile sources consist of GHG emissions from vehicles.
[5] Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction GHG emissions based on a 30 year amortization rate.

The data provided in Table 16 shows that with compliance with regulation and incorporation of sustainable design (compliance with regulation is shown as "mitigation" in the CalEEMod output), the proposed project's total emissions would be reduced to 833.95 metric tons of CO_2e per year for Serena Village North; 1,303.64 metric tons of CO_2e per year for Serena Village South; 255.85 metric tons of CO_2e per year for Serena Village East; and 2,393.44 metric tons of CO_2e per year for the entire project (all three Villages combined). The reduction comes from incorporation of the following CAPCOA-based reduction measures and regulatory compliance: utilizing low-flow fixtures that would reduce indoor water demand by 20% per CALGreen Standard; and incorporation of the CAPCOA-based land use and site enhancement reduction measures: LUT-1 Increased Density, LUT-5 Increase Transit Accessibility, and SDT-1 Improve Pedestrian Network (see CalEEMod Annual Output in Appendix B for details).

<Table 16, next page>

Table 16: Opening Year Project-Related Greenhouse Gas Emissions With Incorporation of Design Features/Regulation

Category	Greenhouse Gas Emissions (Metric Tons/Year)[1]					
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	CO_2e
Serena Village North						
Area Sources[2]	0.00	16.54	16.54	0.00	0.00	16.66
Energy Usage[3]	0.00	175.37	175.37	0.01	0.00	176.14
Mobile Sources[4]	0.00	588.71	588.71	0.03	0.00	589.57
Solid Waste[5]	1.66	0.00	1.66	0.10	0.00	4.11
Water[6]	1.17	25.68	26.85	0.12	0.00	30.81
Construction[7]	0.00	14.14	14.14	0.00	0.00	18.44
Sequestration[8]						-1.77
Total Emissions	2.83	820.44	823.27	0.26	0.01	**833.95**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**No**
Serena Village South						
Area Sources[2]	0.00	26.09	26.09	0.00	0.00	26.28
Energy Usage[3]	0.00	277.84	277.84	0.01	0.00	279.06
Mobile Sources[4]	0.00	927.04	927.04	0.05	0.00	928.23
Solid Waste[5]	2.61	0.00	2.61	0.15	0.00	6.48
Water[6]	1.85	40.50	42.36	0.19	0.00	48.60
Construction[7]	0.00	18.82	18.82	0.00	0.00	18.89
Sequestration[8]						-3.89
Total Emissions	4.47	1,290.31	1,294.78	0.41	0.01	**1,303.64**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**No**
Serena Village East						
Area Sources[2]	0.00	5.36	5.36	0.00	0.00	5.40
Energy Usage[3]	0.00	56.64	56.64	0.00	0.00	56.89
Mobile Sources[4]	0.00	178.70	178.70	0.01	0.00	178.93
Solid Waste[5]	0.54	0.00	0.54	0.03	0.00	1.33
Water[6]	0.38	8.32	8.70	0.04	0.00	9.98
Construction[7]	0.00	3.92	3.92	0.00	0.00	3.94
Sequestration[8]						-0.60
Total Emissions	0.92	252.93	253.85	0.08	0.00	**288.85**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000**
Exceeds Threshold?						**No**
Total for Serena Village North, South, & East						**2,393.44**
SCAQMD Draft and San Bernardino County Screening Threshold						**3,000.00**
Exceeds Threshold?						**No**

Notes:
[1] Source: CalEEMod Version 2016.3.2
[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.
[3] Energy usage consist of GHG emissions from electricity and natural gas usage.
[4] Mobile sources consist of GHG emissions from vehicles.
[5] Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction GHG emissions based on a 30 year amortization rate.

As shown in Table 16, with incorporation of regulatory compliance and credit for reductions due to CAPCOA location-based efficiency measures, the proposed project would no longer exceed San Bernardino County and SCAQMD draft screening threshold of 3,000 MTCO2e per year for all land uses.

7.3 Greenhouse Gas Plan Consistency

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

According to the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*, "all development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MTCO2e per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions." The Reduction Plan also states that "a review standard of 3,000 MTCO2e per year will be used to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions." Furthermore, "for projects exceeding 3,000 MTCO2e per year of GHG emissions, the County will use Screening Tables as a tool to assist with calculating GHG reduction measures and the determination of a significance finding. Projects that garner a 100 or greater points would not require quantification of project specific GHG emissions. The point system was devised to ensure to Project compliance with the reduction measures in the GHG Plan such that the GHG emissions from new development, when considered together with those existing development, will allow the County to meet its 2020 target and support reductions in GHG emissions beyond 2020. Consistent with the CEQA Guidelines, such projects are consistent with the Plan and therefore will be determined to have a less than significant individual and cumulative impact for GHG emissions.

As discussed previously, with incorporation of regulatory compliance and credit for reductions due to CAPCOA location-based efficiency measures, the project's operational GHG emissions do not exceed the County's screening threshold of 3,000 MTCO2e per year. Therefore, the project does not need to accrue points using the screening tables and is consistent with the GHG Plan pursuant to Section 15183.5 of the State CEQA Guidelines. The project is expected to comply with the performance standards for residential uses as detailed in the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan* (see Appendix C for details on the screening table for residential projects). Therefore, with incorporation of regulatory compliance and credit for reductions due to CAPCOA location-based efficiency measures, the proposed project will not result in substantial emissions of greenhouse gases and will not conflict with the County of San Bernardino CAP, or the goals of AB-32 or SB-32.

8.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association
2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board
2008 Resolution 08-43

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

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

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

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

2018 Historical Air Quality, Top 4 Summary

County of San Bernardino
2007 County of San Bernardino 2007 General Plan, March 13 (amended April 24, 2014).

2010 San Bernardino County Land Use Plan Map FH29A Fontana, April 22.

2011 County of San Bernardino Greenhouse Gas Emissions Reduction Plan.

Governor's Office of Planning and Research
2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District
1993 CEQA Air Quality Handbook

2005 Rule 403 Fugitive Dust
2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2011 Appendix A Calculation Details for CalEEMod

2012 Final 2012 Air Quality Management Plan

2016 Final 2016 Air Quality Management Plan

TJW Engineering, Inc.
2021 Tract 20016 Trip Generation Analysis, County of San Bernardino. April 13.

Appendix A:

CalEEMod Daily Emission Output

04422101 - Serena Village - CONSTRUCTION ANALYSIS ONLY

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	11.54	Acre	11.54	502,682.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CONSTRUCTION ANALYSIS ONLY - Grading/demolition of entire site to occur in beginning of construction (Serena Village North, South, & East).

Land Use - Grading/demo of entire site to occur at beginning of construction. Includes 3.77ac Serena Village North (P1), 6.65ac Serena Village South (P2), & 1.12ac Serena Village East (P3) for total 11.54 ac to be graded.

Construction Phase - Grading/Demo only for entire site at beginning of construction (bldg construction, paving, & AC calculated per each phase separately). Per phasing plan construction to begin Dec 2021.

Grading - 1,232 CY export during grading.

Demolition - ~12,000 SF demolition bldgs/asphalt/concrete.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	1,232.00

2.0 Emissions Summary

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					
2021	3.2577	32.1150	22.2832	0.0426	0.8064	1.5542	2.3606	0.1471	1.4438	1.5909	0.0000	4,138.9842	4,138.9842	1.0717	0.0000	4,165.7775
2022	3.7426	39.7507	29.9414	0.0673	8.9681	1.6385	10.6065	3.6753	1.5075	5.1828	0.0000	6,554.1796	6,554.1796	1.9674	0.0000	6,603.3635
Maximum	**3.7426**	**39.7507**	**29.9414**	**0.0673**	**8.9681**	**1.6385**	**10.6065**	**3.6753**	**1.5075**	**5.1828**	**0.0000**	**6,554.1796**	**6,554.1796**	**1.9674**	**0.0000**	**6,603.3635**

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					
2021	3.2577	32.1150	22.2832	0.0426	0.8064	1.5542	2.3606	0.1471	1.4438	1.5909	0.0000	4,138.9842	4,138.9842	1.0717	0.0000	4,165.7775
2022	3.7426	39.7507	29.9414	0.0673	8.9681	1.6385	10.6065	3.6753	1.5075	5.1828	0.0000	6,554.1796	6,554.1796	1.9674	0.0000	6,603.3635
Maximum	**3.7426**	**39.7507**	**29.9414**	**0.0673**	**8.9681**	**1.6385**	**10.6065**	**3.6753**	**1.5075**	**5.1828**	**0.0000**	**6,554.1796**	**6,554.1796**	**1.9674**	**0.0000**	**6,603.3635**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2021	12/28/2021	5	20	
2	Grading	Grading	1/12/2022	2/22/2022	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 11.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Scrapers	2	8.00	367	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
Demolition	6	15.00	0.00	55.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	122.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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					
Fugitive Dust					0.5906	0.0000	0.5906	0.0894	0.0000	0.0894			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.5906**	**1.5513**	**2.1420**	**0.0894**	**1.4411**	**1.5305**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0163	0.6272	0.0972	2.1400e-003	0.0481	1.7700e-003	0.0499	0.0132	1.7000e-003	0.0149		226.9272	226.9272	0.0122		227.2313
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	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0926**	**0.6744**	**0.7181**	**3.7900e-003**	**0.2158**	**2.8400e-003**	**0.2186**	**0.0577**	**2.6900e-003**	**0.0603**		**391.0392**	**391.0392**	**0.0168**		**391.4601**

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					0.5906	0.0000	0.5906	0.0894	0.0000	0.0894			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.5906**	**1.5513**	**2.1420**	**0.0894**	**1.4411**	**1.5305**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0163	0.6272	0.0972	2.1400e-003	0.0481	1.7700e-003	0.0499	0.0132	1.7000e-003	0.0149		226.9272	226.9272	0.0122		227.2313
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	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0926**	**0.6744**	**0.7181**	**3.7900e-003**	**0.2158**	**2.8400e-003**	**0.2186**	**0.0577**	**2.6900e-003**	**0.0603**		**391.0392**	**391.0392**	**0.0168**		**391.4601**

3.3 Grading - 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					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0228	0.8507	0.1393	3.1200e-003	0.0712	2.1700e-003	0.0733	0.0195	2.0800e-003	0.0216		331.8486	331.8486	0.0176		332.2876
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	0.0949	0.0565	0.7606	2.1200e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		210.9205	210.9205	5.5900e-003		211.0601
Total	**0.1177**	**0.9072**	**0.8999**	**5.2400e-003**	**0.2947**	**3.5600e-003**	**0.2983**	**0.0788**	**3.3600e-003**	**0.0822**		**542.7691**	**542.7691**	**0.0232**		**543.3477**

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0228	0.8507	0.1393	3.1200e-003	0.0712	2.1700e-003	0.0733	0.0195	2.0800e-003	0.0216		331.8486	331.8486	0.0176		332.2876
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	0.0949	0.0565	0.7606	2.1200e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		210.9205	210.9205	5.5900e-003		211.0601
Total	**0.1177**	**0.9072**	**0.8999**	**5.2400e-003**	**0.2947**	**3.5600e-003**	**0.2983**	**0.0788**	**3.3600e-003**	**0.0822**		**542.7691**	**542.7691**	**0.0232**		**543.3477**

04422101 - Serena Village - CONSTRUCTION ANALYSIS ONLY

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	11.54	Acre	11.54	502,682.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CONSTRUCTION ANALYSIS ONLY - Grading/demolition of entire site to occur in beginning of construction (Serena Village North, South, & East).

Land Use - Grading/demo of entire site to occur at beginning of construction. Includes 3.77ac Serena Village North (P1), 6.65ac Serena Village South (P2), & 1.12ac Serena Village East (P3) for total 11.54 ac to be graded.

Construction Phase - Grading/Demo only for entire site at beginning of construction (bldg construction, paving, & AC calculated per each phase separately). Per phasing plan construction to begin Dec 2021.

Grading - 1,232 CY export during grading.

Demolition - ~12,000 SF demolition bldgs/asphalt/concrete.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	1,232.00

2.0 Emissions Summary

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					
2021	3.2586	32.1198	22.1853	0.0424	0.8064	1.5542	2.3606	0.1471	1.4438	1.5909	0.0000	4,116.1496	4,116.1496	1.0722	0.0000	4,142.9547
2022	3.7441	39.7551	29.8231	0.0670	8.9681	1.6385	10.6065	3.6753	1.5075	5.1828	0.0000	6,523.6984	6,523.6984	1.9682	0.0000	6,572.9032
Maximum	**3.7441**	**39.7551**	**29.8231**	**0.0670**	**8.9681**	**1.6385**	**10.6065**	**3.6753**	**1.5075**	**5.1828**	**0.0000**	**6,523.6984**	**6,523.6984**	**1.9682**	**0.0000**	**6,572.9032**

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					
2021	3.2586	32.1198	22.1853	0.0424	0.8064	1.5542	2.3606	0.1471	1.4438	1.5909	0.0000	4,116.1496	4,116.1496	1.0722	0.0000	4,142.9547
2022	3.7441	39.7551	29.8231	0.0670	8.9681	1.6385	10.6065	3.6753	1.5075	5.1828	0.0000	6,523.6984	6,523.6984	1.9682	0.0000	6,572.9032
Maximum	**3.7441**	**39.7551**	**29.8231**	**0.0670**	**8.9681**	**1.6385**	**10.6065**	**3.6753**	**1.5075**	**5.1828**	**0.0000**	**6,523.6984**	**6,523.6984**	**1.9682**	**0.0000**	**6,572.9032**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2021	12/28/2021	5	20	
2	Grading	Grading	1/12/2022	2/22/2022	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 11.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Scrapers	2	8.00	367	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
Demolition	6	15.00	0.00	55.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	122.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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					
Fugitive Dust					0.5906	0.0000	0.5906	0.0894	0.0000	0.0894			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.5906**	**1.5513**	**2.1420**	**0.0894**	**1.4411**	**1.5305**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0171	0.6296	0.1110	2.0800e-003	0.0481	1.8000e-003	0.0499	0.0132	1.7200e-003	0.0149		220.9800	220.9800	0.0132		221.3103
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	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0935**	**0.6792**	**0.6203**	**3.5600e-003**	**0.2158**	**2.8700e-003**	**0.2187**	**0.0577**	**2.7100e-003**	**0.0604**		**368.2047**	**368.2047**	**0.0173**		**368.6374**

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					0.5906	0.0000	0.5906	0.0894	0.0000	0.0894			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.5906**	**1.5513**	**2.1420**	**0.0894**	**1.4411**	**1.5305**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

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	0.0171	0.6296	0.1110	2.0800e-003	0.0481	1.8000e-003	0.0499	0.0132	1.7200e-003	0.0149		220.9800	220.9800	0.0132		221.3103
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	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0935**	**0.6792**	**0.6203**	**3.5600e-003**	**0.2158**	**2.8700e-003**	**0.2187**	**0.0577**	**2.7100e-003**	**0.0604**		**368.2047**	**368.2047**	**0.0173**		**368.6374**

3.3 Grading - 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					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0239	0.8522	0.1588	3.0400e-003	0.0712	2.2100e-003	0.0734	0.0195	2.1100e-003	0.0216		323.0586	323.0586	0.0191		323.5356
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	0.0954	0.0594	0.6228	1.9000e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		189.2292	189.2292	4.9000e-003		189.3518
Total	**0.1192**	**0.9116**	**0.7816**	**4.9400e-003**	**0.2947**	**3.6000e-003**	**0.2983**	**0.0788**	**3.3900e-003**	**0.0822**		**512.2878**	**512.2878**	**0.0240**		**512.8874**

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0239	0.8522	0.1588	3.0400e-003	0.0712	2.2100e-003	0.0734	0.0195	2.1100e-003	0.0216		323.0586	323.0586	0.0191		323.5356
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	0.0954	0.0594	0.6228	1.9000e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		189.2292	189.2292	4.9000e-003		189.3518
Total	**0.1192**	**0.9116**	**0.7816**	**4.9400e-003**	**0.2947**	**3.6000e-003**	**0.2983**	**0.0788**	**3.3900e-003**	**0.0822**		**512.2878**	**512.2878**	**0.0240**		**512.8874**

04422101- Serena Village - Serena Village North (Phase 1)

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.02	Acre	1.02	44,431.20	0
Parking Lot	32.00	Space	1.32	57,499.20	0
Apartments Low Rise	71.00	Dwelling Unit	1.43	143,905.00	203

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101- Serena Village - Serena Village North (Phase 1) - San Bernardino-South Coast County, Summer

Project Characteristics - Serena Village North (Phase 1) - includes project Phases 1-6

Land Use - Serena Village North (Phases 1-6) - 3.77ac w/ 71 units (143,905sf bldgs w/ 62,091sf (~1.43ac) ftprnt), 32 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~1.32 ac)), & rmndr lndsc (~1.02 ac)

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21); therefore, Serena Village North construction from 11/23/21 - 11/2022 (per phasing plan).

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~50 new trees to be planted in Serena Village North.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.08 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 71 DU/ 3.77 net acres = 18.83 DU/acre. Sidewalks on/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

Architectural Coating -

04422101- Serena Village - Serena Village North (Phase 1) - San Bernardino-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	25.00
tblConstructionPhase	NumDays	230.00	215.00
tblFireplaces	NumberGas	60.35	63.90
tblFireplaces	NumberWood	3.55	0.00
tblLandUse	LandUseSquareFeet	12,800.00	57,499.20
tblLandUse	LandUseSquareFeet	71,000.00	143,905.00
tblLandUse	LotAcreage	0.29	1.32
tblLandUse	LotAcreage	4.44	1.43
tblSequestration	NumberOfNewTrees	0.00	50.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	3.55	0.00
tblWoodstoves	NumberNoncatalytic	3.55	0.00

2.0 Emissions Summary

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					
2022	40.9203	29.1169	35.8317	0.0693	1.6403	1.3910	3.0313	0.4385	1.3049	1.7435	0.0000	6,721.0707	6,721.0707	1.2763	0.0000	6,752.9773
Maximum	**40.9203**	**29.1169**	**35.8317**	**0.0693**	**1.6403**	**1.3910**	**3.0313**	**0.4385**	**1.3049**	**1.7435**	**0.0000**	**6,721.0707**	**6,721.0707**	**1.2763**	**0.0000**	**6,752.9773**

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					
2022	40.9203	29.1169	35.8317	0.0693	1.6403	1.3910	3.0313	0.4385	1.3049	1.7435	0.0000	6,721.0707	6,721.0707	1.2763	0.0000	6,752.9773
Maximum	**40.9203**	**29.1169**	**35.8317**	**0.0693**	**1.6403**	**1.3910**	**3.0313**	**0.4385**	**1.3049**	**1.7435**	**0.0000**	**6,721.0707**	**6,721.0707**	**1.2763**	**0.0000**	**6,752.9773**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270
Energy	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Mobile	1.0948	7.0493	13.0043	0.0513	3.7866	0.0340	3.8205	1.0133	0.0318	1.0450		5,233.6505	5,233.6505	0.2533		5,239.9840
Total	**4.5688**	**8.4561**	**19.4414**	**0.0602**	**3.7866**	**0.1746**	**3.9612**	**1.0133**	**0.1725**	**1.1857**	**0.0000**	**6,953.8003**	**6,953.8003**	**0.2963**	**0.0313**	**6,970.5479**

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	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270
Energy	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Mobile	0.9694	6.0717	9.5389	0.0370	2.5981	0.0243	2.6224	0.6952	0.0227	0.7180		3,783.9879	3,783.9879	0.2056		3,789.1272
Total	**4.4434**	**7.4786**	**15.9760**	**0.0459**	**2.5981**	**0.1650**	**2.7631**	**0.6952**	**0.1634**	**0.8586**	**0.0000**	**5,504.1377**	**5,504.1377**	**0.2485**	**0.0313**	**5,519.6911**

	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	N20	CO2e
Percent Reduction	**2.74**	**11.56**	**17.82**	**23.70**	**31.39**	**5.54**	**30.25**	**31.39**	**5.25**	**27.59**	**0.00**	**20.85**	**20.85**	**16.12**	**0.00**	**20.81**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/23/2022	11/18/2022	5	215	
2	Paving	Paving	11/5/2022	11/30/2022	5	18	
3	Architectural Coating	Architectural Coating	10/27/2022	11/30/2022	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.34

Residential Indoor: 291,408; Residential Outdoor: 97,136; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 6,116 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Building Construction	9	94.00	24.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

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	0.0579	2.1951	0.4027	6.4200e-003	0.1537	3.3300e-003	0.1570	0.0443	3.1900e-003	0.0475		677.5382	677.5382	0.0417		678.5799
Worker	0.4460	0.2654	3.5749	9.9500e-003	1.0507	6.5200e-003	1.0572	0.2787	6.0100e-003	0.2847		991.3263	991.3263	0.0263		991.9826
Total	**0.5039**	**2.4605**	**3.9775**	**0.0164**	**1.2044**	**9.8500e-003**	**1.2143**	**0.3229**	**9.2000e-003**	**0.3321**		**1,668.8645**	**1,668.8645**	**0.0679**		**1,670.5626**

3.2 Building Construction - 2022

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**

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	0.0579	2.1951	0.4027	6.4200e-003	0.1537	3.3300e-003	0.1570	0.0443	3.1900e-003	0.0475		677.5382	677.5382	0.0417		678.5799
Worker	0.4460	0.2654	3.5749	9.9500e-003	1.0507	6.5200e-003	1.0572	0.2787	6.0100e-003	0.2847		991.3263	991.3263	0.0263		991.9826
Total	**0.5039**	**2.4605**	**3.9775**	**0.0164**	**1.2044**	**9.8500e-003**	**1.2143**	**0.3229**	**9.2000e-003**	**0.3321**		**1,668.8645**	**1,668.8645**	**0.0679**		**1,670.5626**

3.3 Paving - 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	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504		1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.1921					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1686**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**		**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

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	0.0949	0.0565	0.7606	2.1200e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		210.9205	210.9205	5.5900e-003		211.0601
Total	**0.0949**	**0.0565**	**0.7606**	**2.1200e-003**	**0.2236**	**1.3900e-003**	**0.2249**	**0.0593**	**1.2800e-003**	**0.0606**		**210.9205**	**210.9205**	**5.5900e-003**		**211.0601**

3.3 Paving - 2022

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	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504	0.0000	1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.1921					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1686**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**	**0.0000**	**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

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	0.0949	0.0565	0.7606	2.1200e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		210.9205	210.9205	5.5900e-003		211.0601
Total	**0.0949**	**0.0565**	**0.7606**	**2.1200e-003**	**0.2236**	**1.3900e-003**	**0.2249**	**0.0593**	**1.2800e-003**	**0.0606**		**210.9205**	**210.9205**	**5.5900e-003**		**211.0601**

3.4 Architectural Coating - 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					
Archit. Coating	37.1519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**37.3565**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0902	0.0537	0.7226	2.0100e-003	0.2124	1.3200e-003	0.2137	0.0563	1.2100e-003	0.0575		200.3745	200.3745	5.3100e-003		200.5071
Total	**0.0902**	**0.0537**	**0.7226**	**2.0100e-003**	**0.2124**	**1.3200e-003**	**0.2137**	**0.0563**	**1.2100e-003**	**0.0575**		**200.3745**	**200.3745**	**5.3100e-003**		**200.5071**

3.4 Architectural Coating - 2022

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	37.1519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**37.3565**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0902	0.0537	0.7226	2.0100e-003	0.2124	1.3200e-003	0.2137	0.0563	1.2100e-003	0.0575		200.3745	200.3745	5.3100e-003		200.5071
Total	**0.0902**	**0.0537**	**0.7226**	**2.0100e-003**	**0.2124**	**1.3200e-003**	**0.2137**	**0.0563**	**1.2100e-003**	**0.0575**		**200.3745**	**200.3745**	**5.3100e-003**		**200.5071**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.9694	6.0717	9.5389	0.0370	2.5981	0.0243	2.6224	0.6952	0.0227	0.7180		3,783.9879	3,783.9879	0.2056		3,789.1272
Unmitigated	1.0948	7.0493	13.0043	0.0513	3.7866	0.0340	3.8205	1.0133	0.0318	1.0450		5,233.6505	5,233.6505	0.2533		5,239.9840

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	519.72	519.72	519.72	1,775,962	1,218,549
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	519.72	519.72	519.72	1,775,962	1,218,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Parking Lot	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
NaturalGas Unmitigated	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369

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					
Apartments Low Rise	3029.56	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0327**	**0.2792**	**0.1188**	**1.7800e-003**		**0.0226**	**0.0226**		**0.0226**	**0.0226**		**356.4189**	**356.4189**	**6.8300e-003**	**6.5300e-003**	**358.5369**

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					
Apartments Low Rise	3.02956	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0327**	**0.2792**	**0.1188**	**1.7800e-003**		**0.0226**	**0.0226**		**0.0226**	**0.0226**		**356.4189**	**356.4189**	**6.8300e-003**	**6.5300e-003**	**358.5369**

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	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270
Unmitigated	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270

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	0.2545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8854					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1240	1.0600	0.4511	6.7700e-003		0.0857	0.0857		0.0857	0.0857	0.0000	1,353.1765	1,353.1765	0.0259	0.0248	1,361.2177
Landscaping	0.1774	0.0677	5.8673	3.1000e-004		0.0324	0.0324		0.0324	0.0324		10.5545	10.5545	0.0102		10.8093
Total	**3.4414**	**1.1277**	**6.3183**	**7.0800e-003**		**0.1181**	**0.1181**		**0.1181**	**0.1181**	**0.0000**	**1,363.7309**	**1,363.7309**	**0.0361**	**0.0248**	**1,372.0270**

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	0.2545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8854					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1240	1.0600	0.4511	6.7700e-003		0.0857	0.0857		0.0857	0.0857	0.0000	1,353.1765	1,353.1765	0.0259	0.0248	1,361.2177
Landscaping	0.1774	0.0677	5.8673	3.1000e-004		0.0324	0.0324		0.0324	0.0324		10.5545	10.5545	0.0102		10.8093
Total	**3.4414**	**1.1277**	**6.3183**	**7.0800e-003**		**0.1181**	**0.1181**		**0.1181**	**0.1181**	**0.0000**	**1,363.7309**	**1,363.7309**	**0.0361**	**0.0248**	**1,372.0270**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

04422101- Serena Village - Serena Village North (Phase 1)

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.02	Acre	1.02	44,431.20	0
Parking Lot	32.00	Space	1.32	57,499.20	0
Apartments Low Rise	71.00	Dwelling Unit	1.43	143,905.00	203

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101- Serena Village - Serena Village North (Phase 1) - San Bernardino-South Coast County, Winter

Project Characteristics - Serena Village North (Phase 1) - includes project Phases 1-6

Land Use - Serena Village North (Phases 1-6) - 3.77ac w/ 71 units (143,905sf bldgs w/ 62,091sf (~1.43ac) ftprnt), 32 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~1.32 ac)), & rmndr lndsc (~1.02 ac)

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21); therefore, Serena Village North construction from 11/23/21 - 11/2022 (per phasing plan).

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~50 new trees to be planted in Serena Village North.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.08 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 71 DU/ 3.77 net acres = 18.83 DU/acre. Sidewalks on/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	25.00
tblConstructionPhase	NumDays	230.00	215.00
tblFireplaces	NumberGas	60.35	63.90
tblFireplaces	NumberWood	3.55	0.00
tblLandUse	LandUseSquareFeet	12,800.00	57,499.20
tblLandUse	LandUseSquareFeet	71,000.00	143,905.00
tblLandUse	LotAcreage	0.29	1.32
tblLandUse	LotAcreage	4.44	1.43
tblSequestration	NumberOfNewTrees	0.00	50.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	3.55	0.00
tblWoodstoves	NumberNoncatalytic	3.55	0.00

2.0 Emissions Summary

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					
2022	40.9269	29.1104	34.9858	0.0676	1.6403	1.3911	3.0314	0.4385	1.3050	1.7436	0.0000	6,550.3005	6,550.3005	1.2763	0.0000	6,582.2083
Maximum	**40.9269**	**29.1104**	**34.9858**	**0.0676**	**1.6403**	**1.3911**	**3.0314**	**0.4385**	**1.3050**	**1.7436**	**0.0000**	**6,550.3005**	**6,550.3005**	**1.2763**	**0.0000**	**6,582.2083**

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					
2022	40.9269	29.1104	34.9858	0.0676	1.6403	1.3911	3.0314	0.4385	1.3050	1.7436	0.0000	6,550.3005	6,550.3005	1.2763	0.0000	6,582.2083
Maximum	**40.9269**	**29.1104**	**34.9858**	**0.0676**	**1.6403**	**1.3911**	**3.0314**	**0.4385**	**1.3050**	**1.7436**	**0.0000**	**6,550.3005**	**6,550.3005**	**1.2763**	**0.0000**	**6,582.2083**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270
Energy	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Mobile	0.9565	7.0605	11.3881	0.0473	3.7866	0.0342	3.8208	1.0133	0.0321	1.0453		4,830.4539	4,830.4539	0.2577		4,836.8965
Total	**4.4305**	**8.4673**	**17.8253**	**0.0561**	**3.7866**	**0.1749**	**3.9615**	**1.0133**	**0.1727**	**1.1860**	**0.0000**	**6,550.6037**	**6,550.6037**	**0.3007**	**0.0313**	**6,567.4604**

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	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270
Energy	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Mobile	0.8384	6.0352	8.5717	0.0341	2.5981	0.0246	2.6227	0.6952	0.0230	0.7182		3,484.6542	3,484.6542	0.2130		3,489.9784
Total	**4.3124**	**7.4420**	**15.0088**	**0.0429**	**2.5981**	**0.1652**	**2.7633**	**0.6952**	**0.1637**	**0.8589**	**0.0000**	**5,204.8040**	**5,204.8040**	**0.2559**	**0.0313**	**5,220.5423**

	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	N20	CO2e
Percent Reduction	**2.67**	**12.11**	**15.80**	**23.53**	**31.39**	**5.52**	**30.24**	**31.39**	**5.25**	**27.58**	**0.00**	**20.54**	**20.54**	**14.88**	**0.00**	**20.51**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/23/2022	11/18/2022	5	215	
2	Paving	Paving	11/5/2022	11/30/2022	5	18	
3	Architectural Coating	Architectural Coating	10/27/2022	11/30/2022	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.34

Residential Indoor: 291,408; Residential Outdoor: 97,136; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 6,116 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Building Construction	9	94.00	24.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

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	0.0615	2.1693	0.4729	6.1700e-003	0.1537	3.4300e-003	0.1571	0.0443	3.2800e-003	0.0475		651.0150	651.0150	0.0463		652.1714
Worker	0.4482	0.2791	2.9273	8.9200e-003	1.0507	6.5200e-003	1.0572	0.2787	6.0100e-003	0.2847		889.3772	889.3772	0.0231		889.9535
Total	**0.5096**	**2.4483**	**3.4003**	**0.0151**	**1.2044**	**9.9500e-003**	**1.2144**	**0.3229**	**9.2900e-003**	**0.3322**		**1,540.3922**	**1,540.3922**	**0.0693**		**1,542.1249**

3.2 Building Construction - 2022

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**

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	0.0615	2.1693	0.4729	6.1700e-003	0.1537	3.4300e-003	0.1571	0.0443	3.2800e-003	0.0475		651.0150	651.0150	0.0463		652.1714
Worker	0.4482	0.2791	2.9273	8.9200e-003	1.0507	6.5200e-003	1.0572	0.2787	6.0100e-003	0.2847		889.3772	889.3772	0.0231		889.9535
Total	**0.5096**	**2.4483**	**3.4003**	**0.0151**	**1.2044**	**9.9500e-003**	**1.2144**	**0.3229**	**9.2900e-003**	**0.3322**		**1,540.3922**	**1,540.3922**	**0.0693**		**1,542.1249**

3.3 Paving - 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	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504		1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.1921					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1686**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**		**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

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	0.0954	0.0594	0.6228	1.9000e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		189.2292	189.2292	4.9000e-003		189.3518
Total	**0.0954**	**0.0594**	**0.6228**	**1.9000e-003**	**0.2236**	**1.3900e-003**	**0.2249**	**0.0593**	**1.2800e-003**	**0.0606**		**189.2292**	**189.2292**	**4.9000e-003**		**189.3518**

3.3 Paving - 2022

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	0.9765	9.5221	12.1940	0.0189		0.4877	0.4877		0.4504	0.4504	0.0000	1,805.1297	1,805.1297	0.5672		1,819.3091
Paving	0.1921					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1686**	**9.5221**	**12.1940**	**0.0189**		**0.4877**	**0.4877**		**0.4504**	**0.4504**	**0.0000**	**1,805.1297**	**1,805.1297**	**0.5672**		**1,819.3091**

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	0.0954	0.0594	0.6228	1.9000e-003	0.2236	1.3900e-003	0.2249	0.0593	1.2800e-003	0.0606		189.2292	189.2292	4.9000e-003		189.3518
Total	**0.0954**	**0.0594**	**0.6228**	**1.9000e-003**	**0.2236**	**1.3900e-003**	**0.2249**	**0.0593**	**1.2800e-003**	**0.0606**		**189.2292**	**189.2292**	**4.9000e-003**		**189.3518**

3.4 Architectural Coating - 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					
Archit. Coating	37.1519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**37.3565**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0906	0.0564	0.5917	1.8000e-003	0.2124	1.3200e-003	0.2137	0.0563	1.2100e-003	0.0575		179.7677	179.7677	4.6600e-003		179.8842
Total	**0.0906**	**0.0564**	**0.5917**	**1.8000e-003**	**0.2124**	**1.3200e-003**	**0.2137**	**0.0563**	**1.2100e-003**	**0.0575**		**179.7677**	**179.7677**	**4.6600e-003**		**179.8842**

3.4 Architectural Coating - 2022

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	37.1519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**37.3565**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0906	0.0564	0.5917	1.8000e-003	0.2124	1.3200e-003	0.2137	0.0563	1.2100e-003	0.0575		179.7677	179.7677	4.6600e-003		179.8842
Total	**0.0906**	**0.0564**	**0.5917**	**1.8000e-003**	**0.2124**	**1.3200e-003**	**0.2137**	**0.0563**	**1.2100e-003**	**0.0575**		**179.7677**	**179.7677**	**4.6600e-003**		**179.8842**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.8384	6.0352	8.5717	0.0341	2.5981	0.0246	2.6227	0.6952	0.0230	0.7182		3,484.6542	3,484.6542	0.2130		3,489.9784
Unmitigated	0.9565	7.0605	11.3881	0.0473	3.7866	0.0342	3.8208	1.0133	0.0321	1.0453		4,830.4539	4,830.4539	0.2577		4,836.8965

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	519.72	519.72	519.72	1,775,962	1,218,549
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	519.72	519.72	519.72	1,775,962	1,218,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Parking Lot	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
NaturalGas Unmitigated	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369

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					
Apartments Low Rise	3029.56	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0327**	**0.2792**	**0.1188**	**1.7800e-003**		**0.0226**	**0.0226**		**0.0226**	**0.0226**		**356.4189**	**356.4189**	**6.8300e-003**	**6.5300e-003**	**358.5369**

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					
Apartments Low Rise	3.02956	0.0327	0.2792	0.1188	1.7800e-003		0.0226	0.0226		0.0226	0.0226		356.4189	356.4189	6.8300e-003	6.5300e-003	358.5369
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0327**	**0.2792**	**0.1188**	**1.7800e-003**		**0.0226**	**0.0226**		**0.0226**	**0.0226**		**356.4189**	**356.4189**	**6.8300e-003**	**6.5300e-003**	**358.5369**

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	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270
Unmitigated	3.4414	1.1277	6.3183	7.0800e-003		0.1181	0.1181		0.1181	0.1181	0.0000	1,363.7309	1,363.7309	0.0361	0.0248	1,372.0270

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	0.2545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8854					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1240	1.0600	0.4511	6.7700e-003		0.0857	0.0857		0.0857	0.0857	0.0000	1,353.1765	1,353.1765	0.0259	0.0248	1,361.2177
Landscaping	0.1774	0.0677	5.8673	3.1000e-004		0.0324	0.0324		0.0324	0.0324		10.5545	10.5545	0.0102		10.8093
Total	**3.4414**	**1.1277**	**6.3183**	**7.0800e-003**		**0.1181**	**0.1181**		**0.1181**	**0.1181**	**0.0000**	**1,363.7309**	**1,363.7309**	**0.0361**	**0.0248**	**1,372.0270**

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	0.2545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.8854					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1240	1.0600	0.4511	6.7700e-003		0.0857	0.0857		0.0857	0.0857	0.0000	1,353.1765	1,353.1765	0.0259	0.0248	1,361.2177
Landscaping	0.1774	0.0677	5.8673	3.1000e-004		0.0324	0.0324		0.0324	0.0324		10.5545	10.5545	0.0102		10.8093
Total	**3.4414**	**1.1277**	**6.3183**	**7.0800e-003**		**0.1181**	**0.1181**		**0.1181**	**0.1181**	**0.0000**	**1,363.7309**	**1,363.7309**	**0.0361**	**0.0248**	**1,372.0270**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

04422101 Serena Village South (Phase 2)

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.79	Acre	1.79	77,972.40	0
Parking Lot	87.00	Space	2.33	101,494.80	0
Apartments Low Rise	112.00	Dwelling Unit	2.53	220,029.00	320

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101 Serena Village South (Phase 2) - San Bernardino-South Coast County, Summer

Project Characteristics - Serena Village South (Phase 2) - includes project phases 7-13

Land Use - Serena Village South (Phases 7-13) - 6.65 ac w/ 112 units (220,029sf bldgs w/ 110,009sf (~2.53ac) ftprnt), 87 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~2.33 ac)), & rmndr lndsc (~1.79 ac)

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21). SV South ~early Dec2022-mid-Dec2023 (per phasing plan). Anticipate that construciton of villages wont overlap.

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~110 new trees to be planted in Serena Village South.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.12 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 112 DU/ 6.65net acres = 16.84 DU/acre. Sidewalks on/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	35.00
tblFireplaces	NumberGas	95.20	100.80
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	34,800.00	101,494.80
tblLandUse	LandUseSquareFeet	112,000.00	220,029.00
tblLandUse	LotAcreage	0.78	2.33
tblLandUse	LotAcreage	7.00	2.53
tblSequestration	NumberOfNewTrees	0.00	110.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

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					
2022	2.5453	19.8061	22.9840	0.0544	2.0063	0.8255	2.8318	0.5381	0.7766	1.3146	0.0000	5,356.9745	5,356.9745	0.7267	0.0000	5,375.1420
2023	42.4963	17.6852	22.2910	0.0535	2.0063	0.7131	2.7194	0.5381	0.6708	1.2089	0.0000	5,263.8571	5,263.8571	0.7423	0.0000	5,281.4618
Maximum	**42.4963**	**19.8061**	**22.9840**	**0.0544**	**2.0063**	**0.8255**	**2.8318**	**0.5381**	**0.7766**	**1.3146**	**0.0000**	**5,356.9745**	**5,356.9745**	**0.7423**	**0.0000**	**5,375.1420**

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					
2022	2.5453	19.8061	22.9840	0.0544	2.0063	0.8255	2.8318	0.5381	0.7766	1.3146	0.0000	5,356.9745	5,356.9745	0.7267	0.0000	5,375.1420
2023	42.4963	17.6852	22.2910	0.0535	2.0063	0.7131	2.7194	0.5381	0.6708	1.2089	0.0000	5,263.8571	5,263.8571	0.7423	0.0000	5,281.4618
Maximum	**42.4963**	**19.8061**	**22.9840**	**0.0544**	**2.0063**	**0.8255**	**2.8318**	**0.5381**	**0.7766**	**1.3146**	**0.0000**	**5,356.9745**	**5,356.9745**	**0.7423**	**0.0000**	**5,375.1420**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316
Energy	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Mobile	1.5611	8.6705	18.9027	0.0782	5.9731	0.0443	6.0175	1.5983	0.0413	1.6396		7,983.8955	7,983.8955	0.3494		7,992.6295
Total	**6.8986**	**10.8896**	**29.0529**	**0.0922**	**5.9731**	**0.2663**	**6.2395**	**1.5983**	**0.2633**	**1.8616**	**0.0000**	**10,697.3792**	**10,697.3792**	**0.4171**	**0.0494**	**10,722.5404**

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	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316
Energy	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Mobile	1.4000	7.7112	14.2583	0.0583	4.2539	0.0329	4.2868	1.1383	0.0306	1.1689		5,956.5509	5,956.5509	0.2851		5,963.6794
Total	**6.7375**	**9.9303**	**24.4085**	**0.0722**	**4.2539**	**0.2549**	**4.5088**	**1.1383**	**0.2526**	**1.3909**	**0.0000**	**8,670.0346**	**8,670.0346**	**0.3529**	**0.0494**	**8,693.5903**

	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	N20	CO2e
Percent Reduction	**2.33**	**8.81**	**15.99**	**21.61**	**28.78**	**4.30**	**27.74**	**28.78**	**4.06**	**25.28**	**0.00**	**18.95**	**18.95**	**15.40**	**0.00**	**18.92**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/1/2022	10/18/2023	5	230	
2	Paving	Paving	10/19/2023	11/15/2023	5	20	
3	Architectural Coating	Architectural Coating	10/27/2023	12/14/2023	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.12

Residential Indoor: 445,559; Residential Outdoor: 148,520; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,768 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Building Construction	9	156.00	41.00	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	31.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

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	0.0988	3.7499	0.6879	0.0110	0.2626	5.6900e-003	0.2683	0.0756	5.4500e-003	0.0811		1,157.4611	1,157.4611	0.0712		1,159.2407
Worker	0.7402	0.4405	5.9328	0.0165	1.7437	0.0108	1.7545	0.4624	9.9700e-003	0.4724		1,645.1798	1,645.1798	0.0436		1,646.2691
Total	**0.8391**	**4.1905**	**6.6206**	**0.0275**	**2.0063**	**0.0165**	**2.0228**	**0.5381**	**0.0154**	**0.5535**		**2,802.6409**	**2,802.6409**	**0.1148**		**2,805.5098**

3.2 Building Construction - 2022

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**

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	0.0988	3.7499	0.6879	0.0110	0.2626	5.6900e-003	0.2683	0.0756	5.4500e-003	0.0811		1,157.4611	1,157.4611	0.0712		1,159.2407
Worker	0.7402	0.4405	5.9328	0.0165	1.7437	0.0108	1.7545	0.4624	9.9700e-003	0.4724		1,645.1798	1,645.1798	0.0436		1,646.2691
Total	**0.8391**	**4.1905**	**6.6206**	**0.0275**	**2.0063**	**0.0165**	**2.0228**	**0.5381**	**0.0154**	**0.5535**		**2,802.6409**	**2,802.6409**	**0.1148**		**2,805.5098**

3.2 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**

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	0.0747	2.9036	0.5994	0.0107	0.2626	2.8000e-003	0.2654	0.0756	2.6800e-003	0.0783		1,125.3249	1,125.3249	0.0573		1,126.7582
Worker	0.6925	0.3967	5.4476	0.0159	1.7437	0.0105	1.7543	0.4624	9.7000e-003	0.4721		1,583.3223	1,583.3223	0.0390		1,584.2975
Total	**0.7671**	**3.3003**	**6.0470**	**0.0266**	**2.0063**	**0.0133**	**2.0196**	**0.5381**	**0.0124**	**0.5504**		**2,708.6472**	**2,708.6472**	**0.0963**		**2,711.0558**

3.2 Building Construction - 2023

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**

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	0.0747	2.9036	0.5994	0.0107	0.2626	2.8000e-003	0.2654	0.0756	2.6800e-003	0.0783		1,125.3249	1,125.3249	0.0573		1,126.7582
Worker	0.6925	0.3967	5.4476	0.0159	1.7437	0.0105	1.7543	0.4624	9.7000e-003	0.4721		1,583.3223	1,583.3223	0.0390		1,584.2975
Total	**0.7671**	**3.3003**	**6.0470**	**0.0266**	**2.0063**	**0.0133**	**2.0196**	**0.5381**	**0.0124**	**0.5504**		**2,708.6472**	**2,708.6472**	**0.0963**		**2,711.0558**

3.3 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	0.3052					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3380**	**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**

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	0.0666	0.0381	0.5238	1.5300e-003	0.1677	1.0100e-003	0.1687	0.0445	9.3000e-004	0.0454		152.2425	152.2425	3.7500e-003		152.3363
Total	**0.0666**	**0.0381**	**0.5238**	**1.5300e-003**	**0.1677**	**1.0100e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**152.2425**	**152.2425**	**3.7500e-003**		**152.3363**

3.3 Paving - 2023

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	0.3052					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3380**	**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**

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	0.0666	0.0381	0.5238	1.5300e-003	0.1677	1.0100e-003	0.1687	0.0445	9.3000e-004	0.0454		152.2425	152.2425	3.7500e-003		152.3363
Total	**0.0666**	**0.0381**	**0.5238**	**1.5300e-003**	**0.1677**	**1.0100e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**152.2425**	**152.2425**	**3.7500e-003**		**152.3363**

3.4 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	40.7625					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	**40.9542**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	0.1376	0.0788	1.0825	3.1600e-003	0.3465	2.0900e-003	0.3486	0.0919	1.9300e-003	0.0938		314.6346	314.6346	7.7500e-003		314.8284
Total	**0.1376**	**0.0788**	**1.0825**	**3.1600e-003**	**0.3465**	**2.0900e-003**	**0.3486**	**0.0919**	**1.9300e-003**	**0.0938**		**314.6346**	**314.6346**	**7.7500e-003**		**314.8284**

3.4 Architectural Coating - 2023

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	40.7625					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	**40.9542**	**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**

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	0.1376	0.0788	1.0825	3.1600e-003	0.3465	2.0900e-003	0.3486	0.0919	1.9300e-003	0.0938		314.6346	314.6346	7.7500e-003		314.8284
Total	**0.1376**	**0.0788**	**1.0825**	**3.1600e-003**	**0.3465**	**2.0900e-003**	**0.3486**	**0.0919**	**1.9300e-003**	**0.0938**		**314.6346**	**314.6346**	**7.7500e-003**		**314.8284**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	1.4000	7.7112	14.2583	0.0583	4.2539	0.0329	4.2868	1.1383	0.0306	1.1689		5,956.5509	5,956.5509	0.2851		5,963.6794
Unmitigated	1.5611	8.6705	18.9027	0.0782	5.9731	0.0443	6.0175	1.5983	0.0413	1.6396		7,983.8955	7,983.8955	0.3494		7,992.6295

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	819.84	819.84	819.84	2,801,518	1,995,173
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	819.84	819.84	819.84	2,801,518	1,995,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Other Non-Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
NaturalGas Unmitigated	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793

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					
Apartments Low Rise	4779.02	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0515**	**0.4404**	**0.1874**	**2.8100e-003**		**0.0356**	**0.0356**		**0.0356**	**0.0356**		**562.2382**	**562.2382**	**0.0108**	**0.0103**	**565.5793**

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					
Apartments Low Rise	4.77902	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0515**	**0.4404**	**0.1874**	**2.8100e-003**		**0.0356**	**0.0356**		**0.0356**	**0.0356**		**562.2382**	**562.2382**	**0.0108**	**0.0103**	**565.5793**

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	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316
Unmitigated	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316

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	0.3909					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1957	1.6721	0.7115	0.0107		0.1352	0.1352		0.1352	0.1352	0.0000	2,134.5882	2,134.5882	0.0409	0.0391	2,147.2730
Landscaping	0.2793	0.1066	9.2513	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.6573	16.6573	0.0161		17.0586
Total	**5.2860**	**1.7787**	**9.9628**	**0.0112**		**0.1864**	**0.1864**		**0.1864**	**0.1864**	**0.0000**	**2,151.2455**	**2,151.2455**	**0.0570**	**0.0391**	**2,164.3316**

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	0.3909					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1957	1.6721	0.7115	0.0107		0.1352	0.1352		0.1352	0.1352	0.0000	2,134.5882	2,134.5882	0.0409	0.0391	2,147.2730
Landscaping	0.2793	0.1066	9.2513	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.6573	16.6573	0.0161		17.0586
Total	**5.2860**	**1.7787**	**9.9628**	**0.0112**		**0.1864**	**0.1864**		**0.1864**	**0.1864**	**0.0000**	**2,151.2455**	**2,151.2455**	**0.0570**	**0.0391**	**2,164.3316**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

04422101 Serena Village South (Phase 2)

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.79	Acre	1.79	77,972.40	0
Parking Lot	87.00	Space	2.33	101,494.80	0
Apartments Low Rise	112.00	Dwelling Unit	2.53	220,029.00	320

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101 Serena Village South (Phase 2) - San Bernardino-South Coast County, Winter

Project Characteristics - Serena Village South (Phase 2) - includes project phases 7-13

Land Use - Serena Village South (Phases 7-13) - 6.65 ac w/ 112 units (220,029sf bldgs w/ 110,009sf (~2.53ac) ftprnt), 87 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~2.33 ac)), & rmndr lndsc (~1.79 ac)

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21). SV South ~early Dec2022-mid-Dec2023 (per phasing plan). Anticipate that construciton of villages wont overlap.

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~110 new trees to be planted in Serena Village South.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.12 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 112 DU/ 6.65net acres = 16.84 DU/acre. Sidewalks on/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	35.00
tblFireplaces	NumberGas	95.20	100.80
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	34,800.00	101,494.80
tblLandUse	LandUseSquareFeet	112,000.00	220,029.00
tblLandUse	LotAcreage	0.78	2.33
tblLandUse	LotAcreage	7.00	2.53
tblSequestration	NumberOfNewTrees	0.00	110.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

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					
2022	2.5550	19.7846	22.0295	0.0523	2.0063	0.8257	2.8320	0.5381	0.7767	1.3148	0.0000	5,142.4720	5,142.4720	0.7292	0.0000	5,160.7024
2023	42.4979	17.6659	21.3851	0.0514	2.0063	0.7132	2.7195	0.5381	0.6709	1.2089	0.0000	5,057.7813	5,057.7813	0.7409	0.0000	5,075.4174
Maximum	**42.4979**	**19.7846**	**22.0295**	**0.0523**	**2.0063**	**0.8257**	**2.8320**	**0.5381**	**0.7767**	**1.3148**	**0.0000**	**5,142.4720**	**5,142.4720**	**0.7409**	**0.0000**	**5,160.7024**

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					
2022	2.5550	19.7846	22.0295	0.0523	2.0063	0.8257	2.8320	0.5381	0.7767	1.3148	0.0000	5,142.4720	5,142.4720	0.7292	0.0000	5,160.7024
2023	42.4979	17.6659	21.3851	0.0514	2.0063	0.7132	2.7195	0.5381	0.6709	1.2089	0.0000	5,057.7813	5,057.7813	0.7409	0.0000	5,075.4174
Maximum	**42.4979**	**19.7846**	**22.0295**	**0.0523**	**2.0063**	**0.8257**	**2.8320**	**0.5381**	**0.7767**	**1.3148**	**0.0000**	**5,142.4720**	**5,142.4720**	**0.7409**	**0.0000**	**5,160.7024**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316
Energy	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Mobile	1.3539	8.6782	16.4730	0.0721	5.9731	0.0446	6.0177	1.5983	0.0416	1.6399		7,372.5415	7,372.5415	0.3532		7,381.3711
Total	**6.6914**	**10.8973**	**26.6232**	**0.0861**	**5.9731**	**0.2666**	**6.2397**	**1.5983**	**0.2636**	**1.8618**	**0.0000**	**10,086.0253**	**10,086.0253**	**0.4209**	**0.0494**	**10,111.2820**

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	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316
Energy	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Mobile	1.2021	7.6710	12.6987	0.0536	4.2539	0.0331	4.2871	1.1383	0.0309	1.1691		5,489.3185	5,489.3185	0.2929		5,496.6396
Total	**6.5396**	**9.8902**	**22.8490**	**0.0676**	**4.2539**	**0.2551**	**4.5091**	**1.1383**	**0.2529**	**1.3911**	**0.0000**	**8,202.8022**	**8,202.8022**	**0.3606**	**0.0494**	**8,226.5505**

	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	N20	CO2e
Percent Reduction	**2.27**	**9.24**	**14.18**	**21.46**	**28.78**	**4.30**	**27.74**	**28.78**	**4.06**	**25.28**	**0.00**	**18.67**	**18.67**	**14.33**	**0.00**	**18.64**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/1/2022	10/18/2023	5	230	
2	Paving	Paving	10/19/2023	11/15/2023	5	20	
3	Architectural Coating	Architectural Coating	10/27/2023	12/14/2023	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.12

Residential Indoor: 445,559; Residential Outdoor: 148,520; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,768 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Building Construction	9	156.00	41.00	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	31.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

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	0.1050	3.7059	0.8079	0.0105	0.2626	5.8600e-003	0.2685	0.0756	5.6100e-003	0.0812		1,112.1506	1,112.1506	0.0790		1,114.1262
Worker	0.7437	0.4631	4.8581	0.0148	1.7437	0.0108	1.7545	0.4624	9.9700e-003	0.4724		1,475.9877	1,475.9877	0.0383		1,476.9440
Total	**0.8487**	**4.1690**	**5.6661**	**0.0254**	**2.0063**	**0.0167**	**2.0230**	**0.5381**	**0.0156**	**0.5536**		**2,588.1384**	**2,588.1384**	**0.1173**		**2,591.0702**

3.2 Building Construction - 2022

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**

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	0.1050	3.7059	0.8079	0.0105	0.2626	5.8600e-003	0.2685	0.0756	5.6100e-003	0.0812		1,112.1506	1,112.1506	0.0790		1,114.1262
Worker	0.7437	0.4631	4.8581	0.0148	1.7437	0.0108	1.7545	0.4624	9.9700e-003	0.4724		1,475.9877	1,475.9877	0.0383		1,476.9440
Total	**0.8487**	**4.1690**	**5.6661**	**0.0254**	**2.0063**	**0.0167**	**2.0230**	**0.5381**	**0.0156**	**0.5536**		**2,588.1384**	**2,588.1384**	**0.1173**		**2,591.0702**

3.2 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**

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	0.0792	2.8642	0.6873	0.0103	0.2626	2.9000e-003	0.2655	0.0756	2.7800e-003	0.0784		1,081.9832	1,081.9832	0.0633		1,083.5661
Worker	0.6978	0.4168	4.4539	0.0143	1.7437	0.0105	1.7543	0.4624	9.7000e-003	0.4721		1,420.5881	1,420.5881	0.0343		1,421.4452
Total	**0.7770**	**3.2810**	**5.1411**	**0.0245**	**2.0063**	**0.0134**	**2.0197**	**0.5381**	**0.0125**	**0.5505**		**2,502.5714**	**2,502.5714**	**0.0976**		**2,505.0113**

3.2 Building Construction - 2023

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**

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	0.0792	2.8642	0.6873	0.0103	0.2626	2.9000e-003	0.2655	0.0756	2.7800e-003	0.0784		1,081.9832	1,081.9832	0.0633		1,083.5661
Worker	0.6978	0.4168	4.4539	0.0143	1.7437	0.0105	1.7543	0.4624	9.7000e-003	0.4721		1,420.5881	1,420.5881	0.0343		1,421.4452
Total	**0.7770**	**3.2810**	**5.1411**	**0.0245**	**2.0063**	**0.0134**	**2.0197**	**0.5381**	**0.0125**	**0.5505**		**2,502.5714**	**2,502.5714**	**0.0976**		**2,505.0113**

3.3 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	0.3052					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3380**	**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**

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	0.0671	0.0401	0.4283	1.3700e-003	0.1677	1.0100e-003	0.1687	0.0445	9.3000e-004	0.0454		136.5950	136.5950	3.3000e-003		136.6774
Total	**0.0671**	**0.0401**	**0.4283**	**1.3700e-003**	**0.1677**	**1.0100e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**136.5950**	**136.5950**	**3.3000e-003**		**136.6774**

3.3 Paving - 2023

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	0.3052					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3380**	**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**

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	0.0671	0.0401	0.4283	1.3700e-003	0.1677	1.0100e-003	0.1687	0.0445	9.3000e-004	0.0454		136.5950	136.5950	3.3000e-003		136.6774
Total	**0.0671**	**0.0401**	**0.4283**	**1.3700e-003**	**0.1677**	**1.0100e-003**	**0.1687**	**0.0445**	**9.3000e-004**	**0.0454**		**136.5950**	**136.5950**	**3.3000e-003**		**136.6774**

3.4 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	40.7625					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	**40.9542**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	0.1387	0.0828	0.8851	2.8300e-003	0.3465	2.0900e-003	0.3486	0.0919	1.9300e-003	0.0938		282.2964	282.2964	6.8100e-003		282.4667
Total	**0.1387**	**0.0828**	**0.8851**	**2.8300e-003**	**0.3465**	**2.0900e-003**	**0.3486**	**0.0919**	**1.9300e-003**	**0.0938**		**282.2964**	**282.2964**	**6.8100e-003**		**282.4667**

3.4 Architectural Coating - 2023

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	40.7625					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	**40.9542**	**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**

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	0.1387	0.0828	0.8851	2.8300e-003	0.3465	2.0900e-003	0.3486	0.0919	1.9300e-003	0.0938		282.2964	282.2964	6.8100e-003		282.4667
Total	**0.1387**	**0.0828**	**0.8851**	**2.8300e-003**	**0.3465**	**2.0900e-003**	**0.3486**	**0.0919**	**1.9300e-003**	**0.0938**		**282.2964**	**282.2964**	**6.8100e-003**		**282.4667**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	1.2021	7.6710	12.6987	0.0536	4.2539	0.0331	4.2871	1.1383	0.0309	1.1691		5,489.3185	5,489.3185	0.2929		5,496.6396
Unmitigated	1.3539	8.6782	16.4730	0.0721	5.9731	0.0446	6.0177	1.5983	0.0416	1.6399		7,372.5415	7,372.5415	0.3532		7,381.3711

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	819.84	819.84	819.84	2,801,518	1,995,173
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	819.84	819.84	819.84	2,801,518	1,995,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Other Non-Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
NaturalGas Unmitigated	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793

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					
Apartments Low Rise	4779.02	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0515**	**0.4404**	**0.1874**	**2.8100e-003**		**0.0356**	**0.0356**		**0.0356**	**0.0356**		**562.2382**	**562.2382**	**0.0108**	**0.0103**	**565.5793**

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					
Apartments Low Rise	4.77902	0.0515	0.4404	0.1874	2.8100e-003		0.0356	0.0356		0.0356	0.0356		562.2382	562.2382	0.0108	0.0103	565.5793
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0515**	**0.4404**	**0.1874**	**2.8100e-003**		**0.0356**	**0.0356**		**0.0356**	**0.0356**		**562.2382**	**562.2382**	**0.0108**	**0.0103**	**565.5793**

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	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316
Unmitigated	5.2860	1.7787	9.9628	0.0112		0.1864	0.1864		0.1864	0.1864	0.0000	2,151.2455	2,151.2455	0.0570	0.0391	2,164.3316

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	0.3909					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1957	1.6721	0.7115	0.0107		0.1352	0.1352		0.1352	0.1352	0.0000	2,134.5882	2,134.5882	0.0409	0.0391	2,147.2730
Landscaping	0.2793	0.1066	9.2513	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.6573	16.6573	0.0161		17.0586
Total	**5.2860**	**1.7787**	**9.9628**	**0.0112**		**0.1864**	**0.1864**		**0.1864**	**0.1864**	**0.0000**	**2,151.2455**	**2,151.2455**	**0.0570**	**0.0391**	**2,164.3316**

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	0.3909					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.4201					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1957	1.6721	0.7115	0.0107		0.1352	0.1352		0.1352	0.1352	0.0000	2,134.5882	2,134.5882	0.0409	0.0391	2,147.2730
Landscaping	0.2793	0.1066	9.2513	4.9000e-004		0.0512	0.0512		0.0512	0.0512		16.6573	16.6573	0.0161		17.0586
Total	**5.2860**	**1.7787**	**9.9628**	**0.0112**		**0.1864**	**0.1864**		**0.1864**	**0.1864**	**0.0000**	**2,151.2455**	**2,151.2455**	**0.0570**	**0.0391**	**2,164.3316**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

04422101 Serena Village East (Phase 3)

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	23.00	Dwelling Unit	0.47	40,925.00	66
Parking Lot	10.00	Space	0.39	17,075.52	0
Other Non-Asphalt Surfaces	0.26	Acre	0.26	11,325.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, Summer

Project Characteristics - Serena Village East (Phase 3) - project phases 14-15

Land Use - Serena Village Eas (Phases 14-15) - 1.12 ac w/ 23 units (40,925sf bldgs w/ 20,452sf (~0.47ac) ftprnt), 10 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~0.392 ac)), & rmndr lndsc (~0.26 ac).

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21). SV East ~mid-Dec 2023- late March 2024 (per phasing plan). Anticipate that construciton of villages wont overlap.

Off-road Equipment - CalEEMod default construction timing for building construction decreased by ~70%; therefore, ~70% more equipment added to CalEEmod defaults.

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~17 new trees to be planted in Serena Village East.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.09 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 23 DU/1.12 acres = 20.54 DU/acre. Sidewalkson/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	PhaseEndDate	11/22/2024	3/31/2024
tblConstructionPhase	PhaseEndDate	10/25/2024	3/7/2024
tblConstructionPhase	PhaseEndDate	11/8/2024	3/31/2024
tblConstructionPhase	PhaseStartDate	11/9/2024	3/18/2024
tblConstructionPhase	PhaseStartDate	1/20/2024	12/15/2023
tblConstructionPhase	PhaseStartDate	10/26/2024	3/18/2024
tblFireplaces	NumberGas	19.55	20.70
tblFireplaces	NumberWood	1.15	0.00
tblLandUse	LandUseSquareFeet	23,000.00	40,925.00
tblLandUse	LandUseSquareFeet	4,000.00	17,075.52
tblLandUse	LotAcreage	1.44	0.47
tblLandUse	LotAcreage	0.09	0.39
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblSequestration	NumberOfNewTrees	0.00	17.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	1.15	0.00
tblWoodstoves	NumberNoncatalytic	1.15	0.00

2.0 Emissions Summary

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					
2023	2.6746	21.1466	22.9464	0.0437	0.3578	0.9211	1.2789	0.0959	0.8856	0.9815	0.0000	4,064.9346	4,064.9346	0.6514	0.0000	4,081.2187
2024	27.3783	19.9288	22.7172	0.0436	0.3578	0.8086	1.1664	0.0959	0.7768	0.8727	0.0000	4,055.7407	4,055.7407	0.6406	0.0000	4,071.7559
Maximum	**27.3783**	**21.1466**	**22.9464**	**0.0437**	**0.3578**	**0.9211**	**1.2789**	**0.0959**	**0.8856**	**0.9815**	**0.0000**	**4,064.9346**	**4,064.9346**	**0.6514**	**0.0000**	**4,081.2187**

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					
2023	2.6746	21.1466	22.9464	0.0437	0.3578	0.9211	1.2789	0.0959	0.8856	0.9815	0.0000	4,064.9346	4,064.9346	0.6514	0.0000	4,081.2187
2024	27.3783	19.9288	22.7172	0.0436	0.3578	0.8086	1.1664	0.0959	0.7768	0.8727	0.0000	4,055.7407	4,055.7407	0.6406	0.0000	4,071.7559
Maximum	**27.3783**	**21.1466**	**22.9464**	**0.0437**	**0.3578**	**0.9211**	**1.2789**	**0.0959**	**0.8856**	**0.9815**	**0.0000**	**4,064.9346**	**4,064.9346**	**0.6514**	**0.0000**	**4,081.2187**

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, 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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589
Energy	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Mobile	0.3031	1.7436	3.6465	0.0157	1.2265	8.9400e-003	1.2354	0.3281	8.3300e-003	0.3365		1,603.8160	1,603.8160	0.0693		1,605.5484
Total	**1.3037**	**2.1993**	**5.7288**	**0.0186**	**1.2265**	**0.0545**	**1.2810**	**0.3281**	**0.0539**	**0.3821**	**0.0000**	**2,161.0476**	**2,161.0476**	**0.0832**	**0.0102**	**2,166.1531**

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	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589
Energy	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Mobile	0.2677	1.5331	2.6376	0.0112	0.8303	6.3500e-003	0.8366	0.2221	5.9100e-003	0.2281		1,147.4914	1,147.4914	0.0552		1,148.8722
Total	**1.2683**	**1.9888**	**4.7199**	**0.0141**	**0.8303**	**0.0519**	**0.8822**	**0.2221**	**0.0515**	**0.2736**	**0.0000**	**1,704.7229**	**1,704.7229**	**0.0691**	**0.0102**	**1,709.4769**

	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	N20	CO2e
Percent Reduction	**2.72**	**9.57**	**17.61**	**24.18**	**32.30**	**4.75**	**31.13**	**32.30**	**4.49**	**28.38**	**0.00**	**21.12**	**21.12**	**16.90**	**0.00**	**21.08**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/15/2023	3/7/2024	5	60	
2	Paving	Paving	3/18/2024	3/31/2024	5	10	
3	Architectural Coating	Architectural Coating	3/18/2024	3/31/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.652

Residential Indoor: 82,873; Residential Outdoor: 27,624; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,704 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Cranes	2	6.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	4	8.00	46	0.45

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
Building Construction	12	28.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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	2.5376	20.5797	21.8663	0.0390		0.9187	0.9187		0.8834	0.8834		3,588.6199	3,588.6199	0.6346		3,604.4843
Total	**2.5376**	**20.5797**	**21.8663**	**0.0390**		**0.9187**	**0.9187**		**0.8834**	**0.8834**		**3,588.6199**	**3,588.6199**	**0.6346**		**3,604.4843**

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	0.0127	0.4957	0.1023	1.8200e-003	0.0448	4.8000e-004	0.0453	0.0129	4.6000e-004	0.0134		192.1286	192.1286	9.7900e-003		192.3734
Worker	0.1243	0.0712	0.9778	2.8500e-003	0.3130	1.8900e-003	0.3149	0.0830	1.7400e-003	0.0847		284.1861	284.1861	7.0000e-003		284.3611
Total	**0.1370**	**0.5669**	**1.0801**	**4.6700e-003**	**0.3578**	**2.3700e-003**	**0.3602**	**0.0959**	**2.2000e-003**	**0.0981**		**476.3147**	**476.3147**	**0.0168**		**476.7345**

3.2 Building Construction - 2023

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	2.5376	20.5797	21.8663	0.0390		0.9187	0.9187		0.8834	0.8834	0.0000	3,588.6199	3,588.6199	0.6346		3,604.4843
Total	**2.5376**	**20.5797**	**21.8663**	**0.0390**		**0.9187**	**0.9187**		**0.8834**	**0.8834**	**0.0000**	**3,588.6199**	**3,588.6199**	**0.6346**		**3,604.4843**

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	0.0127	0.4957	0.1023	1.8200e-003	0.0448	4.8000e-004	0.0453	0.0129	4.6000e-004	0.0134		192.1286	192.1286	9.7900e-003		192.3734
Worker	0.1243	0.0712	0.9778	2.8500e-003	0.3130	1.8900e-003	0.3149	0.0830	1.7400e-003	0.0847		284.1861	284.1861	7.0000e-003		284.3611
Total	**0.1370**	**0.5669**	**1.0801**	**4.6700e-003**	**0.3578**	**2.3700e-003**	**0.3602**	**0.0959**	**2.2000e-003**	**0.0981**		**476.3147**	**476.3147**	**0.0168**		**476.7345**

3.2 Building Construction - 2024

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	2.3683	19.3662	21.7070	0.0390		0.8062	0.8062		0.7746	0.7746		3,588.8874	3,588.8874	0.6244		3,604.4983
Total	**2.3683**	**19.3662**	**21.7070**	**0.0390**		**0.8062**	**0.8062**		**0.7746**	**0.7746**		**3,588.8874**	**3,588.8874**	**0.6244**		**3,604.4983**

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	0.0126	0.4980	0.0984	1.8200e-003	0.0448	4.8000e-004	0.0453	0.0129	4.6000e-004	0.0134		191.8833	191.8833	9.7800e-003		192.1278
Worker	0.1170	0.0645	0.9118	2.7600e-003	0.3130	1.8700e-003	0.3149	0.0830	1.7200e-003	0.0847		274.9700	274.9700	6.3900e-003		275.1298
Total	**0.1295**	**0.5626**	**1.0103**	**4.5800e-003**	**0.3578**	**2.3500e-003**	**0.3602**	**0.0959**	**2.1800e-003**	**0.0981**		**466.8533**	**466.8533**	**0.0162**		**467.2576**

3.2 Building Construction - 2024

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	2.3683	19.3662	21.7070	0.0390		0.8062	0.8062		0.7746	0.7746	0.0000	3,588.8874	3,588.8874	0.6244		3,604.4983
Total	**2.3683**	**19.3662**	**21.7070**	**0.0390**		**0.8062**	**0.8062**		**0.7746**	**0.7746**	**0.0000**	**3,588.8874**	**3,588.8874**	**0.6244**		**3,604.4983**

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	0.0126	0.4980	0.0984	1.8200e-003	0.0448	4.8000e-004	0.0453	0.0129	4.6000e-004	0.0134		191.8833	191.8833	9.7800e-003		192.1278
Worker	0.1170	0.0645	0.9118	2.7600e-003	0.3130	1.8700e-003	0.3149	0.0830	1.7200e-003	0.0847		274.9700	274.9700	6.3900e-003		275.1298
Total	**0.1295**	**0.5626**	**1.0103**	**4.5800e-003**	**0.3578**	**2.3500e-003**	**0.3602**	**0.0959**	**2.1800e-003**	**0.0981**		**466.8533**	**466.8533**	**0.0162**		**467.2576**

3.3 Paving - 2024

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	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.1027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7207**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

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	0.0543	0.0300	0.4233	1.2800e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		127.6647	127.6647	2.9700e-003		127.7388
Total	**0.0543**	**0.0300**	**0.4233**	**1.2800e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**127.6647**	**127.6647**	**2.9700e-003**		**127.7388**

3.3 Paving - 2024

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	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.1027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7207**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

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	0.0543	0.0300	0.4233	1.2800e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		127.6647	127.6647	2.9700e-003		127.7388
Total	**0.0543**	**0.0300**	**0.4233**	**1.2800e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**127.6647**	**127.6647**	**2.9700e-003**		**127.7388**

3.4 Architectural Coating - 2024

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	26.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**26.5782**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0251	0.0138	0.1954	5.9000e-004	0.0671	4.0000e-004	0.0675	0.0178	3.7000e-004	0.0182		58.9222	58.9222	1.3700e-003		58.9564
Total	**0.0251**	**0.0138**	**0.1954**	**5.9000e-004**	**0.0671**	**4.0000e-004**	**0.0675**	**0.0178**	**3.7000e-004**	**0.0182**		**58.9222**	**58.9222**	**1.3700e-003**		**58.9564**

3.4 Architectural Coating - 2024

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	26.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**26.5782**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0251	0.0138	0.1954	5.9000e-004	0.0671	4.0000e-004	0.0675	0.0178	3.7000e-004	0.0182		58.9222	58.9222	1.3700e-003		58.9564
Total	**0.0251**	**0.0138**	**0.1954**	**5.9000e-004**	**0.0671**	**4.0000e-004**	**0.0675**	**0.0178**	**3.7000e-004**	**0.0182**		**58.9222**	**58.9222**	**1.3700e-003**		**58.9564**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.2677	1.5331	2.6376	0.0112	0.8303	6.3500e-003	0.8366	0.2221	5.9100e-003	0.2281		1,147.4914	1,147.4914	0.0552		1,148.8722
Unmitigated	0.3031	1.7436	3.6465	0.0157	1.2265	8.9400e-003	1.2354	0.3281	8.3300e-003	0.3365		1,603.8160	1,603.8160	0.0693		1,605.5484

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	168.36	168.36	168.36	575,312	389,470
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	168.36	168.36	168.36	575,312	389,470

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830
Other Non-Asphalt Surfaces	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830
Parking Lot	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
NaturalGas Unmitigated	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458

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					
Apartments Low Rise	981.407	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0106**	**0.0904**	**0.0385**	**5.8000e-004**		**7.3100e-003**	**7.3100e-003**		**7.3100e-003**	**7.3100e-003**		**115.4596**	**115.4596**	**2.2100e-003**	**2.1200e-003**	**116.1458**

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					
Apartments Low Rise	0.981407	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0106**	**0.0904**	**0.0385**	**5.8000e-004**		**7.3100e-003**	**7.3100e-003**		**7.3100e-003**	**7.3100e-003**		**115.4596**	**115.4596**	**2.2100e-003**	**2.1200e-003**	**116.1458**

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	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589
Unmitigated	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589

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	0.0723					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0402	0.3434	0.1461	2.1900e-003		0.0278	0.0278		0.0278	0.0278	0.0000	438.3529	438.3529	8.4000e-003	8.0400e-003	440.9579
Landscaping	0.0571	0.0219	1.8978	1.0000e-004		0.0105	0.0105		0.0105	0.0105		3.4190	3.4190	3.2800e-003		3.5011
Total	**0.9900**	**0.3652**	**2.0439**	**2.2900e-003**		**0.0383**	**0.0383**		**0.0383**	**0.0383**	**0.0000**	**441.7719**	**441.7719**	**0.0117**	**8.0400e-003**	**444.4589**

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	0.0723					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0402	0.3434	0.1461	2.1900e-003		0.0278	0.0278		0.0278	0.0278	0.0000	438.3529	438.3529	8.4000e-003	8.0400e-003	440.9579
Landscaping	0.0571	0.0219	1.8978	1.0000e-004		0.0105	0.0105		0.0105	0.0105		3.4190	3.4190	3.2800e-003		3.5011
Total	**0.9900**	**0.3652**	**2.0439**	**2.2900e-003**		**0.0383**	**0.0383**		**0.0383**	**0.0383**	**0.0000**	**441.7719**	**441.7719**	**0.0117**	**8.0400e-003**	**444.4589**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

04422101 Serena Village East (Phase 3)

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	23.00	Dwelling Unit	0.47	40,925.00	66
Parking Lot	10.00	Space	0.39	17,075.52	0
Other Non-Asphalt Surfaces	0.26	Acre	0.26	11,325.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, Winter

Project Characteristics - Serena Village East (Phase 3) - project phases 14-15

Land Use - Serena Village Eas (Phases 14-15) - 1.12 ac w/ 23 units (40,925sf bldgs w/ 20,452sf (~0.47ac) ftprnt), 10 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~0.392 ac)), & rmndr lndsc (~0.26 ac).

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21). SV East ~mid-Dec 2023- late March 2024 (per phasing plan). Anticipate that construciton of villages wont overlap.

Off-road Equipment - CalEEMod default construction timing for building construction decreased by ~70%; therefore, ~70% more equipment added to CalEEmod defaults.

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~17 new trees to be planted in Serena Village East.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.09 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 23 DU/1.12 acres = 20.54 DU/acre. Sidewalkson/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	PhaseEndDate	11/22/2024	3/31/2024
tblConstructionPhase	PhaseEndDate	10/25/2024	3/7/2024
tblConstructionPhase	PhaseEndDate	11/8/2024	3/31/2024
tblConstructionPhase	PhaseStartDate	11/9/2024	3/18/2024
tblConstructionPhase	PhaseStartDate	1/20/2024	12/15/2023
tblConstructionPhase	PhaseStartDate	10/26/2024	3/18/2024
tblFireplaces	NumberGas	19.55	20.70
tblFireplaces	NumberWood	1.15	0.00
tblLandUse	LandUseSquareFeet	23,000.00	40,925.00
tblLandUse	LandUseSquareFeet	4,000.00	17,075.52
tblLandUse	LotAcreage	1.44	0.47
tblLandUse	LotAcreage	0.09	0.39
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblSequestration	NumberOfNewTrees	0.00	17.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	1.15	0.00
tblWoodstoves	NumberNoncatalytic	1.15	0.00

2.0 Emissions Summary

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					
2023	2.6763	21.1435	22.7830	0.0433	0.3578	0.9211	1.2789	0.0959	0.8856	0.9815	0.0000	4,028.3261	4,028.3261	0.6515	0.0000	4,044.6146
2024	27.3791	19.9255	22.5642	0.0432	0.3578	0.8086	1.1664	0.0959	0.7768	0.8728	0.0000	4,020.1648	4,020.1648	0.6409	0.0000	4,036.1864
Maximum	**27.3791**	**21.1435**	**22.7830**	**0.0433**	**0.3578**	**0.9211**	**1.2789**	**0.0959**	**0.8856**	**0.9815**	**0.0000**	**4,028.3261**	**4,028.3261**	**0.6515**	**0.0000**	**4,044.6146**

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					
2023	2.6763	21.1435	22.7830	0.0433	0.3578	0.9211	1.2789	0.0959	0.8856	0.9815	0.0000	4,028.3261	4,028.3261	0.6515	0.0000	4,044.6146
2024	27.3791	19.9255	22.5642	0.0432	0.3578	0.8086	1.1664	0.0959	0.7768	0.8728	0.0000	4,020.1648	4,020.1648	0.6409	0.0000	4,036.1864
Maximum	**27.3791**	**21.1435**	**22.7830**	**0.0433**	**0.3578**	**0.9211**	**1.2789**	**0.0959**	**0.8856**	**0.9815**	**0.0000**	**4,028.3261**	**4,028.3261**	**0.6515**	**0.0000**	**4,044.6146**

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, 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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589
Energy	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Mobile	0.2631	1.7433	3.1774	0.0145	1.2265	8.9900e-003	1.2355	0.3281	8.3700e-003	0.3365		1,481.9311	1,481.9311	0.0703		1,483.6893
Total	**1.2637**	**2.1990**	**5.2598**	**0.0174**	**1.2265**	**0.0546**	**1.2811**	**0.3281**	**0.0540**	**0.3821**	**0.0000**	**2,039.1626**	**2,039.1626**	**0.0842**	**0.0102**	**2,044.2939**

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	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589
Energy	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Mobile	0.2296	1.5224	2.3569	0.0103	0.8303	6.3900e-003	0.8367	0.2221	5.9600e-003	0.2281		1,057.6864	1,057.6864	0.0571		1,059.1135
Total	**1.2302**	**1.9781**	**4.4393**	**0.0132**	**0.8303**	**0.0520**	**0.8823**	**0.2221**	**0.0516**	**0.2737**	**0.0000**	**1,614.9180**	**1,614.9180**	**0.0710**	**0.0102**	**1,619.7181**

	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	N20	CO2e
Percent Reduction	**2.65**	**10.05**	**15.60**	**23.92**	**32.30**	**4.76**	**31.13**	**32.30**	**4.47**	**28.37**	**0.00**	**20.80**	**20.80**	**15.73**	**0.00**	**20.77**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/15/2023	3/7/2024	5	60	
2	Paving	Paving	3/18/2024	3/31/2024	5	10	
3	Architectural Coating	Architectural Coating	3/18/2024	3/31/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.652

Residential Indoor: 82,873; Residential Outdoor: 27,624; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,704 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Cranes	2	6.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	4	8.00	46	0.45

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
Building Construction	12	28.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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	2.5376	20.5797	21.8663	0.0390		0.9187	0.9187		0.8834	0.8834		3,588.6199	3,588.6199	0.6346		3,604.4843
Total	**2.5376**	**20.5797**	**21.8663**	**0.0390**		**0.9187**	**0.9187**		**0.8834**	**0.8834**		**3,588.6199**	**3,588.6199**	**0.6346**		**3,604.4843**

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	0.0135	0.4890	0.1173	1.7500e-003	0.0448	5.0000e-004	0.0453	0.0129	4.7000e-004	0.0134		184.7288	184.7288	0.0108		184.9991
Worker	0.1253	0.0748	0.7994	2.5600e-003	0.3130	1.8900e-003	0.3149	0.0830	1.7400e-003	0.0847		254.9774	254.9774	6.1500e-003		255.1312
Total	**0.1388**	**0.5638**	**0.9168**	**4.3100e-003**	**0.3578**	**2.3900e-003**	**0.3602**	**0.0959**	**2.2100e-003**	**0.0981**		**439.7062**	**439.7062**	**0.0170**		**440.1303**

3.2 Building Construction - 2023

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	2.5376	20.5797	21.8663	0.0390		0.9187	0.9187		0.8834	0.8834	0.0000	3,588.6199	3,588.6199	0.6346		3,604.4843
Total	**2.5376**	**20.5797**	**21.8663**	**0.0390**		**0.9187**	**0.9187**		**0.8834**	**0.8834**	**0.0000**	**3,588.6199**	**3,588.6199**	**0.6346**		**3,604.4843**

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	0.0135	0.4890	0.1173	1.7500e-003	0.0448	5.0000e-004	0.0453	0.0129	4.7000e-004	0.0134		184.7288	184.7288	0.0108		184.9991
Worker	0.1253	0.0748	0.7994	2.5600e-003	0.3130	1.8900e-003	0.3149	0.0830	1.7400e-003	0.0847		254.9774	254.9774	6.1500e-003		255.1312
Total	**0.1388**	**0.5638**	**0.9168**	**4.3100e-003**	**0.3578**	**2.3900e-003**	**0.3602**	**0.0959**	**2.2100e-003**	**0.0981**		**439.7062**	**439.7062**	**0.0170**		**440.1303**

3.2 Building Construction - 2024

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	2.3683	19.3662	21.7070	0.0390		0.8062	0.8062		0.7746	0.7746		3,588.8874	3,588.8874	0.6244		3,604.4983
Total	**2.3683**	**19.3662**	**21.7070**	**0.0390**		**0.8062**	**0.8062**		**0.7746**	**0.7746**		**3,588.8874**	**3,588.8874**	**0.6244**		**3,604.4983**

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	0.0133	0.4915	0.1131	1.7500e-003	0.0448	4.9000e-004	0.0453	0.0129	4.7000e-004	0.0134		184.5659	184.5659	0.0108		184.8361
Worker	0.1182	0.0678	0.7442	2.4700e-003	0.3130	1.8700e-003	0.3149	0.0830	1.7200e-003	0.0847		246.7115	246.7115	5.6200e-003		246.8520
Total	**0.1315**	**0.5593**	**0.8573**	**4.2200e-003**	**0.3578**	**2.3600e-003**	**0.3602**	**0.0959**	**2.1900e-003**	**0.0981**		**431.2774**	**431.2774**	**0.0164**		**431.6881**

3.2 Building Construction - 2024

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	2.3683	19.3662	21.7070	0.0390		0.8062	0.8062		0.7746	0.7746	0.0000	3,588.8874	3,588.8874	0.6244		3,604.4983
Total	**2.3683**	**19.3662**	**21.7070**	**0.0390**		**0.8062**	**0.8062**		**0.7746**	**0.7746**	**0.0000**	**3,588.8874**	**3,588.8874**	**0.6244**		**3,604.4983**

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	0.0133	0.4915	0.1131	1.7500e-003	0.0448	4.9000e-004	0.0453	0.0129	4.7000e-004	0.0134		184.5659	184.5659	0.0108		184.8361
Worker	0.1182	0.0678	0.7442	2.4700e-003	0.3130	1.8700e-003	0.3149	0.0830	1.7200e-003	0.0847		246.7115	246.7115	5.6200e-003		246.8520
Total	**0.1315**	**0.5593**	**0.8573**	**4.2200e-003**	**0.3578**	**2.3600e-003**	**0.3602**	**0.0959**	**2.1900e-003**	**0.0981**		**431.2774**	**431.2774**	**0.0164**		**431.6881**

3.3 Paving - 2024

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	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.1027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7207**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

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	0.0549	0.0315	0.3455	1.1500e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		114.5446	114.5446	2.6100e-003		114.6099
Total	**0.0549**	**0.0315**	**0.3455**	**1.1500e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**114.5446**	**114.5446**	**2.6100e-003**		**114.6099**

3.3 Paving - 2024

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	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.1027					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7207**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

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	0.0549	0.0315	0.3455	1.1500e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		114.5446	114.5446	2.6100e-003		114.6099
Total	**0.0549**	**0.0315**	**0.3455**	**1.1500e-003**	**0.1453**	**8.7000e-004**	**0.1462**	**0.0385**	**8.0000e-004**	**0.0393**		**114.5446**	**114.5446**	**2.6100e-003**		**114.6099**

3.4 Architectural Coating - 2024

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	26.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**26.5782**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0253	0.0145	0.1595	5.3000e-004	0.0671	4.0000e-004	0.0675	0.0178	3.7000e-004	0.0182		52.8668	52.8668	1.2000e-003		52.8969
Total	**0.0253**	**0.0145**	**0.1595**	**5.3000e-004**	**0.0671**	**4.0000e-004**	**0.0675**	**0.0178**	**3.7000e-004**	**0.0182**		**52.8668**	**52.8668**	**1.2000e-003**		**52.8969**

3.4 Architectural Coating - 2024

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	26.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**26.5782**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0253	0.0145	0.1595	5.3000e-004	0.0671	4.0000e-004	0.0675	0.0178	3.7000e-004	0.0182		52.8668	52.8668	1.2000e-003		52.8969
Total	**0.0253**	**0.0145**	**0.1595**	**5.3000e-004**	**0.0671**	**4.0000e-004**	**0.0675**	**0.0178**	**3.7000e-004**	**0.0182**		**52.8668**	**52.8668**	**1.2000e-003**		**52.8969**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.2296	1.5224	2.3569	0.0103	0.8303	6.3900e-003	0.8367	0.2221	5.9600e-003	0.2281		1,057.6864	1,057.6864	0.0571		1,059.1135
Unmitigated	0.2631	1.7433	3.1774	0.0145	1.2265	8.9900e-003	1.2355	0.3281	8.3700e-003	0.3365		1,481.9311	1,481.9311	0.0703		1,483.6893

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	168.36	168.36	168.36	575,312	389,470
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	168.36	168.36	168.36	575,312	389,470

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830
Other Non-Asphalt Surfaces	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830
Parking Lot	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
NaturalGas Unmitigated	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458

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					
Apartments Low Rise	981.407	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0106**	**0.0904**	**0.0385**	**5.8000e-004**		**7.3100e-003**	**7.3100e-003**		**7.3100e-003**	**7.3100e-003**		**115.4596**	**115.4596**	**2.2100e-003**	**2.1200e-003**	**116.1458**

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					
Apartments Low Rise	0.981407	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003		115.4596	115.4596	2.2100e-003	2.1200e-003	116.1458
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**0.0106**	**0.0904**	**0.0385**	**5.8000e-004**		**7.3100e-003**	**7.3100e-003**		**7.3100e-003**	**7.3100e-003**		**115.4596**	**115.4596**	**2.2100e-003**	**2.1200e-003**	**116.1458**

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	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589
Unmitigated	0.9900	0.3652	2.0439	2.2900e-003		0.0383	0.0383		0.0383	0.0383	0.0000	441.7719	441.7719	0.0117	8.0400e-003	444.4589

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	0.0723					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0402	0.3434	0.1461	2.1900e-003		0.0278	0.0278		0.0278	0.0278	0.0000	438.3529	438.3529	8.4000e-003	8.0400e-003	440.9579
Landscaping	0.0571	0.0219	1.8978	1.0000e-004		0.0105	0.0105		0.0105	0.0105		3.4190	3.4190	3.2800e-003		3.5011
Total	**0.9900**	**0.3652**	**2.0439**	**2.2900e-003**		**0.0383**	**0.0383**		**0.0383**	**0.0383**	**0.0000**	**441.7719**	**441.7719**	**0.0117**	**8.0400e-003**	**444.4589**

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	0.0723					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0402	0.3434	0.1461	2.1900e-003		0.0278	0.0278		0.0278	0.0278	0.0000	438.3529	438.3529	8.4000e-003	8.0400e-003	440.9579
Landscaping	0.0571	0.0219	1.8978	1.0000e-004		0.0105	0.0105		0.0105	0.0105		3.4190	3.4190	3.2800e-003		3.5011
Total	**0.9900**	**0.3652**	**2.0439**	**2.2900e-003**		**0.0383**	**0.0383**		**0.0383**	**0.0383**	**0.0000**	**441.7719**	**441.7719**	**0.0117**	**8.0400e-003**	**444.4589**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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:

CalEEMod Annual Emission Output

04422101 - Serena Village - CONSTRUCTION ANALYSIS ONLY

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	11.54	Acre	11.54	502,682.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CONSTRUCTION ANALYSIS ONLY - Grading/demolition of entire site to occur in beginning of construction (Serena Village North, South, & East).

Land Use - Grading/demo of entire site to occur at beginning of construction. Includes 3.77ac Serena Village North (P1), 6.65ac Serena Village South (P2), & 1.12ac Serena Village East (P3) for total 11.54 ac to be graded.

Construction Phase - Grading/Demo only for entire site at beginning of construction (bldg construction, paving, & AC calculated per each phase separately). Per phasing plan construction to begin Dec 2021.

Grading - 1,232 CY export during grading.

Demolition - ~12,000 SF demolition bldgs/asphalt/concrete.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	1,232.00

2.0 Emissions Summary

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					
2021	0.0325	0.3214	0.2220	4.2000e-004	8.0200e-003	0.0155	0.0236	1.4600e-003	0.0144	0.0159	0.0000	37.4016	37.4016	9.7200e-003	0.0000	37.6447
2022	0.0560	0.5966	0.4476	1.0100e-003	0.1344	0.0246	0.1590	0.0551	0.0226	0.0777	0.0000	88.8987	88.8987	0.0268	0.0000	89.5681
Maximum	**0.0560**	**0.5966**	**0.4476**	**1.0100e-003**	**0.1344**	**0.0246**	**0.1590**	**0.0551**	**0.0226**	**0.0777**	**0.0000**	**88.8987**	**88.8987**	**0.0268**	**0.0000**	**89.5681**

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					
2021	0.0325	0.3214	0.2220	4.2000e-004	8.0200e-003	0.0155	0.0236	1.4600e-003	0.0144	0.0159	0.0000	37.4016	37.4016	9.7200e-003	0.0000	37.6447
2022	0.0560	0.5966	0.4476	1.0100e-003	0.1344	0.0246	0.1590	0.0551	0.0226	0.0777	0.0000	88.8986	88.8986	0.0268	0.0000	89.5680
Maximum	**0.0560**	**0.5966**	**0.4476**	**1.0100e-003**	**0.1344**	**0.0246**	**0.1590**	**0.0551**	**0.0226**	**0.0777**	**0.0000**	**88.8986**	**88.8986**	**0.0268**	**0.0000**	**89.5680**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**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	**12-1-2021**	**2-28-2022**	1.0063	1.0063
		Highest	1.0063	1.0063

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2021	12/28/2021	5	20	
2	Grading	Grading	1/12/2022	2/22/2022	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 11.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Scrapers	2	8.00	367	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
Demolition	6	15.00	0.00	55.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	122.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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					
Fugitive Dust					5.9100e-003	0.0000	5.9100e-003	8.9000e-004	0.0000	8.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0008	34.0008	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**5.9100e-003**	**0.0155**	**0.0214**	**8.9000e-004**	**0.0144**	**0.0153**	**0.0000**	**34.0008**	**34.0008**	**9.5700e-003**	**0.0000**	**34.2400**

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	1.7000e-004	6.4200e-003	1.0300e-003	2.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	2.0360	2.0360	1.1000e-004	0.0000	2.0389
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	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**8.6000e-004**	**6.9400e-003**	**6.3700e-003**	**4.0000e-005**	**2.1100e-003**	**3.0000e-005**	**2.1500e-003**	**5.7000e-004**	**3.0000e-005**	**6.0000e-004**	**0.0000**	**3.4008**	**3.4008**	**1.5000e-004**	**0.0000**	**3.4047**

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					5.9100e-003	0.0000	5.9100e-003	8.9000e-004	0.0000	8.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0007	34.0007	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**5.9100e-003**	**0.0155**	**0.0214**	**8.9000e-004**	**0.0144**	**0.0153**	**0.0000**	**34.0007**	**34.0007**	**9.5700e-003**	**0.0000**	**34.2400**

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	1.7000e-004	6.4200e-003	1.0300e-003	2.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	2.0360	2.0360	1.1000e-004	0.0000	2.0389
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	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**8.6000e-004**	**6.9400e-003**	**6.3700e-003**	**4.0000e-005**	**2.1100e-003**	**3.0000e-005**	**2.1500e-003**	**5.7000e-004**	**3.0000e-005**	**6.0000e-004**	**0.0000**	**3.4008**	**3.4008**	**1.5000e-004**	**0.0000**	**3.4047**

3.3 Grading - 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					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8019	81.8019	0.0265	0.0000	82.4633
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.1301**	**0.0245**	**0.1546**	**0.0540**	**0.0226**	**0.0765**	**0.0000**	**81.8019**	**81.8019**	**0.0265**	**0.0000**	**82.4633**

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	3.5000e-004	0.0130	2.2200e-003	5.0000e-005	1.0500e-003	3.0000e-005	1.0800e-003	2.9000e-004	3.0000e-005	3.2000e-004	0.0000	4.4655	4.4655	2.5000e-004	0.0000	4.4717
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	1.2900e-003	9.4000e-004	9.8000e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.6313	2.6313	7.0000e-005	0.0000	2.6331
Total	**1.6400e-003**	**0.0140**	**0.0120**	**8.0000e-005**	**4.3400e-003**	**5.0000e-005**	**4.3900e-003**	**1.1600e-003**	**5.0000e-005**	**1.2100e-003**	**0.0000**	**7.0968**	**7.0968**	**3.2000e-004**	**0.0000**	**7.1047**

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					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8018	81.8018	0.0265	0.0000	82.4632
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.1301**	**0.0245**	**0.1546**	**0.0540**	**0.0226**	**0.0765**	**0.0000**	**81.8018**	**81.8018**	**0.0265**	**0.0000**	**82.4632**

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	3.5000e-004	0.0130	2.2200e-003	5.0000e-005	1.0500e-003	3.0000e-005	1.0800e-003	2.9000e-004	3.0000e-005	3.2000e-004	0.0000	4.4655	4.4655	2.5000e-004	0.0000	4.4717
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	1.2900e-003	9.4000e-004	9.8000e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3100e-003	8.7000e-004	2.0000e-005	8.9000e-004	0.0000	2.6313	2.6313	7.0000e-005	0.0000	2.6331
Total	**1.6400e-003**	**0.0140**	**0.0120**	**8.0000e-005**	**4.3400e-003**	**5.0000e-005**	**4.3900e-003**	**1.1600e-003**	**5.0000e-005**	**1.2100e-003**	**0.0000**	**7.0968**	**7.0968**	**3.2000e-004**	**0.0000**	**7.1047**

04422101- Serena Village - Serena Village North (Phase 1)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.02	Acre	1.02	44,431.20	0
Parking Lot	32.00	Space	1.32	57,499.20	0
Apartments Low Rise	71.00	Dwelling Unit	1.43	143,905.00	203

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101- Serena Village - Serena Village North (Phase 1) - San Bernardino-South Coast County, Annual

Project Characteristics - Serena Village North (Phase 1) - includes project Phases 1-6

Land Use - Serena Village North (Phases 1-6) - 3.77ac w/ 71 units (143,905sf bldgs w/ 62,091sf (~1.43ac) ftprnt), 32 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~1.32 ac)), & rmndr lndsc (~1.02 ac)

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21); therefore, Serena Village North construction from 11/23/21 - 11/2022 (per phasing plan).

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~50 new trees to be planted in Serena Village North.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.08 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 71 DU/ 3.77 net acres = 18.83 DU/acre. Sidewalks on/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

Architectural Coating -

04422101- Serena Village - Serena Village North (Phase 1) - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	25.00
tblConstructionPhase	NumDays	230.00	215.00
tblFireplaces	NumberGas	60.35	63.90
tblFireplaces	NumberWood	3.55	0.00
tblLandUse	LandUseSquareFeet	12,800.00	57,499.20
tblLandUse	LandUseSquareFeet	71,000.00	143,905.00
tblLandUse	LotAcreage	0.29	1.32
tblLandUse	LotAcreage	4.44	1.43
tblSequestration	NumberOfNewTrees	0.00	50.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	3.55	0.00
tblWoodstoves	NumberNoncatalytic	3.55	0.00

2.0 Emissions Summary

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					
2022	0.7126	2.0526	2.2826	4.8000e-003	0.1316	0.0935	0.2251	0.0353	0.0879	0.1233	0.0000	424.3176	424.3176	0.0712	0.0000	426.0972
Maximum	**0.7126**	**2.0526**	**2.2826**	**4.8000e-003**	**0.1316**	**0.0935**	**0.2251**	**0.0353**	**0.0879**	**0.1233**	**0.0000**	**424.3176**	**424.3176**	**0.0712**	**0.0000**	**426.0972**

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					
2022	0.7126	2.0526	2.2826	4.8000e-003	0.1316	0.0935	0.2251	0.0353	0.0879	0.1233	0.0000	424.3173	424.3173	0.0712	0.0000	426.0969
Maximum	**0.7126**	**2.0526**	**2.2826**	**4.8000e-003**	**0.1316**	**0.0935**	**0.2251**	**0.0353**	**0.0879**	**0.1233**	**0.0000**	**424.3173**	**424.3173**	**0.0712**	**0.0000**	**426.0969**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

04422101- Serena Village - Serena Village North (Phase 1) - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-23-2022	4-22-2022	0.6519	0.6519
2	4-23-2022	7-22-2022	0.6593	0.6593
3	7-23-2022	9-30-2022	0.5072	0.5072
		Highest	0.6593	0.6593

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	0.5968	0.0217	0.7391	1.2000e-004		5.1200e-003	5.1200e-003		5.1200e-003	5.1200e-003	0.0000	16.5416	16.5416	1.4500e-003	2.8000e-004	16.6617
Energy	5.9600e-003	0.0510	0.0217	3.3000e-004		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	175.3707	175.3707	5.9300e-003	2.0800e-003	176.1376
Mobile	0.1702	1.3149	2.1396	8.7800e-003	0.6763	6.1900e-003	0.6825	0.1813	5.8000e-003	0.1871	0.0000	813.9137	813.9137	0.0417	0.0000	814.9561
Waste						0.0000	0.0000		0.0000	0.0000	6.6297	0.0000	6.6297	0.3918	0.0000	16.4248
Water						0.0000	0.0000		0.0000	0.0000	1.4676	29.5155	30.9831	0.1520	3.8100e-003	35.9177
Total	**0.7729**	**1.3875**	**2.9003**	**9.2300e-003**	**0.6763**	**0.0154**	**0.6917**	**0.1813**	**0.0150**	**0.1963**	**8.0973**	**1,035.3415**	**1,043.4387**	**0.5928**	**6.1700e-003**	**1,060.0979**

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	0.5968	0.0217	0.7391	1.2000e-004		5.1200e-003	5.1200e-003		5.1200e-003	5.1200e-003	0.0000	16.5416	16.5416	1.4500e-003	2.8000e-004	16.6617
Energy	5.9600e-003	0.0510	0.0217	3.3000e-004		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	175.3707	175.3707	5.9300e-003	2.0800e-003	176.1376
Mobile	0.1483	1.1238	1.6025	6.3500e-003	0.4640	4.4400e-003	0.4685	0.1244	4.1500e-003	0.1285	0.0000	588.7107	588.7107	0.0342	0.0000	589.5661
Waste						0.0000	0.0000		0.0000	0.0000	1.6574	0.0000	1.6574	0.0980	0.0000	4.1062
Water						0.0000	0.0000		0.0000	0.0000	1.1741	25.6771	26.8512	0.1217	3.0700e-003	30.8063
Total	**0.7510**	**1.1964**	**2.3632**	**6.8000e-003**	**0.4640**	**0.0137**	**0.4777**	**0.1244**	**0.0134**	**0.1378**	**2.8315**	**806.3002**	**809.1316**	**0.2612**	**5.4300e-003**	**817.2779**

	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	N20	CO2e
Percent Reduction	**2.83**	**13.77**	**18.52**	**26.33**	**31.39**	**11.34**	**30.94**	**31.39**	**10.97**	**29.82**	**65.03**	**22.12**	**22.46**	**55.94**	**11.99**	**22.91**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	35.4000
Total	**35.4000**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/23/2022	11/18/2022	5	215	
2	Paving	Paving	11/5/2022	11/30/2022	5	18	
3	Architectural Coating	Architectural Coating	10/27/2022	11/30/2022	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.34

Residential Indoor: 291,408; Residential Outdoor: 97,136; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 6,116 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Building Construction	9	94.00	24.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	19.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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	0.1834	1.6787	1.7591	2.9000e-003		0.0870	0.0870		0.0818	0.0818	0.0000	249.1046	249.1046	0.0597	0.0000	250.5966
Total	**0.1834**	**1.6787**	**1.7591**	**2.9000e-003**		**0.0870**	**0.0870**		**0.0818**	**0.0818**	**0.0000**	**249.1046**	**249.1046**	**0.0597**	**0.0000**	**250.5966**

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	6.3800e-003	0.2377	0.0473	6.8000e-004	0.0163	3.6000e-004	0.0166	4.6900e-003	3.5000e-004	5.0400e-003	0.0000	64.9888	64.9888	4.2600e-003	0.0000	65.0954
Worker	0.0435	0.0316	0.3302	9.8000e-004	0.1108	7.0000e-004	0.1115	0.0294	6.5000e-004	0.0301	0.0000	88.6324	88.6324	2.3100e-003	0.0000	88.6901
Total	**0.0499**	**0.2693**	**0.3775**	**1.6600e-003**	**0.1271**	**1.0600e-003**	**0.1281**	**0.0341**	**1.0000e-003**	**0.0351**	**0.0000**	**153.6211**	**153.6211**	**6.5700e-003**	**0.0000**	**153.7854**

3.2 Building Construction - 2022

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	0.1834	1.6787	1.7591	2.9000e-003		0.0870	0.0870		0.0818	0.0818	0.0000	249.1043	249.1043	0.0597	0.0000	250.5963
Total	**0.1834**	**1.6787**	**1.7591**	**2.9000e-003**		**0.0870**	**0.0870**		**0.0818**	**0.0818**	**0.0000**	**249.1043**	**249.1043**	**0.0597**	**0.0000**	**250.5963**

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	6.3800e-003	0.2377	0.0473	6.8000e-004	0.0163	3.6000e-004	0.0166	4.6900e-003	3.5000e-004	5.0400e-003	0.0000	64.9888	64.9888	4.2600e-003	0.0000	65.0954
Worker	0.0435	0.0316	0.3302	9.8000e-004	0.1108	7.0000e-004	0.1115	0.0294	6.5000e-004	0.0301	0.0000	88.6324	88.6324	2.3100e-003	0.0000	88.6901
Total	**0.0499**	**0.2693**	**0.3775**	**1.6600e-003**	**0.1271**	**1.0600e-003**	**0.1281**	**0.0341**	**1.0000e-003**	**0.0351**	**0.0000**	**153.6211**	**153.6211**	**6.5700e-003**	**0.0000**	**153.7854**

3.3 Paving - 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	8.7900e-003	0.0857	0.1098	1.7000e-004		4.3900e-003	4.3900e-003		4.0500e-003	4.0500e-003	0.0000	14.7383	14.7383	4.6300e-003	0.0000	14.8540
Paving	1.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0105**	**0.0857**	**0.1098**	**1.7000e-004**		**4.3900e-003**	**4.3900e-003**		**4.0500e-003**	**4.0500e-003**	**0.0000**	**14.7383**	**14.7383**	**4.6300e-003**	**0.0000**	**14.8540**

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	7.7000e-004	5.6000e-004	5.8800e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5788	1.5788	4.0000e-005	0.0000	1.5798
Total	**7.7000e-004**	**5.6000e-004**	**5.8800e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5788**	**1.5788**	**4.0000e-005**	**0.0000**	**1.5798**

3.3 Paving - 2022

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	8.7900e-003	0.0857	0.1098	1.7000e-004		4.3900e-003	4.3900e-003		4.0500e-003	4.0500e-003	0.0000	14.7383	14.7383	4.6300e-003	0.0000	14.8540
Paving	1.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0105**	**0.0857**	**0.1098**	**1.7000e-004**		**4.3900e-003**	**4.3900e-003**		**4.0500e-003**	**4.0500e-003**	**0.0000**	**14.7383**	**14.7383**	**4.6300e-003**	**0.0000**	**14.8540**

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	7.7000e-004	5.6000e-004	5.8800e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5788	1.5788	4.0000e-005	0.0000	1.5798
Total	**7.7000e-004**	**5.6000e-004**	**5.8800e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5788**	**1.5788**	**4.0000e-005**	**0.0000**	**1.5798**

3.4 Architectural Coating - 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					
Archit. Coating	0.4644					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0176	0.0227	4.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	3.1916	3.1916	2.1000e-004	0.0000	3.1968
Total	**0.4670**	**0.0176**	**0.0227**	**4.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**3.1916**	**3.1916**	**2.1000e-004**	**0.0000**	**3.1968**

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	1.0200e-003	7.4000e-004	7.7600e-003	2.0000e-005	2.6000e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.0832	2.0832	5.0000e-005	0.0000	2.0845
Total	**1.0200e-003**	**7.4000e-004**	**7.7600e-003**	**2.0000e-005**	**2.6000e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.0832**	**2.0832**	**5.0000e-005**	**0.0000**	**2.0845**

3.4 Architectural Coating - 2022

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	0.4644					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0176	0.0227	4.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	3.1916	3.1916	2.1000e-004	0.0000	3.1968
Total	**0.4670**	**0.0176**	**0.0227**	**4.0000e-005**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**3.1916**	**3.1916**	**2.1000e-004**	**0.0000**	**3.1968**

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	1.0200e-003	7.4000e-004	7.7600e-003	2.0000e-005	2.6000e-003	2.0000e-005	2.6200e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.0832	2.0832	5.0000e-005	0.0000	2.0845
Total	**1.0200e-003**	**7.4000e-004**	**7.7600e-003**	**2.0000e-005**	**2.6000e-003**	**2.0000e-005**	**2.6200e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.0832**	**2.0832**	**5.0000e-005**	**0.0000**	**2.0845**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.1483	1.1238	1.6025	6.3500e-003	0.4640	4.4400e-003	0.4685	0.1244	4.1500e-003	0.1285	0.0000	588.7107	588.7107	0.0342	0.0000	589.5661
Unmitigated	0.1702	1.3149	2.1396	8.7800e-003	0.6763	6.1900e-003	0.6825	0.1813	5.8000e-003	0.1871	0.0000	813.9137	813.9137	0.0417	0.0000	814.9561

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	519.72	519.72	519.72	1,775,962	1,218,549
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	519.72	519.72	519.72	1,775,962	1,218,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Other Non-Asphalt Surfaces	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944
Parking Lot	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	116.3616	116.3616	4.8000e-003	9.9000e-004	116.7778
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	116.3616	116.3616	4.8000e-003	9.9000e-004	116.7778
NaturalGas Mitigated	5.9600e-003	0.0510	0.0217	3.3000e-004		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	59.0091	59.0091	1.1300e-003	1.0800e-003	59.3598
NaturalGas Unmitigated	5.9600e-003	0.0510	0.0217	3.3000e-004		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	59.0091	59.0091	1.1300e-003	1.0800e-003	59.3598

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					
Apartments Low Rise	1.10579e+006	5.9600e-003	0.0510	0.0217	3.3000e-004		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	59.0091	59.0091	1.1300e-003	1.0800e-003	59.3598
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**5.9600e-003**	**0.0510**	**0.0217**	**3.3000e-004**		**4.1200e-003**	**4.1200e-003**		**4.1200e-003**	**4.1200e-003**	**0.0000**	**59.0091**	**59.0091**	**1.1300e-003**	**1.0800e-003**	**59.3598**

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	tons/yr										MT/yr					
Apartments Low Rise	1.10579e+006	5.9600e-003	0.0510	0.0217	3.3000e-004		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	59.0091	59.0091	1.1300e-003	1.0800e-003	59.3598
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**5.9600e-003**	**0.0510**	**0.0217**	**3.3000e-004**		**4.1200e-003**	**4.1200e-003**		**4.1200e-003**	**4.1200e-003**	**0.0000**	**59.0091**	**59.0091**	**1.1300e-003**	**1.0800e-003**	**59.3598**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	345078	109.9494	4.5400e-003	9.4000e-004	110.3427
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	20124.7	6.4122	2.6000e-004	5.0000e-005	6.4351
Total		**116.3616**	**4.8000e-003**	**9.9000e-004**	**116.7779**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	345078	109.9494	4.5400e-003	9.4000e-004	110.3427
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	20124.7	6.4122	2.6000e-004	5.0000e-005	6.4351
Total		**116.3616**	**4.8000e-003**	**9.9000e-004**	**116.7779**

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	tons/yr										MT/yr					
Mitigated	0.5968	0.0217	0.7391	1.2000e-004		5.1200e-003	5.1200e-003		5.1200e-003	5.1200e-003	0.0000	16.5416	16.5416	1.4500e-003	2.8000e-004	16.6617
Unmitigated	0.5968	0.0217	0.7391	1.2000e-004		5.1200e-003	5.1200e-003		5.1200e-003	5.1200e-003	0.0000	16.5416	16.5416	1.4500e-003	2.8000e-004	16.6617

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	0.0464					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5266					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5500e-003	0.0133	5.6400e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3448	15.3448	2.9000e-004	2.8000e-004	15.4360
Landscaping	0.0222	8.4600e-003	0.7334	4.0000e-005		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	1.1969	1.1969	1.1600e-003	0.0000	1.2258
Total	**0.5968**	**0.0217**	**0.7391**	**1.2000e-004**		**5.1200e-003**	**5.1200e-003**		**5.1200e-003**	**5.1200e-003**	**0.0000**	**16.5416**	**16.5416**	**1.4500e-003**	**2.8000e-004**	**16.6617**

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	0.0464					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5266					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.5500e-003	0.0133	5.6400e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3448	15.3448	2.9000e-004	2.8000e-004	15.4360
Landscaping	0.0222	8.4600e-003	0.7334	4.0000e-005		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	1.1969	1.1969	1.1600e-003	0.0000	1.2258
Total	**0.5968**	**0.0217**	**0.7391**	**1.2000e-004**		**5.1200e-003**	**5.1200e-003**		**5.1200e-003**	**5.1200e-003**	**0.0000**	**16.5416**	**16.5416**	**1.4500e-003**	**2.8000e-004**	**16.6617**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.8512	0.1217	3.0700e-003	30.8063
Unmitigated	30.9831	0.1520	3.8100e-003	35.9177

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	4.62594 / 2.91635	30.9831	0.1520	3.8100e-003	35.9177
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**30.9831**	**0.1520**	**3.8100e-003**	**35.9177**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.70075 / 2.91635	26.8512	0.1217	3.0700e-003	30.8063
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**26.8512**	**0.1217**	**3.0700e-003**	**30.8063**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.6574	0.0980	0.0000	4.1062
Unmitigated	6.6297	0.3918	0.0000	16.4248

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	32.66	6.6297	0.3918	0.0000	16.4248
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**6.6297**	**0.3918**	**0.0000**	**16.4248**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	8.165	1.6574	0.0980	0.0000	4.1062
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.6574**	**0.0980**	**0.0000**	**4.1062**

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	35.4000	0.0000	0.0000	35.4000

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	50	35.4000	0.0000	0.0000	35.4000
Total		**35.4000**	**0.0000**	**0.0000**	**35.4000**

04422101 Serena Village South (Phase 2)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.79	Acre	1.79	77,972.40	0
Parking Lot	87.00	Space	2.33	101,494.80	0
Apartments Low Rise	112.00	Dwelling Unit	2.53	220,029.00	320

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101 Serena Village South (Phase 2) - San Bernardino-South Coast County, Annual

Project Characteristics - Serena Village South (Phase 2) - includes project phases 7-13

Land Use - Serena Village South (Phases 7-13) - 6.65 ac w/ 112 units (220,029sf bldgs w/ 110,009sf (~2.53ac) ftprnt), 87 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~2.33 ac)), & rmndr lndsc (~1.79 ac)

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21). SV South ~early Dec2022-mid-Dec2023 (per phasing plan). Anticipate that construciton of villages wont overlap.

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~110 new trees to be planted in Serena Village South.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.12 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 112 DU/ 6.65net acres = 16.84 DU/acre. Sidewalks on/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	35.00
tblFireplaces	NumberGas	95.20	100.80
tblFireplaces	NumberWood	5.60	0.00
tblLandUse	LandUseSquareFeet	34,800.00	101,494.80
tblLandUse	LandUseSquareFeet	112,000.00	220,029.00
tblLandUse	LotAcreage	0.78	2.33
tblLandUse	LotAcreage	7.00	2.53
tblSequestration	NumberOfNewTrees	0.00	110.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	5.60	0.00
tblWoodstoves	NumberNoncatalytic	5.60	0.00

2.0 Emissions Summary

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					
2022	0.0273	0.2187	0.2443	5.8000e-004	0.0217	9.0800e-003	0.0307	5.8200e-003	8.5400e-003	0.0144	0.0000	51.9015	51.9015	7.2400e-003	0.0000	52.0826
2023	0.9698	1.9713	2.4411	5.7500e-003	0.2124	0.0806	0.2929	0.0570	0.0757	0.1328	0.0000	512.8315	512.8315	0.0732	0.0000	514.6619
Maximum	**0.9698**	**1.9713**	**2.4411**	**5.7500e-003**	**0.2124**	**0.0806**	**0.2929**	**0.0570**	**0.0757**	**0.1328**	**0.0000**	**512.8315**	**512.8315**	**0.0732**	**0.0000**	**514.6619**

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					
2022	0.0273	0.2187	0.2443	5.8000e-004	0.0217	9.0800e-003	0.0307	5.8200e-003	8.5400e-003	0.0144	0.0000	51.9015	51.9015	7.2400e-003	0.0000	52.0826
2023	0.9698	1.9713	2.4411	5.7500e-003	0.2124	0.0806	0.2929	0.0570	0.0757	0.1328	0.0000	512.8312	512.8312	0.0732	0.0000	514.6616
Maximum	**0.9698**	**1.9713**	**2.4411**	**5.7500e-003**	**0.2124**	**0.0806**	**0.2929**	**0.0570**	**0.0757**	**0.1328**	**0.0000**	**512.8312**	**512.8312**	**0.0732**	**0.0000**	**514.6616**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**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	12-1-2022	2-28-2023	0.6691	0.6691
2	3-1-2023	5-31-2023	0.6579	0.6579
3	6-1-2023	8-31-2023	0.6580	0.6580
4	9-1-2023	9-30-2023	0.2146	0.2146
		Highest	0.6691	0.6691

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	0.9154	0.0342	1.1653	1.9000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	26.0947	26.0947	2.2800e-003	4.4000e-004	26.2841
Energy	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	277.8446	277.8446	9.4100e-003	3.2800e-003	279.0587
Mobile	0.2410	1.6147	3.1015	0.0134	1.0668	8.0800e-003	1.0749	0.2859	7.5300e-003	0.2934	0.0000	1,242.1397	1,242.1397	0.0574	0.0000	1,243.5733
Waste						0.0000	0.0000		0.0000	0.0000	10.4581	0.0000	10.4581	0.6181	0.0000	25.9095
Water						0.0000	0.0000		0.0000	0.0000	2.3151	46.5596	48.8747	0.2397	6.0100e-003	56.6589
Total	**1.1658**	**1.7293**	**4.3010**	**0.0141**	**1.0668**	**0.0227**	**1.0895**	**0.2859**	**0.0221**	**0.3080**	**12.7732**	**1,592.6386**	**1,605.4118**	**0.9268**	**9.7300e-003**	**1,631.4845**

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	0.9154	0.0342	1.1653	1.9000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	26.0947	26.0947	2.2800e-003	4.4000e-004	26.2841
Energy	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	277.8446	277.8446	9.4100e-003	3.2800e-003	279.0587
Mobile	0.2129	1.4263	2.3817	9.9900e-003	0.7598	6.0000e-003	0.7658	0.2036	5.5900e-003	0.2092	0.0000	927.0437	927.0437	0.0473	0.0000	928.2252
Waste						0.0000	0.0000		0.0000	0.0000	2.6145	0.0000	2.6145	0.1545	0.0000	6.4774
Water						0.0000	0.0000		0.0000	0.0000	1.8521	40.5047	42.3568	0.1919	4.8400e-003	48.5958
Total	**1.1376**	**1.5409**	**3.5812**	**0.0107**	**0.7598**	**0.0206**	**0.7804**	**0.2036**	**0.0202**	**0.2238**	**4.4666**	**1,271.4877**	**1,275.9543**	**0.4054**	**8.5600e-003**	**1,288.6412**

	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	N20	CO2e
Percent Reduction	**2.41**	**10.89**	**16.73**	**24.13**	**28.78**	**9.18**	**28.37**	**28.78**	**8.77**	**27.35**	**65.03**	**20.16**	**20.52**	**56.26**	**12.02**	**21.01**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	77.8800
Total	**77.8800**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/1/2022	10/18/2023	5	230	
2	Paving	Paving	10/19/2023	11/15/2023	5	20	
3	Architectural Coating	Architectural Coating	10/27/2023	12/14/2023	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.12

Residential Indoor: 445,559; Residential Outdoor: 148,520; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 10,768 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Building Construction	9	156.00	41.00	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	31.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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	0.0188	0.1718	0.1800	3.0000e-004		8.9000e-003	8.9000e-003		8.3700e-003	8.3700e-003	0.0000	25.4898	25.4898	6.1100e-003	0.0000	25.6424
Total	**0.0188**	**0.1718**	**0.1800**	**3.0000e-004**		**8.9000e-003**	**8.9000e-003**		**8.3700e-003**	**8.3700e-003**	**0.0000**	**25.4898**	**25.4898**	**6.1100e-003**	**0.0000**	**25.6424**

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	1.1100e-003	0.0416	8.2700e-003	1.2000e-004	2.8400e-003	6.0000e-005	2.9100e-003	8.2000e-004	6.0000e-005	8.8000e-004	0.0000	11.3604	11.3604	7.5000e-004	0.0000	11.3791
Worker	7.3800e-003	5.3700e-003	0.0561	1.7000e-004	0.0188	1.2000e-004	0.0189	5.0000e-003	1.1000e-004	5.1100e-003	0.0000	15.0513	15.0513	3.9000e-004	0.0000	15.0611
Total	**8.4900e-003**	**0.0469**	**0.0643**	**2.9000e-004**	**0.0217**	**1.8000e-004**	**0.0218**	**5.8200e-003**	**1.7000e-004**	**5.9900e-003**	**0.0000**	**26.4117**	**26.4117**	**1.1400e-003**	**0.0000**	**26.4402**

3.2 Building Construction - 2022

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	0.0188	0.1718	0.1800	3.0000e-004		8.9000e-003	8.9000e-003		8.3700e-003	8.3700e-003	0.0000	25.4898	25.4898	6.1100e-003	0.0000	25.6424
Total	**0.0188**	**0.1718**	**0.1800**	**3.0000e-004**		**8.9000e-003**	**8.9000e-003**		**8.3700e-003**	**8.3700e-003**	**0.0000**	**25.4898**	**25.4898**	**6.1100e-003**	**0.0000**	**25.6424**

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	1.1100e-003	0.0416	8.2700e-003	1.2000e-004	2.8400e-003	6.0000e-005	2.9100e-003	8.2000e-004	6.0000e-005	8.8000e-004	0.0000	11.3604	11.3604	7.5000e-004	0.0000	11.3791
Worker	7.3800e-003	5.3700e-003	0.0561	1.7000e-004	0.0188	1.2000e-004	0.0189	5.0000e-003	1.1000e-004	5.1100e-003	0.0000	15.0513	15.0513	3.9000e-004	0.0000	15.0611
Total	**8.4900e-003**	**0.0469**	**0.0643**	**2.9000e-004**	**0.0217**	**1.8000e-004**	**0.0218**	**5.8200e-003**	**1.7000e-004**	**5.9900e-003**	**0.0000**	**26.4117**	**26.4117**	**1.1400e-003**	**0.0000**	**26.4402**

3.2 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	0.1636	1.4960	1.6894	2.8000e-003		0.0728	0.0728		0.0685	0.0685	0.0000	241.0769	241.0769	0.0574	0.0000	242.5107
Total	**0.1636**	**1.4960**	**1.6894**	**2.8000e-003**		**0.0728**	**0.0728**		**0.0685**	**0.0685**	**0.0000**	**241.0769**	**241.0769**	**0.0574**	**0.0000**	**242.5107**

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	7.9500e-003	0.3029	0.0674	1.0900e-003	0.0269	3.0000e-004	0.0272	7.7600e-003	2.8000e-004	8.0400e-003	0.0000	104.4538	104.4538	5.6600e-003	0.0000	104.5955
Worker	0.0654	0.0457	0.4860	1.5100e-003	0.1779	1.1000e-003	0.1790	0.0473	1.0100e-003	0.0483	0.0000	136.9597	136.9597	3.3200e-003	0.0000	137.0427
Total	**0.0734**	**0.3486**	**0.5534**	**2.6000e-003**	**0.2048**	**1.4000e-003**	**0.2062**	**0.0550**	**1.2900e-003**	**0.0563**	**0.0000**	**241.4135**	**241.4135**	**8.9800e-003**	**0.0000**	**241.6381**

3.2 Building Construction - 2023

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	0.1636	1.4960	1.6894	2.8000e-003		0.0728	0.0728		0.0685	0.0685	0.0000	241.0767	241.0767	0.0574	0.0000	242.5104
Total	**0.1636**	**1.4960**	**1.6894**	**2.8000e-003**		**0.0728**	**0.0728**		**0.0685**	**0.0685**	**0.0000**	**241.0767**	**241.0767**	**0.0574**	**0.0000**	**242.5104**

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	7.9500e-003	0.3029	0.0674	1.0900e-003	0.0269	3.0000e-004	0.0272	7.7600e-003	2.8000e-004	8.0400e-003	0.0000	104.4538	104.4538	5.6600e-003	0.0000	104.5955
Worker	0.0654	0.0457	0.4860	1.5100e-003	0.1779	1.1000e-003	0.1790	0.0473	1.0100e-003	0.0483	0.0000	136.9597	136.9597	3.3200e-003	0.0000	137.0427
Total	**0.0734**	**0.3486**	**0.5534**	**2.6000e-003**	**0.2048**	**1.4000e-003**	**0.2062**	**0.0550**	**1.2900e-003**	**0.0563**	**0.0000**	**241.4135**	**241.4135**	**8.9800e-003**	**0.0000**	**241.6381**

3.3 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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	3.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0134**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

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	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670
Total	**6.0000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2663**	**1.2663**	**3.0000e-005**	**0.0000**	**1.2670**

3.3 Paving - 2023

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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	3.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0134**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

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	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670
Total	**6.0000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2663**	**1.2663**	**3.0000e-005**	**0.0000**	**1.2670**

3.4 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	0.7133					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3500e-003	0.0228	0.0317	5.0000e-005		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	4.4682	4.4682	2.7000e-004	0.0000	4.4749
Total	**0.7167**	**0.0228**	**0.0317**	**5.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.2400e-003**	**1.2400e-003**	**0.0000**	**4.4682**	**4.4682**	**2.7000e-004**	**0.0000**	**4.4749**

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	2.1900e-003	1.5300e-003	0.0163	5.0000e-005	5.9500e-003	4.0000e-005	5.9800e-003	1.5800e-003	3.0000e-005	1.6100e-003	0.0000	4.5797	4.5797	1.1000e-004	0.0000	4.5825
Total	**2.1900e-003**	**1.5300e-003**	**0.0163**	**5.0000e-005**	**5.9500e-003**	**4.0000e-005**	**5.9800e-003**	**1.5800e-003**	**3.0000e-005**	**1.6100e-003**	**0.0000**	**4.5797**	**4.5797**	**1.1000e-004**	**0.0000**	**4.5825**

3.4 Architectural Coating - 2023

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	0.7133					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3500e-003	0.0228	0.0317	5.0000e-005		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.0000	4.4682	4.4682	2.7000e-004	0.0000	4.4749
Total	**0.7167**	**0.0228**	**0.0317**	**5.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.2400e-003**	**1.2400e-003**	**0.0000**	**4.4682**	**4.4682**	**2.7000e-004**	**0.0000**	**4.4749**

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	2.1900e-003	1.5300e-003	0.0163	5.0000e-005	5.9500e-003	4.0000e-005	5.9800e-003	1.5800e-003	3.0000e-005	1.6100e-003	0.0000	4.5797	4.5797	1.1000e-004	0.0000	4.5825
Total	**2.1900e-003**	**1.5300e-003**	**0.0163**	**5.0000e-005**	**5.9500e-003**	**4.0000e-005**	**5.9800e-003**	**1.5800e-003**	**3.0000e-005**	**1.6100e-003**	**0.0000**	**4.5797**	**4.5797**	**1.1000e-004**	**0.0000**	**4.5825**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.2129	1.4263	2.3817	9.9900e-003	0.7598	6.0000e-003	0.7658	0.2036	5.5900e-003	0.2092	0.0000	927.0437	927.0437	0.0473	0.0000	928.2252
Unmitigated	0.2410	1.6147	3.1015	0.0134	1.0668	8.0800e-003	1.0749	0.2859	7.5300e-003	0.2934	0.0000	1,242.1397	1,242.1397	0.0574	0.0000	1,243.5733

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	819.84	819.84	819.84	2,801,518	1,995,173
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	819.84	819.84	819.84	2,801,518	1,995,173

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Other Non-Asphalt Surfaces	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	184.7597	184.7597	7.6300e-003	1.5800e-003	185.4207
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	184.7597	184.7597	7.6300e-003	1.5800e-003	185.4207
NaturalGas Mitigated	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0848	93.0848	1.7800e-003	1.7100e-003	93.6380
NaturalGas Unmitigated	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0848	93.0848	1.7800e-003	1.7100e-003	93.6380

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					
Apartments Low Rise	1.74434e+006	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0848	93.0848	1.7800e-003	1.7100e-003	93.6380
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**9.4100e-003**	**0.0804**	**0.0342**	**5.1000e-004**		**6.5000e-003**	**6.5000e-003**		**6.5000e-003**	**6.5000e-003**	**0.0000**	**93.0848**	**93.0848**	**1.7800e-003**	**1.7100e-003**	**93.6380**

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	tons/yr										MT/yr					
Apartments Low Rise	1.74434e+006	9.4100e-003	0.0804	0.0342	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0848	93.0848	1.7800e-003	1.7100e-003	93.6380
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**9.4100e-003**	**0.0804**	**0.0342**	**5.1000e-004**		**6.5000e-003**	**6.5000e-003**		**6.5000e-003**	**6.5000e-003**	**0.0000**	**93.0848**	**93.0848**	**1.7800e-003**	**1.7100e-003**	**93.6380**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	544349	173.4413	7.1600e-003	1.4800e-003	174.0618
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	35523.2	11.3185	4.7000e-004	1.0000e-004	11.3589
Total		**184.7597**	**7.6300e-003**	**1.5800e-003**	**185.4207**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	544349	173.4413	7.1600e-003	1.4800e-003	174.0618
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	35523.2	11.3185	4.7000e-004	1.0000e-004	11.3589
Total		**184.7597**	**7.6300e-003**	**1.5800e-003**	**185.4207**

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	tons/yr										MT/yr					
Mitigated	0.9154	0.0342	1.1653	1.9000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	26.0947	26.0947	2.2800e-003	4.4000e-004	26.2841
Unmitigated	0.9154	0.0342	1.1653	1.9000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	26.0947	26.0947	2.2800e-003	4.4000e-004	26.2841

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	0.0713					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8067					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.4500e-003	0.0209	8.8900e-003	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.2058	24.2058	4.6000e-004	4.4000e-004	24.3497
Landscaping	0.0349	0.0133	1.1564	6.0000e-005		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003	0.0000	1.8889	1.8889	1.8200e-003	0.0000	1.9344
Total	**0.9154**	**0.0342**	**1.1653**	**1.9000e-004**		**8.0900e-003**	**8.0900e-003**		**8.0900e-003**	**8.0900e-003**	**0.0000**	**26.0947**	**26.0947**	**2.2800e-003**	**4.4000e-004**	**26.2841**

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	0.0713					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8067					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.4500e-003	0.0209	8.8900e-003	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003	0.0000	24.2058	24.2058	4.6000e-004	4.4000e-004	24.3497
Landscaping	0.0349	0.0133	1.1564	6.0000e-005		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003	0.0000	1.8889	1.8889	1.8200e-003	0.0000	1.9344
Total	**0.9154**	**0.0342**	**1.1653**	**1.9000e-004**		**8.0900e-003**	**8.0900e-003**		**8.0900e-003**	**8.0900e-003**	**0.0000**	**26.0947**	**26.0947**	**2.2800e-003**	**4.4000e-004**	**26.2841**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	42.3568	0.1919	4.8400e-003	48.5958
Unmitigated	48.8747	0.2397	6.0100e-003	56.6589

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	7.29725 / 4.60044	48.8747	0.2397	6.0100e-003	56.6589
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**48.8747**	**0.2397**	**6.0100e-003**	**56.6589**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	5.8378 / 4.60044	42.3568	0.1919	4.8400e-003	48.5958
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**42.3568**	**0.1919**	**4.8400e-003**	**48.5958**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.6145	0.1545	0.0000	6.4774
Unmitigated	10.4581	0.6181	0.0000	25.9095

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	51.52	10.4581	0.6181	0.0000	25.9095
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**10.4581**	**0.6181**	**0.0000**	**25.9095**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	12.88	2.6145	0.1545	0.0000	6.4774
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.6145**	**0.1545**	**0.0000**	**6.4774**

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	77.8800	0.0000	0.0000	77.8800

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	110	77.8800	0.0000	0.0000	77.8800
Total		**77.8800**	**0.0000**	**0.0000**	**77.8800**

04422101 Serena Village East (Phase 3)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	23.00	Dwelling Unit	0.47	40,925.00	66
Parking Lot	10.00	Space	0.39	17,075.52	0
Other Non-Asphalt Surfaces	0.26	Acre	0.26	11,325.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, Annual

Project Characteristics - Serena Village East (Phase 3) - project phases 14-15

Land Use - Serena Village Eas (Phases 14-15) - 1.12 ac w/ 23 units (40,925sf bldgs w/ 20,452sf (~0.47ac) ftprnt), 10 prkg spcs (paving ~35% site includes prkg spcs/on-site roadways (~0.392 ac)), & rmndr lndsc (~0.26 ac).

Construction Phase - Demo/grading of all 3 Villages completed together (modeled separately 12/1/21-11/22/21). SV East ~mid-Dec 2023- late March 2024 (per phasing plan). Anticipate that construciton of villages wont overlap.

Off-road Equipment - CalEEMod default construction timing for building construction decreased by ~70%; therefore, ~70% more equipment added to CalEEmod defaults.

Vehicle Trips - Per the trip Gen Analysis, 7.32 trips/DU/day.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Energy Use -

Sequestration - ~17 new trees to be planted in Serena Village East.

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 - Fugitive Dust.

Mobile Land Use Mitigation - Site is ~0.09 miles SW of Omnitrans Rte 66 stop Foothill & Banana. 23 DU/1.12 acres = 20.54 DU/acre. Sidewalkson/connecting off-site.

Water Mitigation - 20% indoor water reduction per CalGreen Standards.

Waste Mitigation - AB 341 requires each jurisdiction in CA to divert ~75% of their waste away from landfills by 2020.

04422101 Serena Village East (Phase 3) - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	PhaseEndDate	11/22/2024	3/31/2024
tblConstructionPhase	PhaseEndDate	10/25/2024	3/7/2024
tblConstructionPhase	PhaseEndDate	11/8/2024	3/31/2024
tblConstructionPhase	PhaseStartDate	11/9/2024	3/18/2024
tblConstructionPhase	PhaseStartDate	1/20/2024	12/15/2023
tblConstructionPhase	PhaseStartDate	10/26/2024	3/18/2024
tblFireplaces	NumberGas	19.55	20.70
tblFireplaces	NumberWood	1.15	0.00
tblLandUse	LandUseSquareFeet	23,000.00	40,925.00
tblLandUse	LandUseSquareFeet	4,000.00	17,075.52
tblLandUse	LotAcreage	1.44	0.47
tblLandUse	LotAcreage	0.09	0.39
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblSequestration	NumberOfNewTrees	0.00	17.00
tblVehicleTrips	ST_TR	7.16	7.32
tblVehicleTrips	SU_TR	6.07	7.32
tblVehicleTrips	WD_TR	6.59	7.32
tblWoodstoves	NumberCatalytic	1.15	0.00
tblWoodstoves	NumberNoncatalytic	1.15	0.00

2.0 Emissions Summary

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					
2023	0.0147	0.1164	0.1255	2.4000e-004	1.9300e-003	5.0700e-003	7.0000e-003	5.2000e-004	4.8700e-003	5.3900e-003	0.0000	20.1486	20.1486	3.2500e-003	0.0000	20.2299
2024	0.1978	0.5241	0.6094	1.1500e-003	9.6400e-003	0.0215	0.0312	2.5900e-003	0.0206	0.0232	0.0000	97.5060	97.5060	0.0162	0.0000	97.9108
Maximum	**0.1978**	**0.5241**	**0.6094**	**1.1500e-003**	**9.6400e-003**	**0.0215**	**0.0312**	**2.5900e-003**	**0.0206**	**0.0232**	**0.0000**	**97.5060**	**97.5060**	**0.0162**	**0.0000**	**97.9108**

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					
2023	0.0147	0.1164	0.1255	2.4000e-004	1.9300e-003	5.0700e-003	7.0000e-003	5.2000e-004	4.8700e-003	5.3900e-003	0.0000	20.1486	20.1486	3.2500e-003	0.0000	20.2298
2024	0.1978	0.5241	0.6094	1.1500e-003	9.6400e-003	0.0215	0.0312	2.5900e-003	0.0206	0.0232	0.0000	97.5059	97.5059	0.0162	0.0000	97.9107
Maximum	**0.1978**	**0.5241**	**0.6094**	**1.1500e-003**	**9.6400e-003**	**0.0215**	**0.0312**	**2.5900e-003**	**0.0206**	**0.0232**	**0.0000**	**97.5059**	**97.5059**	**0.0162**	**0.0000**	**97.9107**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**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	**12-15-2023**	**3-14-2024**	0.6812	0.6812
2	**3-15-2024**	**6-14-2024**	0.1725	0.1725
		Highest	0.6812	0.6812

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	0.1706	7.0300e-003	0.2391	4.0000e-005		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003	0.0000	5.3585	5.3585	4.7000e-004	9.0000e-005	5.3974
Energy	1.9300e-003	0.0165	7.0200e-003	1.1000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	56.6373	56.6373	1.9200e-003	6.7000e-004	56.8851
Mobile	0.0468	0.3242	0.5979	2.6900e-003	0.2191	1.6300e-003	0.2207	0.0587	1.5200e-003	0.0602	0.0000	249.6663	249.6663	0.0114	0.0000	249.9513
Waste						0.0000	0.0000		0.0000	0.0000	2.1476	0.0000	2.1476	0.1269	0.0000	5.3207
Water						0.0000	0.0000		0.0000	0.0000	0.4754	9.5614	10.0368	0.0492	1.2300e-003	11.6353
Total	**0.2193**	**0.3478**	**0.8439**	**2.8400e-003**	**0.2191**	**4.6200e-003**	**0.2237**	**0.0587**	**4.5100e-003**	**0.0632**	**2.6231**	**321.2235**	**323.8465**	**0.1899**	**1.9900e-003**	**329.1898**

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	0.1706	7.0300e-003	0.2391	4.0000e-005		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003	0.0000	5.3585	5.3585	4.7000e-004	9.0000e-005	5.3974
Energy	1.9300e-003	0.0165	7.0200e-003	1.1000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	56.6373	56.6373	1.9200e-003	6.7000e-004	56.8851
Mobile	0.0406	0.2829	0.4415	1.9200e-003	0.1483	1.1600e-003	0.1495	0.0397	1.0800e-003	0.0408	0.0000	178.6958	178.6958	9.1900e-003	0.0000	178.9254
Waste						0.0000	0.0000		0.0000	0.0000	0.5369	0.0000	0.5369	0.0317	0.0000	1.3302
Water						0.0000	0.0000		0.0000	0.0000	0.3803	8.3179	8.6983	0.0394	9.9000e-004	9.9795
Total	**0.2131**	**0.3065**	**0.6875**	**2.0700e-003**	**0.1483**	**4.1500e-003**	**0.1524**	**0.0397**	**4.0700e-003**	**0.0438**	**0.9172**	**249.0095**	**249.9267**	**0.0827**	**1.7500e-003**	**252.5176**

	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	N20	CO2e
Percent Reduction	**2.83**	**11.87**	**18.53**	**27.11**	**32.30**	**10.17**	**31.85**	**32.30**	**9.76**	**30.69**	**65.03**	**22.48**	**22.83**	**56.45**	**12.06**	**23.29**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	12.0360
Total	**12.0360**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	12/15/2023	3/7/2024	5	60	
2	Paving	Paving	3/18/2024	3/31/2024	5	10	
3	Architectural Coating	Architectural Coating	3/18/2024	3/31/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.652

Residential Indoor: 82,873; Residential Outdoor: 27,624; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,704 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Cranes	2	6.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	4	8.00	46	0.45

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
Building Construction	12	28.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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	0.0140	0.1132	0.1203	2.1000e-004		5.0500e-003	5.0500e-003		4.8600e-003	4.8600e-003	0.0000	17.9055	17.9055	3.1700e-003	0.0000	17.9846
Total	**0.0140**	**0.1132**	**0.1203**	**2.1000e-004**		**5.0500e-003**	**5.0500e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**17.9055**	**17.9055**	**3.1700e-003**	**0.0000**	**17.9846**

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	7.0000e-005	2.7400e-003	6.1000e-004	1.0000e-005	2.4000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.9431	0.9431	5.0000e-005	0.0000	0.9444
Worker	6.2000e-004	4.3000e-004	4.6100e-003	1.0000e-005	1.6900e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3000	1.3000	3.0000e-005	0.0000	1.3008
Total	**6.9000e-004**	**3.1700e-003**	**5.2200e-003**	**2.0000e-005**	**1.9300e-003**	**1.0000e-005**	**1.9500e-003**	**5.2000e-004**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**2.2432**	**2.2432**	**8.0000e-005**	**0.0000**	**2.2452**

3.2 Building Construction - 2023

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	0.0140	0.1132	0.1203	2.1000e-004		5.0500e-003	5.0500e-003		4.8600e-003	4.8600e-003	0.0000	17.9055	17.9055	3.1700e-003	0.0000	17.9846
Total	**0.0140**	**0.1132**	**0.1203**	**2.1000e-004**		**5.0500e-003**	**5.0500e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**17.9055**	**17.9055**	**3.1700e-003**	**0.0000**	**17.9846**

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	7.0000e-005	2.7400e-003	6.1000e-004	1.0000e-005	2.4000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.9431	0.9431	5.0000e-005	0.0000	0.9444
Worker	6.2000e-004	4.3000e-004	4.6100e-003	1.0000e-005	1.6900e-003	1.0000e-005	1.7000e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3000	1.3000	3.0000e-005	0.0000	1.3008
Total	**6.9000e-004**	**3.1700e-003**	**5.2200e-003**	**2.0000e-005**	**1.9300e-003**	**1.0000e-005**	**1.9500e-003**	**5.2000e-004**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**2.2432**	**2.2432**	**8.0000e-005**	**0.0000**	**2.2452**

3.2 Building Construction - 2024

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	0.0580	0.4745	0.5318	9.6000e-004		0.0198	0.0198		0.0190	0.0190	0.0000	79.7667	79.7667	0.0139	0.0000	80.1137
Total	**0.0580**	**0.4745**	**0.5318**	**9.6000e-004**		**0.0198**	**0.0198**		**0.0190**	**0.0190**	**0.0000**	**79.7667**	**79.7667**	**0.0139**	**0.0000**	**80.1137**

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	3.2000e-004	0.0122	2.6100e-003	4.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	4.1965	4.1965	2.3000e-004	0.0000	4.2022
Worker	2.6100e-003	1.7500e-003	0.0191	6.0000e-005	7.5200e-003	5.0000e-005	7.5700e-003	2.0000e-003	4.0000e-005	2.0400e-003	0.0000	5.6032	5.6032	1.3000e-004	0.0000	5.6064
Total	**2.9300e-003**	**0.0140**	**0.0217**	**1.0000e-004**	**8.6000e-003**	**6.0000e-005**	**8.6600e-003**	**2.3100e-003**	**5.0000e-005**	**2.3600e-003**	**0.0000**	**9.7997**	**9.7997**	**3.6000e-004**	**0.0000**	**9.8086**

3.2 Building Construction - 2024

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	0.0580	0.4745	0.5318	9.6000e-004		0.0198	0.0198		0.0190	0.0190	0.0000	79.7666	79.7666	0.0139	0.0000	80.1136
Total	**0.0580**	**0.4745**	**0.5318**	**9.6000e-004**		**0.0198**	**0.0198**		**0.0190**	**0.0190**	**0.0000**	**79.7666**	**79.7666**	**0.0139**	**0.0000**	**80.1136**

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	3.2000e-004	0.0122	2.6100e-003	4.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	4.1965	4.1965	2.3000e-004	0.0000	4.2022
Worker	2.6100e-003	1.7500e-003	0.0191	6.0000e-005	7.5200e-003	5.0000e-005	7.5700e-003	2.0000e-003	4.0000e-005	2.0400e-003	0.0000	5.6032	5.6032	1.3000e-004	0.0000	5.6064
Total	**2.9300e-003**	**0.0140**	**0.0217**	**1.0000e-004**	**8.6000e-003**	**6.0000e-005**	**8.6600e-003**	**2.3100e-003**	**5.0000e-005**	**2.3600e-003**	**0.0000**	**9.7997**	**9.7997**	**3.6000e-004**	**0.0000**	**9.8086**

3.3 Paving - 2024

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	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0000	5.9337
Paving	5.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6000e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0000**	**5.9337**

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	2.5000e-004	1.7000e-004	1.8100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5309	0.5309	1.0000e-005	0.0000	0.5312
Total	**2.5000e-004**	**1.7000e-004**	**1.8100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5309**	**0.5309**	**1.0000e-005**	**0.0000**	**0.5312**

3.3 Paving - 2024

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	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0000	5.9337
Paving	5.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6000e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0000**	**5.9337**

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	2.5000e-004	1.7000e-004	1.8100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5309	0.5309	1.0000e-005	0.0000	0.5312
Total	**2.5000e-004**	**1.7000e-004**	**1.8100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5309**	**0.5309**	**1.0000e-005**	**0.0000**	**0.5312**

3.4 Architectural Coating - 2024

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	0.1320					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.1329**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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	1.1000e-004	8.0000e-005	8.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2450	0.2450	1.0000e-005	0.0000	0.2452
Total	**1.1000e-004**	**8.0000e-005**	**8.4000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2450**	**0.2450**	**1.0000e-005**	**0.0000**	**0.2452**

3.4 Architectural Coating - 2024

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	0.1320					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.1329**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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	1.1000e-004	8.0000e-005	8.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2450	0.2450	1.0000e-005	0.0000	0.2452
Total	**1.1000e-004**	**8.0000e-005**	**8.4000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2450**	**0.2450**	**1.0000e-005**	**0.0000**	**0.2452**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.0406	0.2829	0.4415	1.9200e-003	0.1483	1.1600e-003	0.1495	0.0397	1.0800e-003	0.0408	0.0000	178.6958	178.6958	9.1900e-003	0.0000	178.9254
Unmitigated	0.0468	0.3242	0.5979	2.6900e-003	0.2191	1.6300e-003	0.2207	0.0587	1.5200e-003	0.0602	0.0000	249.6663	249.6663	0.0114	0.0000	249.9513

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	168.36	168.36	168.36	575,312	389,470
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	168.36	168.36	168.36	575,312	389,470

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830
Other Non-Asphalt Surfaces	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830
Parking Lot	0.558745	0.035303	0.181800	0.111169	0.014289	0.004794	0.018611	0.065078	0.001365	0.001491	0.005725	0.000799	0.000830

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	37.5216	37.5216	1.5500e-003	3.2000e-004	37.6559
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	37.5216	37.5216	1.5500e-003	3.2000e-004	37.6559
NaturalGas Mitigated	1.9300e-003	0.0165	7.0200e-003	1.1000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	19.1156	19.1156	3.7000e-004	3.5000e-004	19.2292
NaturalGas Unmitigated	1.9300e-003	0.0165	7.0200e-003	1.1000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	19.1156	19.1156	3.7000e-004	3.5000e-004	19.2292

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					
Apartments Low Rise	358214	1.9300e-003	0.0165	7.0200e-003	1.1000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	19.1156	19.1156	3.7000e-004	3.5000e-004	19.2292
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**1.9300e-003**	**0.0165**	**7.0200e-003**	**1.1000e-004**		**1.3300e-003**	**1.3300e-003**		**1.3300e-003**	**1.3300e-003**	**0.0000**	**19.1156**	**19.1156**	**3.7000e-004**	**3.5000e-004**	**19.2292**

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	tons/yr										MT/yr					
Apartments Low Rise	358214	1.9300e-003	0.0165	7.0200e-003	1.1000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	19.1156	19.1156	3.7000e-004	3.5000e-004	19.2292
Other Non-Asphalt Surfaces	0	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
Parking Lot	0	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
Total		**1.9300e-003**	**0.0165**	**7.0200e-003**	**1.1000e-004**		**1.3300e-003**	**1.3300e-003**		**1.3300e-003**	**1.3300e-003**	**0.0000**	**19.1156**	**19.1156**	**3.7000e-004**	**3.5000e-004**	**19.2292**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	111786	35.6174	1.4700e-003	3.0000e-004	35.7448
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	5976.43	1.9042	8.0000e-005	2.0000e-005	1.9110
Total		**37.5216**	**1.5500e-003**	**3.2000e-004**	**37.6559**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	111786	35.6174	1.4700e-003	3.0000e-004	35.7448
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	5976.43	1.9042	8.0000e-005	2.0000e-005	1.9110
Total		**37.5216**	**1.5500e-003**	**3.2000e-004**	**37.6559**

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	tons/yr										MT/yr					
Mitigated	0.1706	7.0300e-003	0.2391	4.0000e-005		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003	0.0000	5.3585	5.3585	4.7000e-004	9.0000e-005	5.3974
Unmitigated	0.1706	7.0300e-003	0.2391	4.0000e-005		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003	0.0000	5.3585	5.3585	4.7000e-004	9.0000e-005	5.3974

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	0.0132					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1497					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-004	4.2900e-003	1.8300e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9708	4.9708	1.0000e-004	9.0000e-005	5.0004
Landscaping	7.1400e-003	2.7300e-003	0.2372	1.0000e-005		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003	0.0000	0.3877	0.3877	3.7000e-004	0.0000	0.3970
Total	**0.1706**	**7.0200e-003**	**0.2391**	**4.0000e-005**		**1.6600e-003**	**1.6600e-003**		**1.6600e-003**	**1.6600e-003**	**0.0000**	**5.3585**	**5.3585**	**4.7000e-004**	**9.0000e-005**	**5.3974**

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	0.0132					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1497					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-004	4.2900e-003	1.8300e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9708	4.9708	1.0000e-004	9.0000e-005	5.0004
Landscaping	7.1400e-003	2.7300e-003	0.2372	1.0000e-005		1.3100e-003	1.3100e-003		1.3100e-003	1.3100e-003	0.0000	0.3877	0.3877	3.7000e-004	0.0000	0.3970
Total	**0.1706**	**7.0200e-003**	**0.2391**	**4.0000e-005**		**1.6600e-003**	**1.6600e-003**		**1.6600e-003**	**1.6600e-003**	**0.0000**	**5.3585**	**5.3585**	**4.7000e-004**	**9.0000e-005**	**5.3974**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.6983	0.0394	9.9000e-004	9.9795
Unmitigated	10.0368	0.0492	1.2300e-003	11.6353

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.49854 / 0.944733	10.0368	0.0492	1.2300e-003	11.6353
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**10.0368**	**0.0492**	**1.2300e-003**	**11.6353**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.19883 / 0.944733	8.6983	0.0394	9.9000e-004	9.9795
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**8.6983**	**0.0394**	**9.9000e-004**	**9.9795**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.5369	0.0317	0.0000	1.3302
Unmitigated	2.1476	0.1269	0.0000	5.3207

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	10.58	2.1476	0.1269	0.0000	5.3207
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.1476**	**0.1269**	**0.0000**	**5.3207**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	2.645	0.5369	0.0317	0.0000	1.3302
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.5369**	**0.0317**	**0.0000**	**1.3302**

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	12.0360	0.0000	0.0000	12.0360

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	17	12.0360	0.0000	0.0000	12.0360
Total		**12.0360**	**0.0000**	**0.0000**	**12.0360**

Appendix C:

County of San Bernardino Greenhouse Gas Emissions Reduction Plan Residential Performance Standards

PERFORMANCE STANDARDS

The GHG reducing performance standards were developed by the County to improve the energy efficiency, water conservation, vehicle trip reduction potential, and other GHG reducing impacts from all new development approved within the unincorporated portions of San Bernardino County. As such, the following Performance Standards establish the minimum level of compliance that development must meet to assist in meeting the 2020 GHG reduction target identified in the in the County GHG Emissions Reduction Plan. These Performance Standards apply to all Projects, including those that are exempt under CEQA, and will be included as Conditions of Approval for development projects.

The following are the Performance Standards (Conditions of Approval) used for Industrial, Commercial and Residential projects in the County:

COMMERCIAL AND INDUSTRIAL PROJECTS

1. *GHG – Operational Standards. The developer shall implement the following as greenhouse gas (GHG) mitigation during the operation of the approved project:*
   a) Waste Stream Reduction. The "developer" shall provide to all tenants and project employees County-approved informational materials about methods and need to reduce the solid waste stream and listing available recycling services.
   b) Vehicle Trip Reduction. The "developer" shall provide to all tenants and project employees County-approved informational materials about the need to reduce vehicle trips and the program elements this project is implementing. Such elements may include: participation in established ride-sharing programs, creating a new ride-share employee vanpool, designating preferred parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading for ride sharing vehicles with benches in waiting areas, and/or providing a web site or message board for coordinating rides.
   c) Provide Educational Materials. The developer shall provide to all tenants and staff education materials and other publicity about reducing waste and available recycling services. The education and publicity materials/program shall be submitted to County Planning for review and approval. The developer shall also provide to all tenants and require that the tenants shall display in their stores current transit route information for the project area in a visible and convenient

RESIDENTIAL PROJECTS

1. *GHG – Operational Standards. The developer shall implement the following as greenhouse gas (GHG) mitigation during the operation of the approved project:*
    a) *Waste Stream Reduction. The "developer" shall provide to all tenants and project employees County-approved informational materials about methods and need to reduce the solid waste stream and listing available recycling services.*
    b) Vehicle Trip Reduction. The "developer" shall provide to all tenants and homeowners County-approved informational materials about the need to reduce vehicle trips and the program elements this project is implementing. Such elements may include: participation in established ride-sharing programs, creating a new ride-share employee vanpool, and/or providing a web site or message board for coordinating rides.
    c) Provide Educational Materials. The developer shall provide to all tenants and employees education materials and about reducing waste and available recycling services. The education materials shall be submitted to County Planning for review and approval.
    d) Landscape Equipment. The developer shall require in the landscape maintenance contract and/or in onsite procedures that a minimum of 20% of the landscape maintenance equipment shall be electric-powered.

2. *GHG – Construction Standards. The developer shall submit for review and obtain approval from County Planning of a signed letter agreeing to include as a condition of all construction contracts/subcontracts requirements to reduce impacts to GHG and submitting documentation of compliance. The developer/construction contractors shall do the following:*
    a) *Implement both the approved Coating Restriction Plans.*
    b) *Select construction equipment based on low-emissions factors and high-energy efficiency. All diesel/gasoline-powered construction equipment shall be replaced, where possible, with equivalent electric or CNG equipment.*
    c) *Grading plans shall include the following statements:*
        - *"All construction equipment engines shall be properly tuned and maintained in accordance with the manufacturers specifications prior to arriving on site and throughout construction duration."*
        - *"All construction equipment (including electric generators) shall be shut off by work crews when not in use and shall not idle for more than 5 minutes."*

d) *Schedule construction traffic ingress/egress to not interfere with peak-hour traffic and to minimize traffic obstructions. Queuing of trucks on and off site shall be firmly discouraged and not scheduled. A flagperson shall be retained to maintain efficient traffic flow and safety adjacent to existing roadways.*

e) Recycle and reuse construction and demolition waste (e.g. soil, vegetation, concrete, lumber, metal, and cardboard) per County Solid Waste procedures.

f) The construction contractor shall support and encourage ridesharing and transit incentives for the construction crew and educate all construction workers about the required waste reduction and the availability of recycling services.

3. *<u>GHG – Design Standards</u>. The developer shall submit for review and obtain approval from County Planning that the following measures have been incorporated into the design of the project. These are to reduce potential project impacts on green house gases (GHGs): Proper installation of the approved design features and equipment shall be confirmed by County Building and Safety prior to final inspection of each structure.*

a) <u>Meet Title 24 Energy Efficiency requirements implemented July 1, 2014</u> The Developer shall document that the design of the proposed structures meets the current Title 24 energy-efficiency requirements. County Planning shall coordinate this review with the County Building and Safety. Any combination of the following design features may be used to fulfill this requirement, provided that the total increase in efficiency meets or exceeds the cumulative goal (100%+ of Title 24) for the entire project (Title 24, Part 6 of the California Code of Regulations; Energy Efficiency Standards for Residential and Non Residential Buildings, as amended January 24, 2013; Cool Roof Coatings performance standards as amended January 24, 2013):

- *Incorporate dual paned or other energy efficient windows,*
- *Incorporate energy efficient space heating and cooling equipment,*
- *Incorporate energy efficient light fixtures, photocells, and motion detectors,*
- *Incorporate energy efficient appliances,*
- *Incorporate energy efficient domestic hot water systems,*
- *Incorporate solar panels into the electrical system,*
- *Incorporate cool roofs/light colored roofing,*
- *Incorporate other measures that will increase energy efficiency.*
- *Increase insulation to reduce heat transfer and thermal bridging.*

- *Limit air leakage throughout the structure and within the heating and cooling distribution system to minimize energy consumption.*

b) *Plumbing. All plumbing shall incorporate the following:*
   - *All showerheads, lavatory faucets, and sink faucets shall comply with the California Energy Conservation flow rate standards.*
   - *Low flush toilets shall be installed where applicable as specified in California State Health and Safety Code Section 17921.3.*
   - *All hot water piping and storage tanks shall be insulated. Energy efficient boilers shall be used.*
   - *If possible, utilize grey water systems and dual plumbing for recycled water.*

c) *Lighting. Lighting design for building interiors shall support the use of:*
   - *Compact fluorescent light bulbs or equivalently efficient lighting.*
   - *Natural day lighting through site orientation and the use of reflected light.*
   - *Skylight/roof window systems.*
   - *Light colored building materials and finishes shall be used to reflect natural and artificial light with greater efficiency and less glare.*
   - *A multi-zone programmable dimming system shall be used to control lighting to maximize the energy efficiency of lighting requirements at various times of the day.*
   - *The developer shall ensure that a minimum of 2.5 percent of the project's electricity needs is provided by on-site solar panels.*

d) *Building Design. Building design and construction shall incorporate the following elements:*
   - *Orient building locations to best utilize natural cooling/heating with respect to the sun and prevailing winds/natural convection to take advantage of shade, day lighting and natural cooling opportunities.*
   - *Utilize natural, low maintenance building materials that do not require finishes and regular maintenance..*
   - *Roofing materials shall have a solar reflectance index of 78 or greater.*
   - *All supply duct work shall be sealed and leak-tested. Oval or round ducts shall be used for at least 75 percent of the supply duct work, excluding risers.*
   - *Energy Star or equivalent equipment shall be installed.*
   - *A building automation system including outdoor temperature/humidity sensors will control public area heating, vent, and air conditioning units*

e) *Landscaping. The developer shall submit for review and obtain approval from County Planning of landscape and irrigation plans that are designed to include drought tolerant and smog tolerant trees, shrubs, and groundcover to ensure the long-term viability and to conserve water and energy. The landscape plans shall include shade trees around main buildings, particularly along southern and western elevations, where practical.*

f) *Irrigation. The developer shall submit irrigation plans that are designed, so that all common area irrigation areas shall be capable of being operated by a computerized irrigation system, which includes either an on-site weather station, ET gauge or ET-based controller capable of reading current weather data and making automatic adjustments to independent run times for each irrigation valve based on changes in temperature, solar radiation, relative humidity, rain and wind. In addition, the computerized irrigation system shall be equipped with flow sensing capabilities, thus automatically shutting down the irrigation system in the event of a mainline break or broken head. These features will assist in conserving water, eliminating the potential of slope failure due to mainline breaks and eliminating over-watering and flooding due to pipe and/or head breaks.*

g) *Recycling. Exterior storage areas for recyclables and green waste shall be provided. Adequate recycling containers shall be located in public areas. Construction and operation waste shall be collected for reuse and recycling.*

h) *Transportation Demand Management (TDM) Program. The project shall include adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. If available, mass transit facilities shall be provided (e.g. bus stop bench/shelter). The developer shall publish ride-sharing information for ride-sharing vehicles and provide a website or message board for coordinating rides. The Program shall ensure that appropriate bus route information is available to tenants and homeowners.*

4. *GHG – Installation/Implementation Standards. The developer shall submit for review and obtain approval from County Planning of evidence that all applicable GHG performance standards have been installed, implemented properly and that specified performance objectives are being met to the satisfaction of County Planning and County Building and Safety. These installations/ procedures include the following:*

   a) *Design features and/or equipment that cumulatively increases the overall compliance of the project to exceed Title 24 minimum standards by five percent.*

b) *All interior building lighting shall support the use of fluorescent light bulbs or equivalent energy-efficient lighting.*

c) Installation of both the identified mandatory and optional design features or equipment that have been constructed and incorporated into the facility/structure.

3,000 MTCO2e Emission Level

The County determined the size of development that is too small to be able to provide the level of GHG emission reductions expected from the Screening Tables or alternate emission analysis method (described in Attachment D) based upon the 90th percentile capture rate concept. To do this the County determined the GHG emission amount allowed by a project such that 90 percent of the emissions on average from projects would exceed that level and be "captured" by the Screening Table or alternate emission analysis method.

In determining this level of emissions the County used the database of Projects kept by the Governor's Office of Planning and Research (OPR). That database contained 798 Projects, 60 of which were extremely large General Plan Updates, Master Plans, or Specific Plan Projects. The 60 very large projects were removed from the database in order not to skew the emissions value, leaving a net of 738 Projects. In addition, 27 projects were found to be outliers that would skew the emission value to high, leaving 711 as the sample population to use in determining the 90th percentile capture rate. Note that while the OPR database is a statewide database and may not exactly reflect emissions within the County, this method was considered conservative because development projects within unincorporated San Bernardino County tend to have higher energy consumption rates and have longer commute distances than the statewide average. As such, using the statewide database may produce an emissions value for the 90th percentile capture rate that may capture more than 90 percent of emissions.

The analysis of the 738 Projects within the sample population combined commercial, residential, and mixed use projects. Also note that the sample of projects included warehousing and other industrial land uses but did not include industrial processes (i.e. oil refineries, heavy manufacturing, electric generating stations, mining operations, etc.). Emissions from each of these Projects were calculated by SCAQMD and provide a consistent method of emissions calculations across the sample population further reducing potential errors in the statistical analysis. In calculating the emissions from Projects within the sample population, construction period GHG emissions were amortized over 30-years (the average economic life of a development project). Direct GHG emissions were calculated using URBEMIS and indirect electricity/water use GHG emissions calculated separately and added to the URBEMIS output.

This analysis determined that the 90th percentile ranged from 2,983-3,143 $MTCO_2e$ per year. The **3,000 $MTCO_2e$ per year** value was chosen as the medial value within that range and is used in defining

small projects that must include the Performance Standards as described in this Attachment B, but do not need to use the Screening Tables or alternative GHG mitigation analysis described in Attachment D. The database is summarized in the spreadsheet shown on the following pages.