Appendix A

Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis

AIR QUALITY, ENERGY, AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

RIO ROCKWELL RESIDENTIAL PROJECT

CITY OF OCEANSIDE

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Project No. 18074

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	San Diego County Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf_4	tetrafluoromethane
C_2F_6	hexafluoroethane
C_2H_6	ethane
CH_4	Methane
City	City of Oceanside
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change

LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
O_3	Ozone
OPR	Office of Planning and Research
Pfc	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
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SAR	Second Assessment Report
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SDAPCD	San Diego Air Pollution Control District
SANDAG	San Diego Association of Governments
SCS	Sustainable communities strategy
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality, Energy, and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality, energy, and GHG emissions impacts associated with the proposed Rio Rockwell Residential project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality and GHG emissions regulatory framework;
- A description of the air quality, energy, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the San Diego County Air Pollution Control District's (SDAPCD) air quality strategies;
- An analysis of the short-term construction related and long-term operational air quality, energy, and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable GHG emissions and energy reduction plans and policies.

1.2 Site Location and Study Area

The project site is located in the central portion of the City of Oceanside (City) on the north side of Old Grove Road, west of Frazee Road. The approximately 11.54-acre project site is currently vacant and is bounded by open space (San Luis Rey River Channel) to the north, Frazee Road and single-family residential uses to the east, Old Grove Road and single-family residential uses to the south, and Nichols Elementary School to the west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are single-family homes located as near as 60 feet to the south of the project site and the nearest outdoor activity area or structure at Nichols Elementary School is as near as 180 feet west of the project site.

1.3 Proposed Project Description

The proposed project consists of the development of 50 detached single-family homes and 54 attached townhomes on approximately 6.92 acres of the 11.54-acre project site that would also include area for onsite roads, parking spaces, and recreation areas. The remaining portion of the project site would be utilized as a natural open space buffer adjacent to the San Luis Rey River Channel. In order to bring up the ground elevations of the proposed homes to the 100 year flood elevations, approximately 62,000 cubic yards of dirt will be imported to the project site. The proposed site plan is shown in Figure 2.

1.4 Existing and Proposed Land Use and Zoning Designations

The project site is made up of two adjacent vacant parcels. The southernmost parcel (approximately 2.76-acres) that is located adjacent to the intersection of Old Grove Road and Frazee Road is currently designated for General Commercial (GC) in the General Plan and is zoned Limited Commercial (CL). The remainder of the project site is currently designated Single Family Detached Residential (SFD-R) in the General Plan and is zoned Single Family Residential (RS). Development of the proposed project would include a General Plan Amendment to re-designate the entire project site to Medium Density A Residential (MD A – R) that allows for development of between 6.0 and 9.9 dwelling units per acre and would be re-zoned to Planned Development District (PD).

1.5 Executive Summary

Standard Air Quality, Energy, and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SDAPCD and State of California (State).

<u>San Diego County Air Pollution Control District Rules</u>

The following lists the SDAPCD rules that are applicable, but not limited to the proposed project.

- Rule 20.2 Non-Major Stationary Sources – Controls the emissions of air contaminants;
- Rule 20.3 Major Stationary Sources and Prevention of Significant Deterioration (PSD) Stationary Sources – Controls the emissions of air contaminants;
- Rule 50 Visible Emissions – Controls visible emissions from all sources, including fugitive dust;
- Rule 51 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 55 Fugitive Dust Control – Controls the emissions of fugitive dust; and
- Rule 67.0.1 Architectural Coating – Establishes VOC content limits;

<u>State of California Rules</u>

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets;
- CCR Title 24 Part 6 – California Building Energy Standards; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality, energy, and GHG emissions checklist questions.

<u>Conflict with or obstruct implementation of the applicable air quality plan?</u>

Less than significant impact.

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

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

Less than significant impact.

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;

Less than significant impact.

Conflict with or obstruct a state or local plan for renewable energy;

Less than significant impact.

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

Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

1.6 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features.

Project Design Feature 1
The project applicant shall restrict the installation of any wood-burning fireplaces into the proposed homes and require that all fireplace inserts must be either natural gas only or electric.

Project Design Feature 2
The project applicant shall require all homes to be designed to meet the 2019 Title 24 Part 6 building energy efficiency standards. The 2019 Title 24 Part 6 standards have been developed to meet the State's goal of zero-net-energy use for new homes that will be achieved through a variety of measures to make new homes more energy efficient and by also requiring the installation of photovoltaic systems of adequate size to generate enough electricity to meet the zero-net energy use standard.

1.7 Mitigation Measures for the Proposed Project

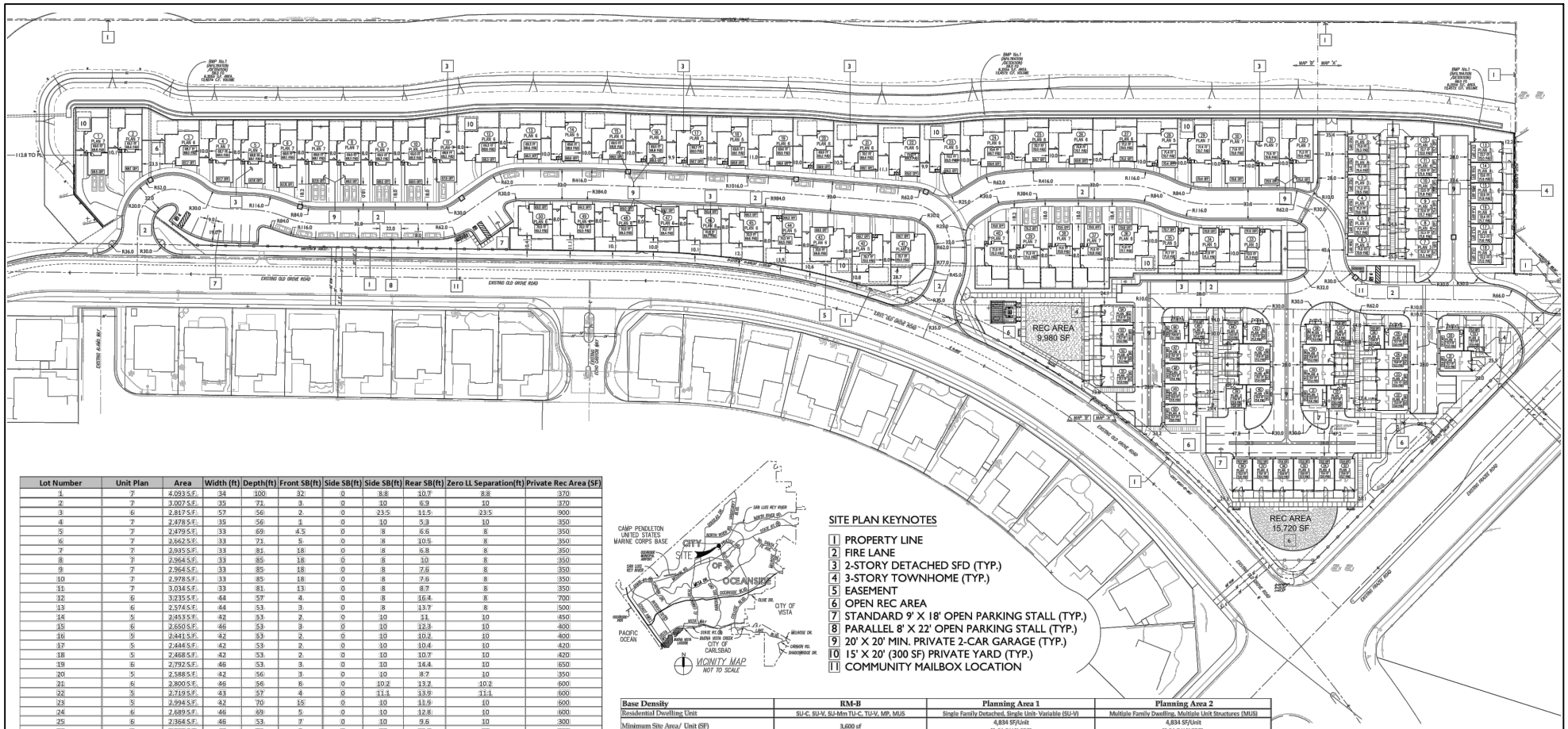
This analysis found that implementation of the State and SDAPCD air quality, energy, and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG

emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality, energy, and GHG emissions.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



Lot Number	Unit Plan	Area	Width (ft)	Depth(ft)	Front SB(ft)	Side SB(ft)	Side SB(ft)	Rear SB(ft)	Zero LL Separation(ft)	Private Rec Area (SF)
1	7	4,093 S.F.	34	100	32	0	8.8	10.7	8.8	370
2	7	3,007 S.F.	35	71	3.	0	10	6.9	10	370
3	6	2,817 S.F.	57	56	2.	0	23.5	11.5	23.5	900
4	7	2,478 S.F.	35	56	1	0	10	5.3	10	350
5	7	2,479 S.F.	33	69	4.5	0	8	6.6	8	350
6	7	2,662 S.F.	33	71	5.	0	8	10.5	8	350
7	7	2,935 S.F.	33	81	18	0	8	6.8	8	350
8	7	2,964 S.F.	33	85	18	0	8	10	8	350
9	7	2,964 S.F.	33	85	18	0	8	7.6	8	350
10	7	2,978 S.F.	33	85	18	0	8	7.6	8	350
11	7	3,034 S.F.	33	81	13	0	8	8.7	8	350
12	6	3,235 S.F.	44	57	4.	0	8	16.4	8	700
13	6	2,574 S.F.	44	53	3.	0	8	13.7	8	500
14	5	2,453 S.F.	42	53	2.	0	10	11.	10	450
15	6	2,650 S.F.	46	53	3.	0	10	12.3	10	400
16	5	2,441 S.F.	42	53	2.	0	10	10.2	10	400
17	5	2,444 S.F.	42	53	2.	0	10	10.4	10	420
18	5	2,468 S.F.	42	53.	2.	0	10	10.7	10	420
19	6	2,792 S.F.	46	53.	3.	0	10	14.4	10	650
20	5	2,588 S.F.	42	56	3.	0	10	8.7	10	350
21	6	2,800 S.F.	46	56	6.	0	10.2	13.2	10.2	600
22	5	2,719 S.F.	43	57	4.	0	11.1	13.9	11.1	600
23	5	2,994 S.F.	42	70	16	0	10	13.9	10	600
24	6	2,689 S.F.	46	69	5.	0	10	12.8	10	600
25	6	2,364 S.F.	46	53.	7	0	10	9.6	10	300
26	6	2,318 S.F.	46	51.	5.	0	10	13.6	10	300
27	6	2,322 S.F.	46	51	8	0	10	8.6	10	300
28	5	2,371 S.F.	42	51	5.	0	10	10.7	10	300
29	7	2,408 S.F.	35	66	4.	0	10	6.9	10	405
30	7	2,478 S.F.	35	74	4.	0	10	7.8	10	405
31	7	2,474 S.F.	35	68	3.	0	10	9.8	10	405
32	7	2,527 S.F.	35	70	7	5	10	6.9	10	405
33	5	2,147 S.F.	43	48	2.	32	11	6.5	11	300
34	5	2,090 S.F.	44	48	2.	0	10	6.5	10	320
35	5	2,300 S.F.	42	49	5.	0	10	7.7	10	300
36	6	3,552 S.F.	51	77	20	5	10	15	10	800
37	7	3,226 S.F.	38	84	20	5	8	7	8	330
38	7	2,802 S.F.	33	84	19	0	8	7	8	330
39	7	2,765 S.F.	33	84	23.	0	8	6	8	330
40	7	2,610 S.F.	35	79	5.	8	8	12	8	330
41	6	2,559 S.F.	46	70	12	0	9	18.8	9	400
42	5	2,820 S.F.	40	70	7	0	8	18.5	8	420
43	6	3,347 S.F.	44	60	14	8	8	10.2	8	500
44	5	2,336 S.F.	40	56	2	0	8	13.6	8	550
45	6	2,351 S.F.	44	54	3.	0	8	12.9	8	550
46	6	2,207 S.F.	44	54	2.	0	8	12.5	8	550
47	6	2,158 S.F.	44	53.	2.	0	8	11	8	440
48	6	2,185 S.F.	44	53.	2.	0	8	11.1	8	440
49	6	2,201 S.F.	44	53.	2.	0	8	12	8	480
50	6	2,100 S.F.	39	53	2.	0	8	11.4	8	550
Average SFR		*2646 SF*	*40.54*	*63.74*	*7.43*	*0.86*	*9.392*	*10.468*	*9.392*	*437*
Private OS SFR Rear Yards										37,417
Attached Private OS										7,841
Total Common Active Rec										25,264
Total Rec										70,522

SITE PLAN KEYNOTES

1. PROPERTY LINE
2. FIRE LANE
3. 2-STORY DETACHED SFD (TYP.)
4. 3-STORY TOWNHOME (TYP.)
5. EASEMENT
6. OPEN REC AREA
7. STANDARD 9' X 18' OPEN PARKING STALL (TYP.)
8. PARALLEL 8' X 22' OPEN PARKING STALL (TYP.)
9. 20' X 20' MIN. PRIVATE 2-CAR GARAGE (TYP.)
10. 15' X 20' (300 SF) PRIVATE YARD (TYP.)
11. COMMUNITY MAILBOX LOCATION

Base Density	RM-B	Planning Area 1	Planning Area 2
Residential Dwelling Unit	SU-C, SU-V, SU-Mm TU-C, TU-V, MP, MUS	Single Family Detached, Single Unit- Variable (SU-V)	Multiple Family Dwelling, Multiple Unit Structures (MUS)
Minimum Site Area/ Unit (SF)	3,600 sf	4,834 SF/Unit (9.01 DU/ACRE)	4,834 SF/Unit (9.01 DU/ACRE)
Maximum Potential Density: Site Area / Unit (sq.ft)	2,500 sf	4,834 SF/Unit (9.01 DU/ACRE)	4,834 SF/Unit (9.01 DU/ACRE)
Minimum Lot Area (sq.ft.)	7,500 sf	2,100 sf (2,646 Average sfr)	NA
Minimum Lot Width (ft)	60 ft	33-66 ft (40.54 Average)	NA
Minimum Yards: Front (ft.)	20 ft	1.5-24 ft (7.8 Feet Average)	NA
Side (ft.)	5; 10 Ft	0-27 ft (9.8 Feet Average	NA
Corner Side (ft.)	10 ft	5-12 ft	NA
Rear (ft.)	15 ft	6.2-24.2 ft (11.39 feet Average	NA
Courts	1/2 the building height or min 18 feet	8-27 feet detached;	15-28 feet attached
Maximum Height (ft.)	36 ft	28 feet detached	36 feet attached
Maximum Coverage	60%	26.95%	26.95%
Outdoor Living Area	300 sf/unit; Min 15 foot dimension; Minimum 4,000 SF common recreation area; 50% Common Space	437 sf/unit; Min 15 foot dimension; 9,980 SF common recreation area	300 sf/unit; Min 15 foot dimension; 15,284 SF common recreation area common recreation area
Minimum Site Landscaping	15% of Site (75,406 sf)	55.80% of Site (280,527 sf)	55.80% of Site (280,527 sf)
Fences and Walls	Section 3040 - Max 6 feet, except 42" in FY; no chain link	5.5 to 6 feet; no chain link	5.5 to 6 feet; no chain link
Off-Street Parking and Loading	2 car garage per unit (	153 spaces (100 garage + 34 guest + 19 driveway)	129 spaces (108 garage + 21 guest)
Signs	Article 33A	Compliance with Article 33A	Compliance with Article 33A
Outdoor Facilities	Section 3020	No outdoor storage	No outdoor storage
Screening of Mechanical Equipment	Section 3021 - Screened from all sides	Screened from all sides	Screened from all sides
Refuse Storage Areas	Section 3022	Approved by City Planner and City Engineer	Approved by City Planner and City Engineer
Underground Utilities	Section 3023	All Underground	All Underground
Performance Standards	Section 3024 - Comply with Noise/Vibration/Dust/Odors/Glare/ Etc.	Comply with Noise/Vibration/Dust/Odors/Glare/ Etc.	Comply with Noise/Vibration/Dust/Odors/Glare/ Etc.
Vehicular Access	Section 3114; 16-foot width for units with 150 feet of street; 24-foot width for 3-9 dwelling units	32-foot street width access to all properties with 16-foot wide driveways	28-foot private street width to all units
Outdoor Storage	160 cubic feet of enclosed outdoor storage per unit	Exempt due to private garage	Exempt due to private garage

104 UNITS TOTAL

		TOWN	DETACH
PLAN 1	1,179 SF	7	0
PLAN 2	1,255 SF	7	0
PLAN 3	1,558 SF	25	0
PLAN 4	1,700 SF	15	0
PLAN 5	1,745 SF	0	13
PLAN 6	1,883 SF	0	19
PLAN 7	2,050 SF	0	18
	TOTALS	54	50

PARKING SUMMARY
208 GARAGES (2 CAR GARAGE/DU TYP
55 OPEN STALLS (37 STAND. AND 18 P/
19 PRIVATE DRIVE STALLS
282 TOTAL PARKING STALLS (2.71 STAI

N

SOURCE: Summa Architecture, January 8, 2020.

OLD GROVE - FRAZEE HOMES

SITE PLAN

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 AIR POLLUTANTS

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

2.1 Criteria Pollutants and Ozone Precursors

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

Nitrogen Oxides

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

Ozone

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

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and

chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

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

Sulfur Oxides

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

Lead

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

Particulate Matter

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

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered toxic air contaminants (TACs). There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

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

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

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 80 miles east of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation 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 (O_3), 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. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

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

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

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

Nitrous Oxide

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

Chlorofluorocarbons

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

Hydrofluorocarbons

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

Perfluorocarbons

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

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

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

Aerosols

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

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the IPCC Second Assessment Report (SAR) and United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines, and are detailed in Table A. The SAR GWPs are used in CARB's California inventory and Assembly Bill (AB) 32 Scoping Plan estimates.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:
[1] Defined as the half-life of the gas.

[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.2),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.3 Greenhouse Gas Emissions Inventory

According to https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html 9,855 million metric tons (MMT) of CO_2 equivalent (CO_2e) emissions were created globally in the year 2014. According to https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use.

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2016,* prepared by EPA, in 2016 total U.S. GHG emissions were 6,511.3 million metric tons (MMT) of CO_2 equivalent (CO_2e) emissions. Total U.S. emissions have increased by 2.4 percent between 1990 and 2016 and GHG emissions decreased by 1.9 percent between 2015 and 2016. The recent decrease in GHG emissions was a result of multiple factors, including substitution from coal to natural gas in the electricity sector and from a warmer winter and a slow-down in the economy in 2016. However, according to https://rhg.com/research/preliminary-us-emissions-estimates-for-2018/ the preliminary estimates for 2018 show that GHG emissions have increased by 3.4 percent, which is primarily a result from a strong economy that required the use of more transportation fuels and power generation.

According to https://www.arb.ca.gov/cc/inventory/data/data.htm the State of California created 429.4 $MMTCO_2e$ in 2016. The breakdown of California GHG emissions by sector consists of: 41 percent from transportation; 23 percent from industrial; 16 percent from electricity generation; 8 percent from agriculture; 7 percent from residential buildings; 5 percent from commercial buildings; and 1 percent from other uses of energy. In 2016, GHG emissions were 12 $MMTCO_2e$ lower than 2015 levels, which represent a 6 percent year-over-year decline.

4.0 AIR QUALITY MANAGEMENT

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

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The Environmental Protection Agency (EPA) was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

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

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone (O_3) and by CARB as nonattainment for ozone, PM10, and PM2.5.

Table C – San Diego Air Basin Attainment Status

Pollutant	Averaging Time	Attainment Status	
		Federal	California
Ozone (O_3)	1-Hour	No Federal Standard	**Nonattainment**
	8-Hour	**Nonattainment**	**Nonattainment**
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment
	8-Hour	Attainment	Attainment
Nitrogen Dioxide (NO_2)	1-Hour	No Federal Standard	Attainment
	Annual	Attainment	No State Standard
Sulfur Dioxide (SO_2)[7]	1-Hour	No Federal Standard	Attainment
	24-Hour	Attainment	Attainment
	Annual	Attainment	No State Standard
PM10	24-Hour	Attainment	**Nonattainment**
	Annual	Attainment	**Nonattainment**
PM2.5	24-Hour	Attainment	Attainment
	Annual	Attainment	**Nonattainment**

Pollutant	Averaging Time	Attainment Status	
		Federal	California
Lead	30-Day	No Federal Standard	Attainment
	3-Months Rolling	Attainment	No State Standard
Sulfates	24-Hour	No Federal Standard	Attainment
Hydrogen Sulfide	1-Hour	No Federal Standard	Unclassified
Visibility Reducing Particulates	8-Hour	No Federal Standard	Unclassified

Source: California Air Resources Board and EPA.

4.2 State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

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

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all warehouse projects in the State.

Assembly Bill 2588

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

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the California Air Resources Board (CARB) adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce diesel particulate matter (DPM) and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018

medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Regional – San Diego Air Pollution Control District

The SDAPCD is the agency principally responsible for comprehensive air pollution control in the San Diego Air Basin. To that end, as a regional agency, the SDAPCD works directly with the San Diego Association of Governments (SANDAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies. The SDAPCD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircraft, and agricultural equipment, which are regulated by the CARB or the EPA. In addition, the SDAPCD along with the CARB maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County, including one at Camp Pendleton. These stations are used to measure and monitor criteria pollutant levels in order to determine the attainment status of the pollutants within the Air Basin.

The Air Basin was designated nonattainment for the 1997 8-hour ozone NAAQS, effective June, 2004 based on ozone air quality measurements over the 2001-2003 three-year period. The Air Basin was designated as a “basic” (unclassified) nonattainment area, which allowed more flexibility to the SDAPCD than the more stringent nonattainment classifications. In June 2007, the SDAPCD submitted a SIP revision fulfilling the requirements EPA had established for a basic nonattainment area. However, due to a court ruling the EPA did not accept the SIP revision and instead reclassified the Air Basin as a “Moderate” ozone nonattainment area. On December 5, 2012 the SDAPCD applied for redesignation of the 1997 8-hour ozone based on air quality measurements over the 2009-2011 three-year period, which showed the Air Basin is currently in attainment for the 1997 standard.

In 2008, a more protective 8-hour ozone NAAQS was established by the EPA at a level of 0.075 ppm. The 2008 standard is independent of the 1997 standard, which currently remains in effect while the EPA undertakes rulemaking to address implementation of the 2008 standard.

In order to address the requirements of the California Clean Air Act (CCAA) of a 5 percent annual reduction in countywide emissions of ozone precursors or if that is not achievable an expeditious schedule for adopting every feasible control measure, the SDAPCD has developed the San Diego Regional Air Quality Strategy (RAQS) that identifies feasible emission control measure and provides expeditious progress

toward attaining the State's ozone standards. The RAQS control measures focus on emissions sources under the SDAPCD's authority, specifically stationary emissions sources and some area-wide sources that include residential water heaters, furnaces, architectural coatings, and consumer products. The RAQS was initially adopted by the SDAPCD on June 1992 and amended on March 1993 based on CARB comments. The SDAPCD further updated the RAQS on December 1995, June 1998, August 2001, July 2004, April 2009, and December 2016.

The following lists the SDAPCD rules that are applicable but not limited to all residential projects in the Air Basin.

Rule 20.2 – Non-Major Stationary Sources

Rule 20.3 requires a new or modified emissions units, relocated emission units, replacement emission units, and emergency equipment emission units with a post-project potential to emit 10 pounds per day or more of PM10, NOx, VOC, or Sox shall be equipped with best available control technology (BACT) for each air contaminant.

Rule 20.3 – Major Stationary Sources and Prevention of Significant Deterioration (PSD) Stationary Sources

Rule 20.3 requires a new or modified emissions units, relocated emission units, replacement emission units, and emergency equipment emission units with a post-project potential to emit 10 pounds per day or more of PM10, NOx, VOC, or Sox shall be equipped with best available control technology (BACT) for each air contaminant.

Rule 51 - Nuisance

Rule 51 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes 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. Compliance with Rule 51 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 55 – Fugitive Dust Control

Rule 55 governs emissions of fugitive dust during construction activities and requires the following:

1. no person shall engage in construction or demolition activities in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60 minute period.
2. Visible roadway dust as a result of active operations, spillage from transport trucks, erosions, or track-out/carry-out shall be minimized by the use of any of the equally effective track-out/carry-out and erosion control measures listed in Rule 55 that apply to the project or operation. These measures include: track-out grates or gravel beds at each egress point; wheel-washing at each egress during muddy conditions; soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; watering for dust control; and using secured tarps or cargo covering, watering, or treating of transported material for outbound transport trucks.

4.4 Local – City of Oceanside

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

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

5.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

5.1 International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement, however the Paris Agreement is still legally binding by the other remaining nations.

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

5.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

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

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per MWh for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On February 9, 2016 the Supreme Court stayed implementation of the Clean Power Plan due to a legal challenge from 29 states and in April 2017, the Supreme Court put the case on a 60 day hold and directed both sides to make arguments for whether it should keep the case on hold indefinitely or close it and remand the issue to the EPA. On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan, however the repeal of the Plan will require following the same rule-making system used to create regulations and will likely result in court challenges.

5.3 State

The California Air Resources Board (CARB) has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a “comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health” (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving

beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

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 California Energy Commission (CEC) is the agency responsible for the standards that are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. On January 1, 2020 the 2019 standards went into effect, that have been designed so that the average new home built in California will now use zero-net-energy and that non-residential buildings will use about 30 percent less energy than the 2016 standards due mainly to lighting upgrades. Single-family homes built with 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. The 2019 standards also now require that all single-family homes to have rooftop solar photovoltaic systems and when the solar systems are factored in, homes built under the 2019 standards will use about 53 percent less energy than homes built under the 2016 standards. The 2019 standards also encourage the use of battery storage and heat pump water heaters, require the more widespread use of LED lighting, as well as improve the building's thermal envelope through high performance attics, walls and windows. The 2019 standards also require improvements to ventilation systems by requiring highly efficient air filters to trap hazardous air particulates as well as improvements to kitchen ventilation systems. (https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf)

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

CCR Title 24, Part 11: *California Green Building Standards* (Title 24) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The most current version is the 2019 California Green Building Standards Code (CalGreen), which became effective on January 1, 2020 and replaced the 2016 CalGreen.

The CALGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater

systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2019 CALGreen Code over the prior 2016 CALGreen Code include: an alignment of building code engineering requirements with the national standards that include anchorage requirements for solar panels, provides design requirements for buildings in tsunami zones, increases Minimum Efficiency Reporting Value (MERV) for air filters from 8 to 13, increased electric vehicle charging requirements in parking areas, and sets minimum requirements for use of shade trees..

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and in June 2017 CARB released *Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Target*, which provides recommended GHG emissions reduction targets for SCAG of 8 percent by 2020 and 21 percent by 2035.

The *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), adopted by SCAG April, 2016 provides a 2020 GHG emission reduction target of 8 percent and a 2035 GHG emission reduction target of 18 percent. SCAG will need to develop additional strategies in its next revision of the RTP/SCS in order to meet CARB's new 21 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

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

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also

requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive 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.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol 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. 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.

Senate Bill 97

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

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

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG 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 GHG 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 must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 million metric tons of CO2e ($MMTCO_2e$). The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-3-05

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

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

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. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. The second set of regulations "Pavley II" is currently in development and will be phased in between model years 2017 through 2025 and will reduce emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards are being developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles. In September 2009, the Pavley I regulations were adopted by CARB.

5.4 Regional – San Diego County Air Pollution Control District

SDAPCD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SDAPCD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SDAPCD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the Air Basin where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures.

The SDAPCD has not yet formally adopted specific thresholds of significance with regard to GHG emissions, nor has the District adopted a qualified plan, policy, or regulation to reduce GHG emissions that qualifies for tiering in CEQA documents (per State CEQA Guidelines Section 15183.5(a)).

5.5 Local – City of Oceanside

Local jurisdictions, such as the City of Orange (City), have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The currently adopted General Plan provides no policies specifically for the purpose of reducing GHG emissions. However there are some policies in the Land Use, Circulation, and Open Space and Conservation Elements of the General Plan that were intended for other purposes, but implementation of these policies would also result in the reduction of GHG emissions. Policies that would reduce GHG emissions within the City include those that promote conservation of open space, encourage diversification of land uses, expand mixed-use land use designations, encourage trip reduction practices, and provide for infrastructure and facilities necessary to accommodate alternative modes of transportation. However, in the absences of policies that specifically address the role of GHG emissions in climate change, the General Plan does not provide clear guidance to staff or decision-makers regarding how to manage future growth in a manner that reduces GHG emissions.

In order to meet the State GHG emissions reduction goals, the City has recently updated the General Plan that included the *Oceanside Climate Action Plan* (CAP)*, April* 2019, and the *City of Oceanside Energy Climate Action Element* (ECAP), May 2019. The CAP and ECAP have been prepared to provide a policy framework for promoting sustainable land use patterns, energy and water conservation, solid waste reductions, enhancing multi-modal transportation connections, and promoting healthy living and quality of life. ECAP and CAP policies support using energy more efficiently, harnessing renewable energy to power buildings, recycling waste, and enhancing access to sustainable transportation modes in order to strengthen the local economy, create new green jobs, and improve quality of life. Policies from the ECAP and CAP were developed to explicitly reduce emissions from the primary community emissions sectors (residential energy, commercial energy, industrial energy, transportation, solid waste, and water and wastewater).

6.0 ATMOSPHERIC SETTING

6.1 San Diego Air Basin

The project site is located within the western portion of San Diego County in the City of San Diego, which is part of the San Diego Air Basin (Air Basin) that is contiguous with the political boundary of San Diego County. The Air Basin is divided by the Laguna Mountain Range with peaks that exceed 6,000 feet and runs approximately parallel to the coast about 45 miles inland and separates the coastal area from the desert. To the north of the Air Basin are the Santa Ana Mountains, which run along the Orange County coast, turning east to join with the Laguna Mountains near the San Diego-Orange County border.

6.2 Regional Climate

The climate of western San Diego County, is characterized by warm dry summers and mild, wet winters. The climate of the Air Basin, as well as all of Southern California, is largely controlled by the strength and position of the Pacific High, which is a semi-permanent high-pressure center located over the Pacific Ocean. The Pacific High influences the direction of prevailing winds (westerly to north-westerly) and maintains clear skies for much of the year.

The same atmospheric conditions that create a desirable living climate combine to limit the ability of the atmosphere to disperse the air pollution generated by the large population attracted to the pleasant climate. In the summer, subsidence inversions occur as descending air associated with the Pacific high pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. In the winter, radiation inversion occurs when air near the ground cools through radiation and the air aloft remains warm. This creates a shallow inversion layer between these two air masses that can also trap pollutants.

Limited rainfall occurs in the western San Diego County during the winter, as the oceanic high pressure center is the weakest and farthest south as the fringes of mid-latitude storms occasionally move through the area. The temperature and precipitation levels for the Vista 2 NNE Monitoring Station, which is the nearest weather station to the project sites with historical data are shown below in Table D.

Table D – Monthly Climate Data

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	67.4	44.0	2.76
February	67.8	45.0	2.55
March	68.2	46.3	2.24
April	70.8	48.5	1.05
May	72.9	53.5	0.22
June	76.3	56.6	0.11
July	81.3	60.3	0.06
August	83.0	61.6	0.07
September	82.2	60.0	0.25
October	77.9	55.0	0.54
November	72.3	48.3	1.40
December	67.4	44.0	1.83
Annual	**74.0**	**51.9**	**13.09**

Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9378

Table D 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.

6.3 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. The SDAPCD operates an extensive monitoring network throughout the County that continuously monitor ambient levels of criteria pollutants in compliance with federal monitoring regulations. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project site have been used, Camp Pendleton Monitoring Station (Camp Pendleton Station) and San Diego-Kearny Villa Road Monitoring Station (San Diego-Kearny Station).

The Camp Pendleton Station is located approximately five miles southwest of the project site at 21441 West B Street, Camp Pendleton and the San Diego-Kearny Station is located approximately 29 miles south of the project site at 6125A Kearny Villa Road, San Diego. The monitoring data is presented in Table E and shows the most recent three years of monitoring data from CARB. Ozone, NO_2 and PM2.5 were measured at the Camp Pendleton Station and PM10 was measured at the San Diego-Kearny Station.

Table E – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year		
	2016	**2017**	**2018**
Ozone:[1]			
Maximum 1-Hour Concentration (ppm)	0.083	0.094	0.084
Days > CAAQS (0.09 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	0.073	0.081	0.068
Days > NAAQS (0.070 ppm)	**4**	**4**	0
Days > CAAQs (0.070 ppm)	**5**	**5**	0
Nitrogen Dioxide:[1]			
Maximum 1-Hour Concentration (ppb)	72.0	63.0	48.0
Days > NAAQS (100 ppb)	0	0	0
Inhalable Particulates (PM10) :[2]			
Maximum 24-Hour National Measurement (ug/m^3)	36.0	46.0	38.0
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	0	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	17.1	17.6	18.4
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	No	No	No
Ultra-Fine Particulates (PM2.5):[1]			

Pollutant (Standard)	Year		
	2016	2017	2018
Maximum 24-Hour National Measurement (ug/m^3)	28.8	26.0	30.5
Days > NAAQS (35 ug/m^3)	0	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	ND	ND	ND
Annual > NAAQS and CAAQS (12 ug/m^3)	ND	ND	ND

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the Camp Pendleton Station.
[2] Data obtained from the San Diego-Kearny Station.
Source: http://www.arb.ca.gov/adam/

Ozone

The State 1-hour concentration standard for ozone has not been exceeded over the past three years at the Camp Pendleton Station. The State 8-hour ozone standard has been exceeded between 0 and 5 days each year over the past three years at the Camp Pendleton Station. The Federal 8-hour ozone standard has been exceeded between 0 and 4 days each year over the past three years at the Camp Pendleton 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 San Diego County contribute to the ozone levels experienced in Oceanside, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The Camp Pendleton Station did not record an exceedance of the Federal 1-hour NO_2 standard for the last three years.

Particulate Matter

Neither the State nor the Federal 24-hour concentration standards for PM10 have been exceeded over the past three years at the San Diego-Kearny Station. The annual PM10 concentration at the San Diego-Kearny Station has not exceeded either the State or Federal standards for the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has not been at the Camp Pendleton Station. No data is available at the Camp Pendleton Station for annual PM2.5 concentrations at the Camp Pendleton Station. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

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.

7.0 MODELING PARAMETERS AND ASSUMPTIONS

7.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of 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 San Diego County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment 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.

The project characteristics in the CalEEMod model were set to a project location of San Diego County, a Climate Zone of 13, utility company of San Diego Gas & Electric, and an opening year of 2021 was utilized in this analysis. A second CalEEMod model run for the year 2030 was also performed with all of the same parameters as the 2021 analysis, other than the opening year.

Land Use Parameters

The proposed project consists of the development of 50 single-family homes and 54 townhomes on approximately 6.92 acres of the 11.54-acre project site that would also include area for onsite roads, parking spaces, and recreation areas. The remaining portion of the project site would be utilized as a natural open space buffer adjacent to the San Luis Rey River Channel. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving (square feet)
Single-Family Homes (detached)	Single-Family Homes	50 DU	3.92	93,728
Townhomes (attached)	Condo/Townhouse	54 DU	2.00	77,435
Onsite Roads and Hardscape	Other Asphalt Surfaces	1.00 AC	1.00	43,560
Open Space	Other Non-Asphalt Surfaces	4.62 AC	4.62	201,247

Notes:
[1] DU = Dwelling Unit; AC = Acre
[2] Lot acreage calculated based on a total lot area of 11.54 acres.

Construction Parameters

Construction activities are anticipated to start around December 2019 and take approximately 16 months to complete. The phases of construction activities that have been analyzed are detailed below and include: 1) Site preparation, 2) Grading, 3) Building construction, 4) Paving, and 5) Application of architectural coatings.

<u>Site Preparation</u>

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation phase has been modeled as starting in December 2019 and occurring over two weeks. The site preparation activities would require 18 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the site preparation phase. The

onsite equipment would consist of three rubber tired dozers and four tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

Grading

The grading phase would occur after completion of the site preparation phase and has been modeled as occurring over two months. Approximately 62,000 cubic yards of material will be imported to the project site during grading, which would require a total of 7,750 haul trips or an average of 180 haul truck trips per day over the two month grading period (delivery of one load of dirt creates two trips, one to the project site and one leaving the project site). The onsite equipment would consist of two excavators, one grader, one rubber tired dozer, two scrapers, and two of either a tractor, loader, or backhoe. The grading activities would require 20 worker trips per day. In order to account for water truck emissions, six daily vendor truck trips were added to the grading phase.

Building Construction

The building construction would occur after the completion of the grading phase and was modeled as occurring over 14 months. The building construction would require up to 160 worker trips and 51 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, one generator set, one welder, three forklifts, and three of either a tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix.

Paving

The paving activities would have the potential to occur concurrently with the building construction phase and was modeled as occurring over the last four months of the building construction activities. The paving phase would require up to 15 worker trips per day. The onsite equipment would consist of the simultaneous operation of two pavers, two paving equipment, and two rollers, which is based on the CalEEMod default equipment mix.

Architectural Coating

The application of architectural coatings would have the potential to occur concurrently with both the building construction and paving phases and was modeled as occurring over the last four months of the building construction phase. The architectural coating phase was modeled based on covering 346,605 square feet of residential interior area, 115,535 square feet of residential exterior area, and 14,688 square feet of parking area that includes striping of the parking lots, painting of signs, and other architectural coatings in public areas. The architectural coating phase would require up to 32 worker trip per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

Operational Emissions Modeling

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed through use of trip rates obtained from the *Traffic Impact Analysis Oceanside Frazee/Old Grove Road Residential* (Traffic Impact Analysis),

prepared by Linscott Law & Greenspan, December 19, 2019. The Traffic Impact Analysis found that the proposed project would generate 10 weekday daily trips per single-family home and 8 weekday daily trips per townhome, which equates to 932 weekday vehicle trips per day. Since the Traffic Impact Analysis did not provide Saturday and Sunday daily trip rates, the CalEEMod default rates of 9.91 Saturday daily trips and 8.62 Sunday daily trips per single-family home and 5.67 Saturday daily trips and 4.84 Sunday daily trips per townhome were utilized in the analysis. No other changes were made to the CalEEMod default mobile source parameters.

The analysis included the CalEEMod mitigation of: (1) Improved pedestrian network onsite and connecting offsite, since the proposed project will be required to complete the sidewalk on Old Grove Road and a sidewalk already exists on Frazee Road; and (2) Increase Transit Accessibility to account for the North County Transit District Bus Route 313 that has bus stops on Old Grove Road that are located as near as 0.04 mile from the project site.

Area Sources

Area sources include emissions from hearths, consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the proposed 50 single-family homes and 54 townhomes. The project applicant has stated that fireplaces would be an optional add-on in the proposed homes and that all fireplace inserts would be either natural gas only or electric and no wood-burning fireplaces would be installed. Project Design Feature 1 has been detailed above in order to clearly define that types of fireplaces that may be installed into the proposed homes. The CalEEMod model analyzed 104 natural gas fireplaces and zero wood-burning fireplaces or woodstoves. No other changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The energy usage was based on the ongoing use of the proposed 50 single-family homes and 54 townhomes in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

In order to account for Project Design Feature 2, that requires the proposed homes to be designed to meet the new 2019 Title 24, Part 6 building energy efficiency standards, that have been developed so that the average new home built in California will have zero-net-energy use, the analysis included the CalEEMod mitigation of exceed the 2016 Title 24 standards by 7 percent, since the 2019 building standards result in new homes using about 7 percent less energy than homes built with the 2016 building standards (https://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf). The 2019 standards also now require all single-family homes to install rooftop photovoltaic systems based on the following formula from: https://www.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf

Size of PV system (kW_{PV}) = (CFA X A)/1000 + (NDwell x B)

Where:

CFA = Conditioned floor area (16 at 1,200 sf + 19 @ 1,450 sf + 19 @ 1615 sf + 20 at 1,745 sf + 16 at 1,883 sf+ 14 at 2,050 sf = 171,163 sf

NDwell = Number of dwelling units (104 homes)

A = CFA Adjustment factor (for San Diego County = 0.894)

B = Dwelling Unit Adjustment factor (for San Diego County = 1.51)

Based on the above formula, the proposed project would be required to install at least 270.8 kilowatts of photovoltaic solar panels. Since the CalEEMod model requires that the total kilowatt-hours per year generated by the solar panels be entered into the model, the 270.8 kilowatts of solar panels was multiplied by 8 hours, to provide a conservative average hours per day of sunlight that the solar panels will generate electricity and then divided by 1.2 to account for the loss associated with converting the direct current (DC) power from the solar panels to the alternating current (AC) power on the electrical grid and then multiplying by 365 days, which resulted in the proposed solar panels generating 658,946 kilowatt-hours per year that was entered into the CalEEMod model.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The analysis was based on the default CalEEMod waste generation rates of 83 tons of solid waste per year from the proposed project. No changes were made to the default solid waste parameters or mitigation measures in the CalEEMod model. The CalEEMod mitigation of a 50 percent reduction in landfill waste was selected to account for implementation of AB 341 that provides strategies to reduce, recycle or compost solid waste by 75 percent by 2020. Only 50 percent was selected, since AB 341 builds upon the waste reduction measures of SB 939 and 1374 and therefore, it was assumed approximately 25 percent of the waste reduction target has already been accounted for in the CalEEMod model.

Water and Wastewater

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The analysis was based on the default CalEEMod water usage rate of 6,776,019 gallons per year of indoor water usage and 4,271,838 gallons per year of outdoor water usage. No changes were made to the default water and wastewater parameters in the CalEEMod model. The CalEEMod mitigation of the use of low flow faucets, showers, and toilets and use of smart irrigation system controllers were selected to account for the implementation of the 2016 CCR Title 24 Part 11 (CalGreen) requirements.

8.0 THRESHOLDS OF SIGNIFICANCE

8.1 Criteria Pollutant Standards

The SDAPCD has established annual significance thresholds for NOx and VOC for stationary sources. The SDAPCD has not established rules for characterizing impacts from construction. However, SDAPCD informally recommends quantifying construction emissions and comparing them to significance thresholds found in SDAPCD regulations for stationary sources (pursuant to SDAPCD Rules 20.2 and 20.3) and shown in Table G. Because these Rules do not include VOCs or PM2.5, the screening level for VOCs and PM2.5 used in this analysis are from the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than SDAPCD. If construction-phase emissions exceed these thresholds for a stationary source air quality impact analysis, then construction has the potential to violate air quality standards or to contribute substantially to an existing violation. The criteria pollutant significance thresholds are shown in Table G.

Table G – Criteria Air Pollutants Thresholds of Significance

Pollutant	Threshold (pounds/day)
Carbon Monoxide (CO)[1]	550
Oxides of Sulfur (SOx)[1]	250
Volatile Organic Compounds (VOC)[2]	75
Oxides of Nitrogen (NOx)[1]	250
Respirable Particulate Matter (PM10)[1]	100
Fine Particulate Matter (PM2.5)[2]	55

Notes:
[1] Based on thresholds from SDAPCD Rules 20.2 and 20.3.
[2] Based on thresholds from SCAQMD.

The criteria pollutants analysis for both construction and operation of the proposed project can be found below in Section 9.3.

8.2 Toxic Air Contaminants

SDAPCD's Rule 1210, requires that public notices shall be sent to all nearby residents, businesses, schools, day care centers, hospitals, and convalescent homes when a proposed stationary source of TACs exceeds the following thresholds:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Cancer burden equal to or greater than 1.0, or
- Total acute noncancer health hazard index equal to or greater than 1.0, or
- Total chronic noncancer health hazard index equal to or greater than 1.0.

SDAPCD's Rule 1210 threshold for public noticing is based on what the SDAPCD has determined as the potential for a project to contribute to potential significant adverse health impacts to nearby sensitive receptors and is based on similar thresholds provided in *Health Risk Assessments for Proposed Land Use Projects*, prepared by CAPCOA, July 2009. Therefore, if the proposed project is anticipated to create TACs from stationary sources or regular operations of diesel trucks on the project site that would potentially

exceed the above thresholds at any nearby sensitive receptors than the TAC emissions should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

The TAC analysis for both construction and operation of the proposed project can be found below in Section 9.4.

8.3 Odor Impacts

An odor impact would occur if the proposed project creates an odor nuisance pursuant to SDAPCD's Rule 51, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations in the growing of crops or raising of fowl or animals."

If the proposed project results in a violation of Rule 51 with regards to odor impacts, then the proposed project would create a significant odor impact.

The odor analysis for both construction and operation of the proposed project can be found below in Section 9.5.

8.4 Energy Conservation

The new 2018 amendments and additions to the CEQA Checklist now includes an Energy Section that analyzes the proposed project's energy consumption in order to avoid or reduce inefficient, wasteful or unnecessary consumption of energy. Since the Energy Section was just added, no state or local agencies have adopted specific criteria or thresholds to be utilized in an energy impact analysis. However, the 2018 *Guidelines for the Implementation of the California Environmental Quality Act,* provide the following direction on how to analyze a project's energy consumption:

> "If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. (Guidance on information that may be included in such an analysis is presented in Appendix F.) This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project. This analysis may be included in related analyses of air quality, greenhouse gas emissions, transportation or utilities in the discretion of the lead agency."

If the proposed project creates inefficient, wasteful or unnecessary consumption of energy during construction or operation activities or conflicts with a state or local plan for renewable energy or energy efficiency, then the proposed project would create a significant energy impact.

8.5 Greenhouse Gas Emissions

Local jurisdictions, such as the City of Oceanside, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The City adopted *Oceanside Climate Action Plan* (CAP), April 2019. The CAP found that the City is currently on track to meet its state-aligned emissions reduction targets for 2020 and 2030 without additional emissions reduction measures. However in order to meet the long-term reduction targets, the CAP is proposing to take aggressive action in order to better position the City to reach the State's long-term reduction targets. The CAP has developed the following local GHG emissions targets that follow a linear path from baseline emission levels to the long-term per service population target of 1.3 MT CO_2e per capita by 2050:

- By 2020, reduce GHG emissions levels to 4.0 MT CO_2e per service population;
- By 2025, reduce GHG emissions levels to 3.5 MT CO_2e per service population;
- By 2030, reduce GHG emissions levels to 3.0 MT CO_2e per service population;
- By 2040, reduce GHG emissions levels to 2.1 MT CO_2e per service population; and
- By 2050, reduce GHG emissions levels to 1.3 MT CO_2e per service population.

According to City staff the appropriate target to utilize at this time is the year 2025 local service population GHG emission goal of 3.5 MT CO_2e per year. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if GHG emissions created from the proposed project would exceed 3.5 MT CO_2e per service population for the year 2025.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 9.6 and 9.7.

9.0 IMPACT ANALYSIS

9.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality, energy, and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

9.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SDAPCD's Regional Air Quality Strategy (RAQS) or the California State Implementation Plan (SIP). The following section discusses the proposed project's consistency with the SDAPCD's RAQS and SIP.

The California Clean Air Act requires areas that are designated nonattainment of state ambient air quality standards of any of the criteria pollutants to prepare and implement plans to attain the standards by the earliest practicable dates. As detailed above in Section 4.1, the Air Basin is designated by the EPA for the national standards as a non-attainment area for ozone (O_3) and by CARB as nonattainment for ozone, PM10, and PM2.5. According the RAQS was developed to identify feasible emission control measures and provide expeditious progress toward attaining the state standard for ozone and particulate matter. The two pollutants in the RAQS are VOCs and NOx, which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling and reducing air emissions. The RAQs, in conjunction with the Transportation Control Measures, were most recently revised in 2016 as part of the RAQS for San Diego County.

The SIP is the document that sets forth the State's strategies for attaining the NAAQS. The SDAPCD is the agency responsible for preparing the portion of the SIP applicable to the Air Basin. The RAQS outlines the plans and control measures designed to attain the NAAQS for ozone. The SDAPCD relies on information from CARB and SANDAG, including projected growth, mobile, area and all other source emissions in order to predict future emissions and develop appropriate strategies for the reduction of source air emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the incorporated

cities and County of San Diego. As such, projects that propose development that is consistent with the growth anticipated by SANDAG would also be consistent with the RAQS and the SIP.

Implementation of the proposed project would consist of development of 50 single-family homes and 54 townhomes on approximately 6.92 acres of the 11.54-acre project site. The remaining portion of the project site would be utilized as a natural open space buffer adjacent to the San Luis Rey River Channel. As discussed above in Section 1.4, the southern portion of the project site is currently designated General Commercial (GC) and the remainder of the project site is designated Single Family Detached Residential (SFD-R) in the General Plan. The southern portion of the project site is zoned Limited Commercial (CL) and the remainder of the project site is zoned Single Family Residential (RS). Development of the proposed project would include a General Plan Amendment to re-designate the entire project site to Medium Density A Residential (MD A – R) that allows for development of between 6.0 and 9.9 dwelling units per acre and would be re-zoned to Planned Development District. Although this re-designation has not been accounted for in the City's current General Plan, the proposed project would be in substantial compliance with the Land Use Element goals and policies.

The proposed development of 50 single-family homes and 54 townhomes would result in a population increase of 297 persons (from CalEEMod printouts in Appendix A). The SANDAG population and housing forecast for the City of Oceanside (City of Oceanside General Plan Update – EDE, ECAP, and CAP PEIR; 2019) shows that an additional 780,147 persons, 49,459 single-family homes and 263,543 multiple family homes will be added to the City by 2050. The proposed project would represent 0.04 percent of the anticipated population growth, 0.10 percent of the anticipated single-family homes and 0.02 percent of the anticipated multiple family homes that will be built in the City by 2050. Therefore, the housing and population growth introduced by implementation of the proposed project would be well within the SANDAG and RAQS growth forecasts. Further, the proposed project would not permanently change the existing or planned transportation network or traffic patterns anywhere in the Air Basin. As such, the proposed project would be consistent with the local general plan and SANDAG's growth projections. Based on the above, the proposed project will not result in an inconsistency with the SDAPCD RAQS. Therefore, a less than significant impact will occur in relation to implementation of the RAQS.

Level of Significance

Less than significant.

9.3 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SDAPCD criteria pollutant emissions standards detailed above in Section 8.1.

Construction Emissions

The construction activities for the proposed project are anticipated to include site preparation and grading of approximately 6.92 acres of the 11.54-acre project site, building construction of 50 single-family homes and 54 townhomes, paving of onsite parking areas and driveways, and application of architectural coatings. The CalEEMod model has been utilized to calculate the construction-related emissions from construction-related emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 7.1. The worst-case summer or winter daily construction-related

criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table H. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently, Table H also shows the combined criteria pollutant emissions from building construction, paving, and architectural coating phases of construction.

Table H – Construction-Related Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Site Preparation	4.45	46.37	22.81	0.04	20.65	12.19
Grading	6.02	101.69	44.86	0.20	14.57	6.71
Combined Building Construction, Paving, and Architectural Coatings	72.89	39.95	40.57	0.08	3.97	2.34
- Building Construction	*2.98*	*25.38*	*22.85*	*0.06*	*2.82*	*1.53*
- Paving	*1.35*	*12.96*	*15.05*	*0.02*	*0.80*	*0.65*
- Architectural Coatings	*68.56*	*1.61*	*2.67*	*0.00*	*0.35*	*0.16*
Maximum Daily Construction Emissions	**72.89**	**101.69**	**44.86**	**0.20**	**20.65**	**12.19**
SDAPCD Thresholds	**75**	**250**	**550**	**250**	**100**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.2.

Table H shows that none of the analyzed criteria pollutants would exceed the SDAPCD emissions thresholds during any phase of construction activities or from concurrent building construction, paving and architectural coating construction activities. Therefore, a less than significant air quality impact would occur from construction of the proposed project.

Operational Emissions

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The operations-related criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 7.1. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table I and the CalEEMod daily emissions printouts are shown in Appendix A.

Table I – Operational Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Area Sources[1]	5.73	1.82	9.33	0.01	0.19	0.19
Energy Usage[2]	0.06	0.49	0.21	0.00	0.04	0.04
Mobile Sources[3]	1.65	6.94	19.51	0.07	5.70	1.56
Total Emissions	**7.44**	**9.24**	**29.05**	**0.08**	**5.93**	**1.79**
SDAPCD Thresholds	**75**	**250**	**550**	**250**	**100**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from hearths, consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (excluding hearths).
[3] Mobile sources consist of emissions from vehicles and road dust.

Source: Calculated from CalEEMod Version 2016.3.2.

Table I shows that during operation of the proposed project that none of the analyzed criteria pollutants would exceed the SDAPCD emissions thresholds. Therefore, a less than significant air quality impact would occur from operation of the proposed project.

Pursuant to the Sierra Club v. Friant Ranch Supreme Court Ruling (Case No. S219783, December 24, 2018), which found on page 6 of the ruling that EIRs need to "makes a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." Also, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

Table I above shows that the primary source of operational air emissions would be created from mobile source emissions that would be generated throughout the Air Basin. As such, any adverse health impacts created from the proposed project should be assessed on a basin-wide level. As indicated above in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone. In addition, PM10 and PM2.5 have been designated by the State as non-attainment. It should be noted that VOC and NOx are ozone precursors, as such they have been considered as non-attainment pollutants.

According to *The California Almanac of Emissions and Air Quality 2013 Edition,* prepared by CARB, shows that for the County of San Diego in the year 2020 the total VOC emissions will be 114 tons per day, NOx emissions will be 68 tons per day, SOx emissions will be 1 ton per day, PM10 emissions will be 74 tons per day, and PM2.5 emissions will be 19 tons per day. The Report does not provide any data for CO emissions. The project contribution to each criteria pollutant in the Air Basin is shown in Table J.

Table J – Project's Contribution to Criteria Pollutants in the Air Basin

	Pollutant Emissions (pounds/day)					
Emissions Source	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Project Emissions[1]	7.44	9.25	29.05	0.08	5.93	1.79
Total Emissions in Air Basin[2]	228,000	136,000	--	2,000	148,000	38,000
Project's Percent of Air Emissions	**0.0033%**	**0.0068%**	**--**	**0.0040%**	**0.0040%**	**0.0047%**

Notes:
[1] From the project's total operational emissions shown above in Table I.
[2] California Almanac of Emissions and Air Quality 2013 Edition.

As shown in Table J, the project would increase criteria pollutant emissions by as much as 0.0068 percent for NOx in the Air Basin. Due to these nominal increases in the Air Basin-wide criteria pollutant emissions, no increases in days of non-attainment are anticipated to occur from operation of the proposed project. As such, operation of the project is not anticipated to result in a quantitative increase in premature deaths, asthma in children, days children will miss school, asthma-related emergency room visits, or an increase in acute bronchitis among children due to the criteria pollutants created by the proposed project. Impacts would be less than significant.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

9.4 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 8.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptors to the project site are single-family homes located as near as 60 feet to the south of the project site and the nearest outdoor activity area or structure at Nichols Elementary School is as near as 180 feet west of the project site.

Construction-Related Sensitive Receptor Impacts

Construction of the proposed project may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

<u>Construction-Related Fugitive Dust Emissions</u>

Construction activities are a source of fugitive dust (PM10 and PM2.5) emissions that may have a substantial, although temporary, impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the immediate vicinity of the proposed construction activities. Fugitive dust emissions from the proposed project would be created during onsite earth moving activities. The anticipated onsite worst-case PM10 emissions for each phase of construction have been provided above in Table H. However, it should be noted that fugitive dust emissions vary substantially from day to day, depending on the level and type of activity and weather conditions. Additionally, most of the PM10 emissions from onsite construction activities are from inert silicates, rather than the complex organic particles released from combustion sources, which are more harmful to health.

Construction activities associated with the proposed project would be required to implement emissions control measures detailed in SDAPCD's Rule 55 – Fugitive Dust Control, which restricts construction activities from creating visible dust emissions at the property line that lasts more than three minutes in any hour and requires the removal of all track-out from the nearby roadways. With implementation of SDAPCD's Rule 55, the proposed project would not exceed the SDAPCD standards for fugitive dust. Local air quality impacts would be less than significant for construction activities.

<u>Toxic Air Contaminants Impacts from Construction</u>

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. SDAPCD and CAPCOA methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section

2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential operational toxic air contaminant impacts.

Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol), prepared for Caltrans, December 1997, provides a screening method to determine if the vehicle trips generated by a project has the potential to create a CO hotspot at any of the nearby intersections. According to the CO Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start mode by two percent or more; significantly increase the traffic volume by five percent or more over existing volumes, or worsen traffic flow at an intersection, which is defined as increasing average delay at signalized intersections operating at Level of Service (LOS) E or F, or causing an intersection that would operate at LOS D or better without the project to operate at LOS E or F.

The Traffic Impact Analysis found that of the two intersections analyzed, only the signalized intersection of SR 76 and Old Grove Road would operate at LOS E or worse for the near-term conditions. The Traffic Impact Analysis also shows that for the near-term with project conditions for SR 76 and Old Grove Road would remain at LOS E, however the change in delay will be 1.8 seconds with development of the project, which represents a 2.8 percent increase in delay, which is less than the five percent increase threshold detailed above. Due to the nominal increase in delay as well as the reduction in CO emissions created by newer vehicles, no local CO Hotspots are anticipated to be created at any of the nearby intersections from the vehicle traffic generated by the proposed project. CO hotspot impacts would be less than significant.

Operations-Related Toxic Air Contaminant Impacts

Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Due to the nominal number of diesel truck trips generated by the proposed residential project, a less than significant TAC impact would occur during on-going operations of the proposed project and no mitigation would be required.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

9.5 Odor Emissions Adversely Affecting a Substantial Number of People

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. The objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of 50 single-family homes and 54 townhomes and associated onsite roads, parking spaces, and recreation areas. Potential sources that may emit odors during the on-going operations of the proposed project would primarily occur from odor emissions from the trash storage areas. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SDAPCD's Rule 51, no significant impact related to odors would occur during the on-going operations of the proposed project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

9.6 Energy Consumption

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, natural gas, and petroleum based fuel supplies and distribution systems. This analysis includes a discussion of the potential energy impacts of the proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources are provided below.

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands.

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network and, therefore, resource availability is typically not an issue. Natural gas satisfies almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet.

Petroleum-based fuels currently account for a majority of the California's transportation energy sources. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, gasoline consumption in California has declined.

The following section calculates the potential energy consumption associated with the construction and operations of the proposed project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include site preparation and grading of approximately 6.92 acres of the 11.54-acre project site, building construction of 50 single-family homes and 54 townhomes, paving of onsite parking areas and driveways, and application of architectural coatings. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the Project Site, construction worker travel to and from the Project Site, as well as delivery and haul truck trips (e.g. hauling of demolition material to off-site reuse and disposal facilities);

2. Electricity associated with the conveyance of water that would be used during Project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new building and infrastructure. Electricity would be supplied to the project site by San Diego Gas & Electric and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

Since the project site is located in a planned community that was designed to include development on the project site, it is anticipated that only nominal improvements would be required to San Diego Gas & Electric's distribution lines and equipment with development of the proposed project. Where feasible, the new service installations and connections would be scheduled and implemented in a manner that would not result in electrical service interruptions to other properties. Compliance with City's guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with grading, construction, and development. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Natural Gas

Construction of the proposed project typically would not involve the consumption of natural gas. Natural gas would not be supplied to support construction activities, thus there would be no demand generated by construction. Since the project site is part of a planned community that has been developed with natural gas line in the vicinity of the project site, construction of the proposed project would be limited to installation of new natural gas connections within the project site. Development of the proposed project would likely not require extensive infrastructure improvements to serve the project site. Construction-related energy usage impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. In addition, prior to ground disturbance, the proposed project would notify and coordinate with San Diego Gas & Electric to identify the locations and depth of all existing gas lines and avoid disruption of gas service. Therefore, construction-related impacts to natural gas supply and infrastructure would be less than significant.

Construction-Related Transportation Energy

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction. which would utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the default off-road equipment assumptions from the CalEEMod model run that is detailed above in Section 7.1 and the fuel usage calculations provided in the *2017 Off-road Diesel Emission Factors* spreadsheet, prepared by CARB (https://ww3.arb.ca.gov/msei/ordiesel.htm). The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion

Where:

Load Factor - Obtained from CalEEMod default values

Horsepower – Obtained from CalEEMod default values

Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by CalEEMod default number of working days for each phase of construction

BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367

Unit Conversion – Converts pounds to gallons = 7.109

Table K shows the off-road construction equipment fuel calculations based on the above formula, which shows that the off-road equipment utilized during construction of the Proposed Project would consume 65,805 gallons of fuel.

Table K – Off-Road Construction Equipment Modeled in CalEEMod and Fuel Used

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Site Preparation						
Rubber Tired Dozers	3	247	0.40	8	240	1,224
Tractors/Loaders/Backhoes	4	97	0.37	8	320	659
Grading						
Excavators	2	158	0.38	8	688	2,132
Graders	1	187	0.41	8	344	1,362
Rubber Tired Dozers	1	247	0.40	8	344	1,755
Scrapers	2	367	0.48	8	688	6,257
Tractors/Loaders/Backhoes	2	97	0.37	8	688	1,417
Building Construction						
Cranes	1	231	0.29	7	2,100	7,263
Forklifts	3	89	0.20	8	7,200	7,355
Generator Sets	1	84	0.74	8	2,400	8,562
Tractors/Loaders/Backhoes	3	97	0.37	8	7,200	14,831
Welders	1	46	0.45	8	2,400	2,851

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Paving						
Pavers	2	130	0.42	8	1,296	3,653
Paving Equipment	2	132	0.36	8	1,296	3,179
Rollers	2	80	0.38	8	1,296	2,261
Architectural Coating						
Air Compressor	1	78	0.48	6	486	1,044
	Total Off-Road Equipment Fuel Used during Construction (gallons)					**65,805**

Notes:
[1] Based on: 10 days for Site Preparation; 43 days for Grading; 300 days for Building Construction; 81 days for Paving; and 81 days for Architectural Coatings.
Source: CalEEMod Version 2016.3.2; CARB, 2018.

The on-road construction-related vehicle trips fuel usage was calculated through use of the construction vehicle trip assumptions from the CalEEMod model run that is detailed above in Section 7.1 and the fleet average miles per gallon rates calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are provided in Appendix B. Table L shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations, which shows that the on-road construction-related vehicle trips would consume 57,556 gallons of fuel.

Table L – On-Road Construction Vehicle Trips Modeled in CalEEMod and Fuel Used

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total Miles per Day	Total Miles per Phase[1]	Fleet Average Miles per Gallon[2]	Fuel Used (gallons)
Site Preparation						
Worker Trips	18	10.8	194	1,944	25.3	77
Vendor Trips	6	7.3	44	438	7.7	57
Grading						
Worker Trips	20	10.8	216	9,288	25.3	367
Vendor Trips	6	7.3	44	1,883	7.7	245
Haul Trips	180	20	3,605	155,000	7.7	20,156
Building Construction						
Worker Trips	160	10.8	1,728	518,400	25.3	20,504
Vendor Trips	51	7.3	372	111,690	7.7	14,524
Paving						
Worker Trips	15	10.8	162	13,122	25.3	519
Architectural Coating						
Worker Trips	32	10.8	346	27,994	25.3	1,107
	Total Fuel Used from On-Road Construction Vehicles (gallons)					**57,556**

Notes:
[1] Based on: 10 days for Site Preparation; 43 days for Grading; 300 days for Building Construction; 81 days for Paving; and 81 days for Architectural Coatings.
[2] From EMFAC 2017 model (see Appendix B). Worker Trips based on entire fleet of gasoline vehicles and Vendor and Haul Trips based on only truck fleet of diesel vehicles.
Source: CalEEMod Version 2016.3.2; CARB, 2018.

As shown above in Table K and Table L, construction of the Proposed Project would result in the consumption of 123,362 gallons of fuel. Construction activities associated with the proposed project would be required to adhere to all State and SDAPCD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the Project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of 50 single-family homes and 54 townhomes would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), refrigeration, lighting, appliances, and electronics. Energy would also be consumed during operations related to water usage, solid waste disposal, and vehicle trips.

Operations-Related Electricity

Operation of the proposed project would result in consumption of electricity at the project site. According to the CalEEMod model run provided in Appendix C, operation of the proposed project would utilize 15,089 kilowatt-hours per year of electricity. It should be noted that, that the project applicant has agreed to implement Project Design Feature 2, that requires the proposed project to be designed to meet the 2019 Title 24, Part 6 building energy efficiency standards. The 2019 Title 24 Part 6 standards have been developed to meet the State's goal of zero-net-energy use for new homes and that will be achieved through a variety of measures to make new homes more energy efficient and by also requiring installation of photovoltaic systems of adequate size to generate enough electricity to meet the zero-net energy use standard. The size of the PV system required for the project pursuant to the 2019 Title 24 standards was calculated above in Section 7.1, which found that the proposed project would need to install at least 270.8 Kilowatts of photovoltaic panels within the proposed project. Although, the CalEEMod model found that with implementation of the 2019 Title 24 Part 6 standards, that the proposed project would continue to utilize a nominal amount of power, however it should be noted that the electricity usage and emission rates utilized by the CalEEMod model are based on regional average usage rates for existing homes, which were not all built to the most current Title 24 Part 6, standards, so the CalEEMod model provides a conservative or worst-case analysis of electricity use from the proposed project. Therefore, it is anticipated the proposed project will be designed and built to minimize electricity use and that existing and planned electricity capacity and electricity supplies would be sufficient to support the proposed project's electricity demand. Thus, impacts with regard to electrical supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

Operations-Related Natural Gas

Operation of the proposed project would result in increased consumption of natural gas at the project site. According to the CalEEMod model run provided in Appendix C, operation of the proposed project would utilize 1,840 million British thermal units (BTU) of natural gas per year. It should be noted that, that the project applicant has agreed to implement Project Design Feature 2, that requires the proposed project to be designed to meet the 2019 Title 24, Part 6 building energy efficiency standards. The 2019 Title 24, Part 6 standards require numerous energy efficiency measures to be incorporated into the

proposed structures, including enhanced insulation as well as use of efficient natural gas appliances and HVAC units. Therefore, it is anticipated the proposed project will be designed and built to minimize natural gas use and that existing and planned natural gas capacity and natural gas supplies would be sufficient to support the proposed project's natural gas demand. Thus, impacts with regard to natural gas supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

Operations-Related Transportation Energy

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. According to the CalEEMod model run provided in Appendix C, operation of the proposed project would generate 1,888,099 vehicle miles traveled per year. According to the EMFAC2017 model (see Appendix B), the fleet average miles per gallon rate for all gasoline-powered vehicles in San Diego County in the year 2021 is anticipated to be 25.3 miles per gallon. Based on this rate, operation of the proposed project would use 74,680 gallons of transportation fuel per year. It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of transportation energy that includes California Code of Regulations Title 24, Part 10 California Green Building Standards that require all new homes to include a dedicated circuit in the garage to be utilized for electric car charging. Therefore, it is anticipated the proposed project will be designed and built to minimize transportation energy through the promotion of the use of electric-powered vehicles and it is anticipated that existing and planned capacity and supplies of transportation fuels would be sufficient to support the proposed project's demand. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

In conclusion, the proposed project would comply with regulatory compliance measures outlined by the State and City related to Air Quality, Greenhouse Gas Emissions (GHG), Transportation/Circulation, and Water Supply. Additionally, the proposed project would be constructed in accordance with all applicable City Building and Fire Codes. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

9.7 Energy Plan Consistency

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The City is currently in the process of adopting an Energy and Climate Action Element as part of a General Plan Update, however, to date the City has not yet released a draft of the Energy and Climate Action Element of the General Plan and the current General Plan does not include an Energy Element, the applicable energy efficiency plan for the proposed project would be the State's Title 24 Part 6 Building Energy Efficiency Standards. It should be noted that, that the project applicant has agreed to implement Project Design Feature 2, that requires the proposed project to be designed to meet the 2019 Title 24, Part 6 building energy efficiency standards. The 2019 Title 24 Part 6 standards have been developed to meet the State's goal of zero-net-energy use for new homes and that will be achieved through a variety of measures to make new homes more energy efficient and by also requiring installation of photovoltaic systems of adequate size to generate enough electricity to meet the zero-net energy use standard. Through implementation of the above programs, regulations, and policies, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

9.8 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would consist of development of 50 single-family homes and 54 townhomes. The City adopted the *Oceanside Climate Action Plan* (CAP), April 2019 which provides service population efficiency targets in five year increments between the year 2020 and 2050. According to City staff the appropriate target to utilize at this time is the year 2025 local service population GHG emission goal of 3.5 MT CO_2e per year.

In order to determine if the proposed project meets the year 2025 efficiency target, the GHG emissions from the proposed project were recalculate in CalEEMod for the year 2025 conditions. A summary of the results is shown below in Table M and the CalEEMod model run for the year 2025 conditions is provided in Appendix C .

Table M – Proposed Project Greenhouse Gas Annual Emissions for Year 2025

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	83.18	0.00	0.00	83.69
Energy Usage[2]	103.13	0.00	0.00	103.73
Mobile Sources[3]	681.63	0.03	0.00	682.50
Solid Waste[4]	8.47	0.50	0.00	20.99
Water and Wastewater[5]	39.35	0.18	0.00	45.14
Construction[6]	42.23	0.01	0.00	42.40
Total 2020 Emissions	**957.99**	**0.72**	**0.00**	**978.45**
			Service Population[8]	**297**
			Year 2020 Emissions per Service Population	**3.3**
			City of Oceanside Year 2025 Efficiency Target	**3.5**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[6] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
[8] The service population was obtained from the CalEEMod model and represents the anticipated number of residents in the proposed project.
Source: CalEEMod Version 2016.3.2.

The data provided in Table M above shows that the proposed project would create 978.45 $MTCO_2e$ per year for the year 2025 conditions and would result in an efficiency rate of 3.3 MT CO_2e per year per service population that is within the CAP Year 2025 Efficiency Target of 3.5 MT CO_2e per year. . It should be noted that Year 2025 GHG emissions are based on approved statewide GHG reduction measures and the required GHG reduction measures provided in the City's Climate Action Plan which are detailed below in Section 7.8 and include Project Design Feature 1. Therefore, a less than significant generation of GHG emissions would occur from development of the proposed project. Impacts would be less than significant.

Level of Significance

Less than significant impact.

9.9 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The City adopted the *Oceanside Climate Action Plan* (CAP), April 2019. Table 11 from the CAP provides all of the CAP Measures and details if they are applicable to project level analyses. Table N provides a list of the applicable CAP Measures for a residential development as well as providing a project consistency analysis of each measure.

Table N – GHG Reduction Measures for New Developments and Project Consistency

CAP Measure	Project-Level Implementation	Project Consistency
E2 – Solar Photovoltaic Promotion Program	Measure E1 would include adoption of a Solar Ordinance for New Development. The Ordinance would require that new developments with 50 or more surface parking spaces to offset 50 percent of energy use through on-site renewable energy sources. As the Ordinance and associated enforcement program will be adopted several months after CAP adoption, the checklist measure includes the Ordinance's requirement for renewable energy. This checklist item would be applicable wherever future development would include 50 or more surface parking spaces and would have a non-negligible electricity demand.	**Consistent.** Project Design Feature 2 is provided that requires requiring installation of photovoltaic systems of adequate size to generate enough electricity to meet the zero-net energy use standard detailed in the 2019 Title 24, Part 6 standards. .
W3 – Local Water Supply Development	Measure W3 would include capital improvements to increase the supply capacity of recycled water. While Measure W3 does not specifically call for implementation at the project-level, it is assumed that future development would use recycled water where feasible. The checklist item includes incorporation of service connections for recycled water use; this checklist item would be applicable wherever future development may feasibly offset potable water use with recycled water and where the project is located in a serviceable area.	**Not applicable.** There are no sources of recycled water in the project vicinity that would allow for the feasible offset of potable water use with recycled water.
TL1 – Smart Growth Policies	Transportation forecasts are based on the proposed land use pattern from the 2017 General Plan Update that is being prepared concurrently with the CAP. Measure TL1 would include adopting smart growth development policies – specifically, the majority of new development of housing units and employment generating land uses would be sited in Smart Growth Opportunity Areas (SGOAs). Thus, at the project-level, all projects sited outside an SGOA are assumed to develop uses that would be consistent with land use designation and all projects sited inside an SGOA are assumed to develop uses that are consistent with the character of the SGOA type. The minimum SGOA target densities identified by SANDAG are considered the most applicable criteria for determining whether a proposed land use would be consistent with the character of an SGOA type. The set of checklist item includes the limitations on proposed land uses. This set of checklist item would be applicable	**Consistent.** The proposed residential project is located in close proximity to schools and commercial retail centers that would allow for alternative transportation methods such as walking or bicycle riding to these uses. In addition, there is currently a bus stop for North County Transit District Bus Route 313 on Old Grove Road in close proximity to the project site, that would also promote the use of transit.

Table N – GHG Reduction Measures for New Developments and Project Consistency

CAP Measure	Project-Level Implementation	Project Consistency
	wherever future development would result in non-negligible vehicle trip generation.	
TL2 – Expanded Electric Vehicle Charging Infrastructure	Measure TL2 would include adoption of an Electric Vehicle Infrastructure Ordinance. The Ordinance would require all residential, commercial, and industrial development projects to prewire a portion of parking spaces to allow for future installation of electric vehicle charging stations. As the Ordinance and associated enforcement program will be adopted several months after CAP adoption, the checklist measure includes the Ordinance's requirement for prewiring parking spaces. This checklist item would be applicable wherever future development would include parking spaces.	**Consistent.** Project Design Feature 2 is provided that requires installation of a dedicated minimum 40 ampere circuit in the garage that may be utilized for electric vehicle charging as detailed in the 2019 Title 24, Part 6 standards.
AF1 – Urban Forestry Program	Measure E1 would include adoption of a Green Streets Ordinance. The Ordinance would require that new developments projects incorporate shade trees and establishes a goal of requiring that overall new development projects incorporate an average of 200 additional trees per year. The criteria for determining how many trees each individual development project would need to incorporate would not be established in the Green Streets Ordinance. Until adoption of the Green Streets Ordinance, interim criteria shall be one tree per each single-family residence, one tree per three multi-family residences, and one tree for each 14 jobs. Based on the SANDAG Series 13 Regional Growth Forecast between 2020 and 2030, development in Oceanside is anticipated to result in approximately 367 single-family residences and 2,221 multi-family residences. Based on employment projections developed by Keyser Marston Associates, employment is anticipated to increase by approximately 28,732 between 2014 and 2035. Therefore, it is estimated that average annual development would include at least 37 single-family residences, 221 multi-family residences, and non-residential uses that create 1,368 jobs. Based on this development that meets the interim criteria would result approximately 226 additional trees per year; this would demonstrate consistency with the Measure AF1 goal of planting an additional 200 trees per year. This checklist item would be applicable wherever future development would develop new land uses.	**Consistent.** The proposed Landscape Plan for the proposed project has been designed to include the planting of at least 68 trees onto the project site.

Source: City of Oceanside Draft Climate Action Plans, April 2019.

As shown above in Table N, with implementation of Project Design Feature 2, the proposed project is consistent with the applicable measures provided in the CAP and Section 7.2 above shows that the proposed project is consistent with the per capita GHG emissions thresholds provided in the CAP. Therefore, the proposed project would comply with the CAP's project-level measures and per capita

emissions thresholds and would not conflict with the applicable plan for reducing GHG emissions. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.0 REFERENCES

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APPENDIX A

CalEEMod Model Daily Printouts

Rio Rockwell Residential Opening Year 2021

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Non-Asphalt Surfaces	4.62	Acre	4.62	201,247.20	0
Condo/Townhouse	54.00	Dwelling Unit	2.00	77,435.00	154
Single Family Housing	50.00	Dwelling Unit	3.92	93,728.00	143

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Rio Rockwell Residential Opening Year 2021 - San Diego County, Summer

Project Characteristics -

Land Use - Gross Project Site 11.54 acres. SFH = 3.92 acre; Townhomes = 2 acre; Other Asphalt Surfaces = 1.00; Other Non-Asphalt Surfaces = 4.62

Construction Phase - Construction schedule provided by applicant

Trips and VMT - To account for water trucks 6 vendor trucks added to Site Prep and Grading

Grading - Grading 62,000 cu yd imported

Vehicle Trips - Per TIA Weekday Trips changed to 10 trips per day.

Woodstoves - Per PDF-1 No Wood fireplaces or Stoves and 104 natural gas only fireplaces

Water And Wastewater -

Mobile Land Use Mitigation - Improve Pedestrian Network on Project Site and Connecting Off-Site; Distance to Bus stop 0.04 mile.

Energy Mitigation - To account for 2019 Title 24 Standards - Exceed Title 24 by 7% and provide 241.4 kWh of rooftop solar that would generate 658,946 kWh per year.

Water Mitigation - Use low flow fixtures and water-efficient irrigation systems.

Waste Mitigation - 50% reduction in waste.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	81.00
tblConstructionPhase	NumDays	30.00	43.00
tblConstructionPhase	NumDays	20.00	81.00
tblConstructionPhase	PhaseEndDate	5/28/2021	4/23/2021
tblConstructionPhase	PhaseEndDate	4/2/2021	4/23/2021
tblConstructionPhase	PhaseEndDate	2/7/2020	2/28/2020
tblConstructionPhase	PhaseEndDate	4/30/2021	4/23/2021
tblConstructionPhase	PhaseEndDate	12/27/2019	12/31/2019
tblConstructionPhase	PhaseStartDate	5/1/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	2/8/2020	3/1/2020
tblConstructionPhase	PhaseStartDate	12/28/2019	1/1/2020
tblConstructionPhase	PhaseStartDate	4/3/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	12/16/2019	12/18/2019

tblFireplaces	NumberGas	29.70	54.00
tblFireplaces	NumberGas	27.50	50.00
tblFireplaces	NumberWood	18.90	0.00
tblFireplaces	NumberWood	17.50	0.00
tblGrading	MaterialImported	0.00	62,000.00
tblLandUse	LandUseSquareFeet	54,000.00	77,435.00
tblLandUse	LandUseSquareFeet	90,000.00	93,728.00
tblLandUse	LotAcreage	3.38	2.00
tblLandUse	LotAcreage	16.23	3.92
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	2.50	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					
2019	4.4333	46.3660	22.8120	0.0412	18.2548	2.3966	20.6513	9.9816	2.2051	12.1866	0.0000	4,100.6988	4,100.6988	1.2104	0.0000	4,130.9583
2020	5.9705	101.2021	44.1132	0.2064	12.2302	2.3388	14.5690	4.5455	2.1577	6.7032	0.0000	21,784.6331	21,784.6331	3.3200	0.0000	21,867.6323
2021	72.4908	37.5365	39.8599	0.0834	2.0457	1.7531	3.7988	0.5504	1.6401	2.1906	0.0000	8,213.8104	8,213.8104	1.5035	0.0000	8,251.3972
Maximum	**72.4908**	**101.2021**	**44.1132**	**0.2064**	**18.2548**	**2.3966**	**20.6513**	**9.9816**	**2.2051**	**12.1866**	**0.0000**	**21,784.6331**	**21,784.6331**	**3.3200**	**0.0000**	**21,867.6323**

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					
2019	4.4333	46.3660	22.8120	0.0412	18.2548	2.3966	20.6513	9.9816	2.2051	12.1866	0.0000	4,100.6988	4,100.6988	1.2104	0.0000	4,130.9583
2020	5.9705	101.2021	44.1132	0.2064	12.2302	2.3388	14.5690	4.5455	2.1577	6.7032	0.0000	21,784.6331	21,784.6331	3.3200	0.0000	21,867.6323
2021	72.4908	37.5365	39.8599	0.0834	2.0457	1.7531	3.7988	0.5504	1.6401	2.1906	0.0000	8,213.8104	8,213.8104	1.5035	0.0000	8,251.3971
Maximum	**72.4908**	**101.2021**	**44.1132**	**0.2064**	**18.2548**	**2.3966**	**20.6513**	**9.9816**	**2.2051**	**12.1866**	**0.0000**	**21,784.6331**	**21,784.6331**	**3.3200**	**0.0000**	**21,867.6323**

Rio Rockwell Residential Opening Year 2021 - San Diego 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	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655
Energy	0.0575	0.4913	0.2091	3.1400e-003		0.0397	0.0397		0.0397	0.0397		627.2425	627.2425	0.0120	0.0115	630.9699
Mobile	1.6494	6.7433	19.5144	0.0671	5.6428	0.0546	5.6974	1.5082	0.0510	1.5592		6,817.7490	6,817.7490	0.3489		6,826.4709
Total	**7.4327**	**9.0591**	**29.0569**	**0.0817**	**5.6428**	**0.2812**	**5.9240**	**1.5082**	**0.2776**	**1.7858**	**0.0000**	**9,662.7952**	**9,662.7952**	**0.4181**	**0.0519**	**9,688.7063**

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	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655
Energy	0.0544	0.4646	0.1977	2.9700e-003		0.0376	0.0376		0.0376	0.0376		593.1439	593.1439	0.0114	0.0109	596.6686
Mobile	1.4799	5.7632	15.5811	0.0514	4.2443	0.0424	4.2867	1.1344	0.0396	1.1740		5,224.0014	5,224.0014	0.2781		5,230.9533
Total	**7.2601**	**8.0522**	**25.1123**	**0.0659**	**4.2443**	**0.2669**	**4.5112**	**1.1344**	**0.2641**	**1.3985**	**0.0000**	**8,034.9489**	**8,034.9489**	**0.3466**	**0.0513**	**8,058.8874**

	ROG	NOx	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	**2.32**	**11.11**	**13.58**	**19.43**	**24.78**	**5.08**	**23.85**	**24.78**	**4.87**	**21.69**	**0.00**	**16.85**	**16.85**	**17.09**	**1.21**	**16.82**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/18/2019	12/31/2019	5	10	
2	Grading	Grading	1/1/2020	2/28/2020	5	43	
3	Building Construction	Building Construction	3/1/2020	4/23/2021	5	300	
4	Paving	Paving	1/1/2021	4/23/2021	5	81	
5	Architectural Coating	Architectural Coating	1/1/2021	4/23/2021	5	81	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 107.5

Acres of Paving: 5.62

Residential Indoor: 346,605; Residential Outdoor: 115,535; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 14,688 (Architectural Coating – sqft)

OffRoad Equipment

Rio Rockwell Residential Opening Year 2021 - San Diego County, Summer

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	7,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	160.00	51.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	32.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

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	0.0276	0.7439	0.1921	1.6600e-003	0.0406	5.1800e-003	0.0458	0.0117	4.9500e-003	0.0166		177.6100	177.6100	0.0137		177.9528
Worker	0.0707	0.0493	0.5569	1.5700e-003	0.1479	1.0500e-003	0.1489	0.0392	9.7000e-004	0.0402		156.6359	156.6359	5.0000e-003		156.7610
Total	**0.0983**	**0.7933**	**0.7490**	**3.2300e-003**	**0.1885**	**6.2300e-003**	**0.1947**	**0.0509**	**5.9200e-003**	**0.0568**		**334.2459**	**334.2459**	**0.0187**		**334.7138**

3.2 Site Preparation - 2019

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

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	0.0276	0.7439	0.1921	1.6600e-003	0.0406	5.1800e-003	0.0458	0.0117	4.9500e-003	0.0166		177.6100	177.6100	0.0137		177.9528
Worker	0.0707	0.0493	0.5569	1.5700e-003	0.1479	1.0500e-003	0.1489	0.0392	9.7000e-004	0.0402		156.6359	156.6359	5.0000e-003		156.7610
Total	**0.0983**	**0.7933**	**0.7490**	**3.2300e-003**	**0.1885**	**6.2300e-003**	**0.1947**	**0.0509**	**5.9200e-003**	**0.0568**		**334.2459**	**334.2459**	**0.0187**		**334.7138**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8760	0.0000	8.8760	3.6272	0.0000	3.6272			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.8760**	**2.1739**	**11.0499**	**3.6272**	**2.0000**	**5.6272**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

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	1.4246	50.2786	11.4157	0.1411	3.1493	0.1604	3.3098	0.8631	0.1535	1.0166		15,433.7944	15,433.7944	1.3595		15,467.7819
Vendor	0.0224	0.6766	0.1724	1.6400e-003	0.0406	3.3100e-003	0.0439	0.0117	3.1700e-003	0.0149		176.4241	176.4241	0.0130		176.7494
Worker	0.0734	0.0495	0.5669	1.6900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		168.5494	168.5494	5.0300e-003		168.6752
Total	**1.5204**	**51.0046**	**12.1550**	**0.1444**	**3.3543**	**0.1649**	**3.5191**	**0.9184**	**0.1577**	**1.0761**		**15,778.7679**	**15,778.7679**	**1.3775**		**15,813.2066**

3.3 Grading - 2020

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					8.8760	0.0000	8.8760	3.6272	0.0000	3.6272			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.8760**	**2.1739**	**11.0499**	**3.6272**	**2.0000**	**5.6272**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

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	1.4246	50.2786	11.4157	0.1411	3.1493	0.1604	3.3098	0.8631	0.1535	1.0166		15,433.7944	15,433.7944	1.3595		15,467.7819
Vendor	0.0224	0.6766	0.1724	1.6400e-003	0.0406	3.3100e-003	0.0439	0.0117	3.1700e-003	0.0149		176.4241	176.4241	0.0130		176.7494
Worker	0.0734	0.0495	0.5669	1.6900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		168.5494	168.5494	5.0300e-003		168.6752
Total	**1.5204**	**51.0046**	**12.1550**	**0.1444**	**3.3543**	**0.1649**	**3.5191**	**0.9184**	**0.1577**	**1.0761**		**15,778.7679**	**15,778.7679**	**1.3775**		**15,813.2066**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

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

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	0.1906	5.7507	1.4651	0.0140	0.3453	0.0281	0.3734	0.0994	0.0269	0.1263		1,499.6044	1,499.6044	0.1106		1,502.3701
Worker	0.5871	0.3956	4.5353	0.0135	1.3144	9.2200e-003	1.3236	0.3486	8.5000e-003	0.3571		1,348.3953	1,348.3953	0.0403		1,349.4019
Total	**0.7777**	**6.1463**	**6.0004**	**0.0275**	**1.6596**	**0.0374**	**1.6970**	**0.4480**	**0.0354**	**0.4834**		**2,847.9997**	**2,847.9997**	**0.1509**		**2,851.7719**

3.4 Building Construction - 2020

Mitigated Construction On-Site

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

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	0.1906	5.7507	1.4651	0.0140	0.3453	0.0281	0.3734	0.0994	0.0269	0.1263		1,499.6044	1,499.6044	0.1106		1,502.3701
Worker	0.5871	0.3956	4.5353	0.0135	1.3144	9.2200e-003	1.3236	0.3486	8.5000e-003	0.3571		1,348.3953	1,348.3953	0.0403		1,349.4019
Total	**0.7777**	**6.1463**	**6.0004**	**0.0275**	**1.6596**	**0.0374**	**1.6970**	**0.4480**	**0.0354**	**0.4834**		**2,847.9997**	**2,847.9997**	**0.1509**		**2,851.7719**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

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

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	0.1542	5.1933	1.3235	0.0138	0.3453	0.0109	0.3562	0.0994	0.0104	0.1098		1,485.8949	1,485.8949	0.1062		1,488.5492
Worker	0.5534	0.3596	4.2438	0.0131	1.3144	9.0800e-003	1.3234	0.3486	8.3600e-003	0.3570		1,303.1054	1,303.1054	0.0372		1,304.0351
Total	**0.7076**	**5.5529**	**5.5673**	**0.0269**	**1.6596**	**0.0200**	**1.6796**	**0.4480**	**0.0188**	**0.4668**		**2,789.0003**	**2,789.0003**	**0.1434**		**2,792.5844**

3.4 Building Construction - 2021

Mitigated Construction On-Site

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

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	0.1542	5.1933	1.3235	0.0138	0.3453	0.0109	0.3562	0.0994	0.0104	0.1098		1,485.8949	1,485.8949	0.1062		1,488.5492
Worker	0.5534	0.3596	4.2438	0.0131	1.3144	9.0800e-003	1.3234	0.3486	8.3600e-003	0.3570		1,303.1054	1,303.1054	0.0372		1,304.0351
Total	**0.7076**	**5.5529**	**5.5673**	**0.0269**	**1.6596**	**0.0200**	**1.6796**	**0.4480**	**0.0188**	**0.4668**		**2,789.0003**	**2,789.0003**	**0.1434**		**2,792.5844**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2879**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0519	0.0337	0.3979	1.2300e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		122.1661	122.1661	3.4900e-003		122.2533
Total	**0.0519**	**0.0337**	**0.3979**	**1.2300e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**122.1661**	**122.1661**	**3.4900e-003**		**122.2533**

3.5 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2879**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0519	0.0337	0.3979	1.2300e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		122.1661	122.1661	3.4900e-003		122.2533
Total	**0.0519**	**0.0337**	**0.3979**	**1.2300e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**122.1661**	**122.1661**	**3.4900e-003**		**122.2533**

3.6 Architectural Coating - 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					
Archit. Coating	68.2129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**68.4318**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.1107	0.0719	0.8488	2.6200e-003	0.2629	1.8200e-003	0.2647	0.0697	1.6700e-003	0.0714		260.6211	260.6211	7.4400e-003		260.8070
Total	**0.1107**	**0.0719**	**0.8488**	**2.6200e-003**	**0.2629**	**1.8200e-003**	**0.2647**	**0.0697**	**1.6700e-003**	**0.0714**		**260.6211**	**260.6211**	**7.4400e-003**		**260.8070**

3.6 Architectural Coating - 2021

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	68.2129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**68.4318**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.1107	0.0719	0.8488	2.6200e-003	0.2629	1.8200e-003	0.2647	0.0697	1.6700e-003	0.0714		260.6211	260.6211	7.4400e-003		260.8070
Total	**0.1107**	**0.0719**	**0.8488**	**2.6200e-003**	**0.2629**	**1.8200e-003**	**0.2647**	**0.0697**	**1.6700e-003**	**0.0714**		**260.6211**	**260.6211**	**7.4400e-003**		**260.8070**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	1.4799	5.7632	15.5811	0.0514	4.2443	0.0424	4.2867	1.1344	0.0396	1.1740		5,224.0014	5,224.0014	0.2781		5,230.9533
Unmitigated	1.6494	6.7433	19.5144	0.0671	5.6428	0.0546	5.6974	1.5082	0.0510	1.5592		6,817.7490	6,817.7490	0.3489		6,826.4709

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	432.00	306.18	261.36	1,112,565	836,827
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	500.00	495.50	431.00	1,397,671	1,051,272
Total	932.00	801.68	692.36	2,510,236	1,888,099

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
Condo/Townhouse	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Non-Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Single Family Housing	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive 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	0.0544	0.4646	0.1977	2.9700e-003		0.0376	0.0376		0.0376	0.0376		593.1439	593.1439	0.0114	0.0109	596.6686
NaturalGas Unmitigated	0.0575	0.4913	0.2091	3.1400e-003		0.0397	0.0397		0.0397	0.0397		627.2425	627.2425	0.0120	0.0115	630.9699

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					
Condo/Townhouse	2127.87	0.0230	0.1961	0.0835	1.2500e-003		0.0159	0.0159		0.0159	0.0159		250.3381	250.3381	4.8000e-003	4.5900e-003	251.8257
Other 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
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
Single Family Housing	3203.69	0.0346	0.2952	0.1256	1.8800e-003		0.0239	0.0239		0.0239	0.0239		376.9044	376.9044	7.2200e-003	6.9100e-003	379.1442
Total		**0.0575**	**0.4913**	**0.2091**	**3.1300e-003**		**0.0397**	**0.0397**		**0.0397**	**0.0397**		**627.2425**	**627.2425**	**0.0120**	**0.0115**	**630.9699**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2.02221	0.0218	0.1864	0.0793	1.1900e-003		0.0151	0.0151		0.0151	0.0151		237.9072	237.9072	4.5600e-003	4.3600e-003	239.3210
Other 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
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
Single Family Housing	3.01951	0.0326	0.2783	0.1184	1.7800e-003		0.0225	0.0225		0.0225	0.0225		355.2367	355.2367	6.8100e-003	6.5100e-003	357.3477
Total		**0.0544**	**0.4646**	**0.1977**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**		**593.1439**	**593.1439**	**0.0114**	**0.0109**	**596.6687**

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	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655
Unmitigated	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655

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	1.5138					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2019	1.7252	0.7341	0.0110		0.1395	0.1395		0.1395	0.1395	0.0000	2,202.3529	2,202.3529	0.0422	0.0404	2,215.4404
Landscaping	0.2606	0.0993	8.5994	4.5000e-004		0.0474	0.0474		0.0474	0.0474		15.4507	15.4507	0.0150		15.8250
Total	**5.7258**	**1.8244**	**9.3335**	**0.0115**		**0.1869**	**0.1869**		**0.1869**	**0.1869**	**0.0000**	**2,217.8036**	**2,217.8036**	**0.0572**	**0.0404**	**2,231.2655**

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	1.5138					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2019	1.7252	0.7341	0.0110		0.1395	0.1395		0.1395	0.1395	0.0000	2,202.3529	2,202.3529	0.0422	0.0404	2,215.4404
Landscaping	0.2606	0.0993	8.5994	4.5000e-004		0.0474	0.0474		0.0474	0.0474		15.4507	15.4507	0.0150		15.8250
Total	**5.7258**	**1.8244**	**9.3335**	**0.0115**		**0.1869**	**0.1869**		**0.1869**	**0.1869**	**0.0000**	**2,217.8036**	**2,217.8036**	**0.0572**	**0.0404**	**2,231.2655**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Rio Rockwell Residential Opening Year 2021

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Non-Asphalt Surfaces	4.62	Acre	4.62	201,247.20	0
Condo/Townhouse	54.00	Dwelling Unit	2.00	77,435.00	154
Single Family Housing	50.00	Dwelling Unit	3.92	93,728.00	143

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Rio Rockwell Residential Opening Year 2021 - San Diego County, Winter

Project Characteristics -

Land Use - Gross Project Site 11.54 acres. SFH = 3.92 acre; Townhomes = 2 acre; Other Asphalt Surfaces = 1.00; Other Non-Asphalt Surfaces = 4.62

Construction Phase - Construction schedule provided by applicant

Trips and VMT - To account for water trucks 6 vendor trucks added to Site Prep and Grading

Grading - Grading 62,000 cu yd imported

Vehicle Trips - Per TIA Weekday Trips changed to 10 trips per day.

Woodstoves - Per PDF-1 No Wood fireplaces or Stoves and 104 natural gas only fireplaces

Water And Wastewater -

Mobile Land Use Mitigation - Improve Pedestrian Network on Project Site and Connecting Off-Site; Distance to Bus stop 0.04 mile.

Energy Mitigation - To account for 2019 Title 24 Standards - Exceed Title 24 by 7% and provide 241.4 kWh of rooftop solar that would generate 658,946 kWh per year.

Water Mitigation - Use low flow fixtures and water-efficient irrigation systems.

Waste Mitigation - 50% reduction in waste.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	43.00
tblConstructionPhase	NumDays	20.00	81.00
tblConstructionPhase	NumDays	20.00	81.00
tblConstructionPhase	PhaseEndDate	12/27/2019	12/31/2019
tblConstructionPhase	PhaseEndDate	2/7/2020	2/28/2020
tblConstructionPhase	PhaseEndDate	4/2/2021	4/23/2021
tblConstructionPhase	PhaseEndDate	5/28/2021	4/23/2021
tblConstructionPhase	PhaseEndDate	4/30/2021	4/23/2021
tblConstructionPhase	PhaseStartDate	12/16/2019	12/18/2019
tblConstructionPhase	PhaseStartDate	12/28/2019	1/1/2020
tblConstructionPhase	PhaseStartDate	2/8/2020	3/1/2020
tblConstructionPhase	PhaseStartDate	5/1/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	1/1/2021

tblFireplaces	NumberGas	29.70	54.00
tblFireplaces	NumberGas	27.50	50.00
tblFireplaces	NumberWood	18.90	0.00
tblFireplaces	NumberWood	17.50	0.00
tblGrading	MaterialImported	0.00	62,000.00
tblLandUse	LandUseSquareFeet	54,000.00	77,435.00
tblLandUse	LandUseSquareFeet	90,000.00	93,728.00
tblLandUse	LotAcreage	3.38	2.00
tblLandUse	LotAcreage	16.23	3.92
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	2.50	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					
2019	4.4437	46.3726	22.8023	0.0411	18.2548	2.3967	20.6514	9.9816	2.2051	12.1867	0.0000	4,086.5975	4,086.5975	1.2110	0.0000	4,116.8725
2020	6.0208	101.6911	44.8539	0.2039	12.2302	2.3422	14.5724	4.5455	2.1609	6.7065	0.0000	21,504.9796	21,504.9796	3.3671	0.0000	21,589.1563
2021	72.5951	37.5797	39.6806	0.0820	2.0457	1.7535	3.7992	0.5504	1.6406	2.1910	0.0000	8,072.1147	8,072.1147	1.5074	0.0000	8,109.8002
Maximum	**72.5951**	**101.6911**	**44.8539**	**0.2039**	**18.2548**	**2.3967**	**20.6514**	**9.9816**	**2.2051**	**12.1867**	**0.0000**	**21,504.9796**	**21,504.9796**	**3.3671**	**0.0000**	**21,589.1563**

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					
2019	4.4437	46.3726	22.8023	0.0411	18.2548	2.3967	20.6514	9.9816	2.2051	12.1867	0.0000	4,086.5975	4,086.5975	1.2110	0.0000	4,116.8725
2020	6.0208	101.6911	44.8539	0.2039	12.2302	2.3422	14.5724	4.5455	2.1609	6.7065	0.0000	21,504.9796	21,504.9796	3.3671	0.0000	21,589.1563
2021	72.5951	37.5797	39.6806	0.0820	2.0457	1.7535	3.7992	0.5504	1.6406	2.1910	0.0000	8,072.1147	8,072.1147	1.5074	0.0000	8,109.8001
Maximum	**72.5951**	**101.6911**	**44.8539**	**0.2039**	**18.2548**	**2.3967**	**20.6514**	**9.9816**	**2.2051**	**12.1867**	**0.0000**	**21,504.9796**	**21,504.9796**	**3.3671**	**0.0000**	**21,589.1563**

Rio Rockwell Residential Opening Year 2021 - San Diego 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	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655
Energy	0.0575	0.4913	0.2091	3.1400e-003		0.0397	0.0397		0.0397	0.0397		627.2425	627.2425	0.0120	0.0115	630.9699
Mobile	1.6018	6.9413	19.1498	0.0637	5.6428	0.0549	5.6977	1.5082	0.0514	1.5595		6,466.1927	6,466.1927	0.3499		6,474.9394
Total	**7.3851**	**9.2571**	**28.6923**	**0.0783**	**5.6428**	**0.2815**	**5.9243**	**1.5082**	**0.2780**	**1.7861**	**0.0000**	**9,311.2389**	**9,311.2389**	**0.4191**	**0.0519**	**9,337.1747**

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	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655
Energy	0.0544	0.4646	0.1977	2.9700e-003		0.0376	0.0376		0.0376	0.0376		593.1439	593.1439	0.0114	0.0109	596.6686
Mobile	1.4357	5.9005	15.5593	0.0487	4.2443	0.0428	4.2871	1.1344	0.0400	1.1744		4,951.4004	4,951.4004	0.2812		4,958.4304
Total	**7.2159**	**8.1896**	**25.0905**	**0.0632**	**4.2443**	**0.2673**	**4.5115**	**1.1344**	**0.2645**	**1.3988**	**0.0000**	**7,762.3479**	**7,762.3479**	**0.3498**	**0.0513**	**7,786.3645**

	ROG	NOx	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	**2.29**	**11.53**	**12.55**	**19.28**	**24.78**	**5.08**	**23.85**	**24.78**	**4.86**	**21.68**	**0.00**	**16.63**	**16.63**	**16.54**	**1.21**	**16.61**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/18/2019	12/31/2019	5	10	
2	Grading	Grading	1/1/2020	2/28/2020	5	43	
3	Building Construction	Building Construction	3/1/2020	4/23/2021	5	300	
4	Paving	Paving	1/1/2021	4/23/2021	5	81	
5	Architectural Coating	Architectural Coating	1/1/2021	4/23/2021	5	81	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 107.5

Acres of Paving: 5.62

Residential Indoor: 346,605; Residential Outdoor: 115,535; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 14,688 (Architectural Coating – sqft)

OffRoad Equipment

Rio Rockwell Residential Opening Year 2021 - San Diego County, Winter

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	7,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	160.00	51.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	32.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

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	0.0288	0.7445	0.2129	1.6200e-003	0.0406	5.2700e-003	0.0459	0.0117	5.0400e-003	0.0167		173.1002	173.1002	0.0146		173.4648
Worker	0.0799	0.0554	0.5263	1.4800e-003	0.1479	1.0500e-003	0.1489	0.0392	9.7000e-004	0.0402		147.0445	147.0445	4.7400e-003		147.1631
Total	**0.1087**	**0.7999**	**0.7393**	**3.1000e-003**	**0.1885**	**6.3200e-003**	**0.1948**	**0.0509**	**6.0100e-003**	**0.0569**		**320.1446**	**320.1446**	**0.0193**		**320.6279**

3.2 Site Preparation - 2019

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

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	0.0288	0.7445	0.2129	1.6200e-003	0.0406	5.2700e-003	0.0459	0.0117	5.0400e-003	0.0167		173.1002	173.1002	0.0146		173.4648
Worker	0.0799	0.0554	0.5263	1.4800e-003	0.1479	1.0500e-003	0.1489	0.0392	9.7000e-004	0.0402		147.0445	147.0445	4.7400e-003		147.1631
Total	**0.1087**	**0.7999**	**0.7393**	**3.1000e-003**	**0.1885**	**6.3200e-003**	**0.1948**	**0.0509**	**6.0100e-003**	**0.0569**		**320.1446**	**320.1446**	**0.0193**		**320.6279**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8760	0.0000	8.8760	3.6272	0.0000	3.6272			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.8760**	**2.1739**	**11.0499**	**3.6272**	**2.0000**	**5.6272**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

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	1.4641	50.7621	12.1699	0.1387	3.1493	0.1638	3.3131	0.8631	0.1567	1.0198		15,169.0106	15,169.0106	1.4061		15,204.1620
Vendor	0.0235	0.6760	0.1913	1.6000e-003	0.0406	3.3700e-003	0.0440	0.0117	3.2300e-003	0.0149		171.8773	171.8773	0.0138		172.2231
Worker	0.0831	0.0555	0.5345	1.5900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		158.2264	158.2264	4.7600e-003		158.3455
Total	**1.5707**	**51.4936**	**12.8956**	**0.1419**	**3.3543**	**0.1683**	**3.5225**	**0.9184**	**0.1610**	**1.0793**		**15,499.1143**	**15,499.1143**	**1.4247**		**15,534.7306**

3.3 Grading - 2020

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					8.8760	0.0000	8.8760	3.6272	0.0000	3.6272			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.8760**	**2.1739**	**11.0499**	**3.6272**	**2.0000**	**5.6272**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

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	1.4641	50.7621	12.1699	0.1387	3.1493	0.1638	3.3131	0.8631	0.1567	1.0198		15,169.0106	15,169.0106	1.4061		15,204.1620
Vendor	0.0235	0.6760	0.1913	1.6000e-003	0.0406	3.3700e-003	0.0440	0.0117	3.2300e-003	0.0149		171.8773	171.8773	0.0138		172.2231
Worker	0.0831	0.0555	0.5345	1.5900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		158.2264	158.2264	4.7600e-003		158.3455
Total	**1.5707**	**51.4936**	**12.8956**	**0.1419**	**3.3543**	**0.1683**	**3.5225**	**0.9184**	**0.1610**	**1.0793**		**15,499.1143**	**15,499.1143**	**1.4247**		**15,534.7306**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

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

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	0.1996	5.7460	1.6259	0.0136	0.3453	0.0287	0.3739	0.0994	0.0274	0.1268		1,460.9573	1,460.9573	0.1176		1,463.8963
Worker	0.6650	0.4442	4.2760	0.0127	1.3144	9.2200e-003	1.3236	0.3486	8.5000e-003	0.3571		1,265.8111	1,265.8111	0.0381		1,266.7639
Total	**0.8646**	**6.1902**	**5.9018**	**0.0263**	**1.6596**	**0.0379**	**1.6975**	**0.4480**	**0.0359**	**0.4839**		**2,726.7684**	**2,726.7684**	**0.1557**		**2,730.6602**

3.4 Building Construction - 2020

Mitigated Construction On-Site

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

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	0.1996	5.7460	1.6259	0.0136	0.3453	0.0287	0.3739	0.0994	0.0274	0.1268		1,460.9573	1,460.9573	0.1176		1,463.8963
Worker	0.6650	0.4442	4.2760	0.0127	1.3144	9.2200e-003	1.3236	0.3486	8.5000e-003	0.3571		1,265.8111	1,265.8111	0.0381		1,266.7639
Total	**0.8646**	**6.1902**	**5.9018**	**0.0263**	**1.6596**	**0.0379**	**1.6975**	**0.4480**	**0.0359**	**0.4839**		**2,726.7684**	**2,726.7684**	**0.1557**		**2,730.6602**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

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

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	0.1626	5.1795	1.4736	0.0135	0.3453	0.0114	0.3566	0.0994	0.0109	0.1102		1,447.4784	1,447.4784	0.1128		1,450.2975
Worker	0.6276	0.4036	3.9892	0.0123	1.3144	9.0800e-003	1.3234	0.3486	8.3600e-003	0.3570		1,223.2761	1,223.2761	0.0351		1,224.1547
Total	**0.7902**	**5.5831**	**5.4628**	**0.0257**	**1.6596**	**0.0204**	**1.6800**	**0.4480**	**0.0192**	**0.4672**		**2,670.7546**	**2,670.7546**	**0.1479**		**2,674.4522**

3.4 Building Construction - 2021

Mitigated Construction On-Site

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

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	0.1626	5.1795	1.4736	0.0135	0.3453	0.0114	0.3566	0.0994	0.0109	0.1102		1,447.4784	1,447.4784	0.1128		1,450.2975
Worker	0.6276	0.4036	3.9892	0.0123	1.3144	9.0800e-003	1.3234	0.3486	8.3600e-003	0.3570		1,223.2761	1,223.2761	0.0351		1,224.1547
Total	**0.7902**	**5.5831**	**5.4628**	**0.0257**	**1.6596**	**0.0204**	**1.6800**	**0.4480**	**0.0192**	**0.4672**		**2,670.7546**	**2,670.7546**	**0.1479**		**2,674.4522**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2879**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0588	0.0378	0.3740	1.1500e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		114.6821	114.6821	3.2900e-003		114.7645
Total	**0.0588**	**0.0378**	**0.3740**	**1.1500e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**114.6821**	**114.6821**	**3.2900e-003**		**114.7645**

3.5 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2879**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0588	0.0378	0.3740	1.1500e-003	0.1232	8.5000e-004	0.1241	0.0327	7.8000e-004	0.0335		114.6821	114.6821	3.2900e-003		114.7645
Total	**0.0588**	**0.0378**	**0.3740**	**1.1500e-003**	**0.1232**	**8.5000e-004**	**0.1241**	**0.0327**	**7.8000e-004**	**0.0335**		**114.6821**	**114.6821**	**3.2900e-003**		**114.7645**

3.6 Architectural Coating - 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					
Archit. Coating	68.2129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**68.4318**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.1255	0.0807	0.7978	2.4500e-003	0.2629	1.8200e-003	0.2647	0.0697	1.6700e-003	0.0714		244.6552	244.6552	7.0300e-003		244.8310
Total	**0.1255**	**0.0807**	**0.7978**	**2.4500e-003**	**0.2629**	**1.8200e-003**	**0.2647**	**0.0697**	**1.6700e-003**	**0.0714**		**244.6552**	**244.6552**	**7.0300e-003**		**244.8310**

3.6 Architectural Coating - 2021

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	68.2129					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**68.4318**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.1255	0.0807	0.7978	2.4500e-003	0.2629	1.8200e-003	0.2647	0.0697	1.6700e-003	0.0714		244.6552	244.6552	7.0300e-003		244.8310
Total	**0.1255**	**0.0807**	**0.7978**	**2.4500e-003**	**0.2629**	**1.8200e-003**	**0.2647**	**0.0697**	**1.6700e-003**	**0.0714**		**244.6552**	**244.6552**	**7.0300e-003**		**244.8310**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	1.4357	5.9005	15.5593	0.0487	4.2443	0.0428	4.2871	1.1344	0.0400	1.1744		4,951.4004	4,951.4004	0.2812		4,958.4304
Unmitigated	1.6018	6.9413	19.1498	0.0637	5.6428	0.0549	5.6977	1.5082	0.0514	1.5595		6,466.1927	6,466.1927	0.3499		6,474.9394

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	432.00	306.18	261.36	1,112,565	836,827
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	500.00	495.50	431.00	1,397,671	1,051,272
Total	932.00	801.68	692.36	2,510,236	1,888,099

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
Condo/Townhouse	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Non-Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Single Family Housing	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive 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	0.0544	0.4646	0.1977	2.9700e-003		0.0376	0.0376		0.0376	0.0376		593.1439	593.1439	0.0114	0.0109	596.6686
NaturalGas Unmitigated	0.0575	0.4913	0.2091	3.1400e-003		0.0397	0.0397		0.0397	0.0397		627.2425	627.2425	0.0120	0.0115	630.9699

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					
Condo/Townhouse	2127.87	0.0230	0.1961	0.0835	1.2500e-003		0.0159	0.0159		0.0159	0.0159		250.3381	250.3381	4.8000e-003	4.5900e-003	251.8257
Other 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
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
Single Family Housing	3203.69	0.0346	0.2952	0.1256	1.8800e-003		0.0239	0.0239		0.0239	0.0239		376.9044	376.9044	7.2200e-003	6.9100e-003	379.1442
Total		**0.0575**	**0.4913**	**0.2091**	**3.1300e-003**		**0.0397**	**0.0397**		**0.0397**	**0.0397**		**627.2425**	**627.2425**	**0.0120**	**0.0115**	**630.9699**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2.02221	0.0218	0.1864	0.0793	1.1900e-003		0.0151	0.0151		0.0151	0.0151		237.9072	237.9072	4.5600e-003	4.3600e-003	239.3210
Other 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
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
Single Family Housing	3.01951	0.0326	0.2783	0.1184	1.7800e-003		0.0225	0.0225		0.0225	0.0225		355.2367	355.2367	6.8100e-003	6.5100e-003	357.3477
Total		**0.0544**	**0.4646**	**0.1977**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**		**593.1439**	**593.1439**	**0.0114**	**0.0109**	**596.6687**

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	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655
Unmitigated	5.7258	1.8244	9.3335	0.0115		0.1869	0.1869		0.1869	0.1869	0.0000	2,217.8036	2,217.8036	0.0572	0.0404	2,231.2655

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	1.5138					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2019	1.7252	0.7341	0.0110		0.1395	0.1395		0.1395	0.1395	0.0000	2,202.3529	2,202.3529	0.0422	0.0404	2,215.4404
Landscaping	0.2606	0.0993	8.5994	4.5000e-004		0.0474	0.0474		0.0474	0.0474		15.4507	15.4507	0.0150		15.8250
Total	**5.7258**	**1.8244**	**9.3335**	**0.0115**		**0.1869**	**0.1869**		**0.1869**	**0.1869**	**0.0000**	**2,217.8036**	**2,217.8036**	**0.0572**	**0.0404**	**2,231.2655**

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	1.5138					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2019	1.7252	0.7341	0.0110		0.1395	0.1395		0.1395	0.1395	0.0000	2,202.3529	2,202.3529	0.0422	0.0404	2,215.4404
Landscaping	0.2606	0.0993	8.5994	4.5000e-004		0.0474	0.0474		0.0474	0.0474		15.4507	15.4507	0.0150		15.8250
Total	**5.7258**	**1.8244**	**9.3335**	**0.0115**		**0.1869**	**0.1869**		**0.1869**	**0.1869**	**0.0000**	**2,217.8036**	**2,217.8036**	**0.0572**	**0.0404**	**2,231.2655**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

EMFAC2017 Model Printouts

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SAN DIEGO
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	hicle Categc	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SAN DIEGO	2021	HHDT	Aggregated	Aggregated	GAS	20	2,049	394	0.51
SAN DIEGO	2021	LDA	Aggregated	Aggregated	GAS	1,405,370	54,325,094	6,637,549	1,782.11
SAN DIEGO	2021	LDT1	Aggregated	Aggregated	GAS	167,731	5,908,846	762,175	230.79
SAN DIEGO	2021	LDT2	Aggregated	Aggregated	GAS	489,176	17,914,884	2,273,551	759.48
SAN DIEGO	2021	LHDT1	Aggregated	Aggregated	GAS	35,522	1,284,364	529,228	153.65
SAN DIEGO	2021	LHDT2	Aggregated	Aggregated	GAS	5,377	196,023	80,108	26.82
SAN DIEGO	2021	MCY	Aggregated	Aggregated	GAS	78,939	649,887	157,879	17.82
SAN DIEGO	2021	MDV	Aggregated	Aggregated	GAS	322,691	11,660,085	1,484,647	596.55
SAN DIEGO	2021	MH	Aggregated	Aggregated	GAS	11,197	96,424	1,120	20.50
SAN DIEGO	2021	MHDT	Aggregated	Aggregated	GAS	3,550	201,226	71,021	42.15
SAN DIEGO	2021	OBUS	Aggregated	Aggregated	GAS	1,261	65,402	25,233	13.95
SAN DIEGO	2021	SBUS	Aggregated	Aggregated	GAS	238	12,615	952	1.34
SAN DIEGO	2021	UBUS	Aggregated	Aggregated	GAS	386	40,558	1,544	7.33

vehicle miles per day (All Categories) 92,357,456

3653 1,000 gall per day
3652999.6 gallons per day

Fleet Avg Miles per gallon 25.3

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SAN DIEGO
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Yea	hicle Catego	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SAN DIEGO	2021	HHDT	Aggregated	Aggregated	DSL	15,527	1,869,653	161,277	296.88
SAN DIEGO	2021	LDA	Aggregated	Aggregated	DSL	16,466	635,344	77,176	13.96
SAN DIEGO	2021	LDT1	Aggregated	Aggregated	DSL	123	2,249	407	0.10
SAN DIEGO	2021	LDT2	Aggregated	Aggregated	DSL	2,855	121,070	14,006	3.61
SAN DIEGO	2021	LHDT1	Aggregated	Aggregated	DSL	31,258	1,191,286	393,192	65.94
SAN DIEGO	2021	LHDT2	Aggregated	Aggregated	DSL	10,807	422,173	135,938	26.17
SAN DIEGO	2021	MDV	Aggregated	Aggregated	DSL	7,111	304,548	34,610	11.93
SAN DIEGO	2021	MH	Aggregated	Aggregated	DSL	3,814	34,996	381	3.62
SAN DIEGO	2021	MHDT	Aggregated	Aggregated	DSL	19,530	1,159,964	185,173	124.76
SAN DIEGO	2021	OBUS	Aggregated	Aggregated	DSL	739	54,068	7,370	7.31
SAN DIEGO	2021	SBUS	Aggregated	Aggregated	DSL	2,410	75,385	27,811	9.53
SAN DIEGO	2021	UBUS	Aggregated	Aggregated	DSL	25	2,628	100	0.56

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day 3,334,164

434 1,000 gall per day
433565.7 gallons per day

Diesel Truck Fleet Avg Miles per gallon 7.7

APPENDIX C

CalEEMod Model Year 2025 Annual Printouts

Rio Rockwell Residential Year 2025

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Other Non-Asphalt Surfaces	4.62	Acre	4.62	201,247.20	0
Condo/Townhouse	54.00	Dwelling Unit	2.00	77,435.00	154
Single Family Housing	50.00	Dwelling Unit	3.92	93,728.00	143

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Gross Project Site 11.54 acres. SFH = 3.92 acre; Townhomes = 2 acre; Other Asphalt Surfaces = 1.00; Other Non-Asphalt Surfaces = 4.62

Construction Phase - Construction schedule provided by applicant

Trips and VMT - To account for water trucks 6 vendor trucks added to Site Prep and Grading

Grading - Grading 62,000 cu yd imported

Vehicle Trips - Per TIA Weekday Trips changed to 10 trips per day.

Woodstoves - Per PDF-1 No Wood fireplaces or Stoves and 104 natural gas only fireplaces

Water And Wastewater -

Mobile Land Use Mitigation - Improve Pedestrian Network on Project Site and Connecting Off-Site; Distance to Bus stop 0.04 mile.

Energy Mitigation - To account for 2019 Title 24 Standards - Exceed Title 24 by 7% and provide 241.4 kWh of rooftop solar that would generate 658,946 kWh per year.

Water Mitigation - Use low flow fixtures and water-efficient irrigation systems.

Waste Mitigation - 50% reduction in waste.

Rio Rockwell Residential Year 2025 - San Diego County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	43.00
tblConstructionPhase	NumDays	20.00	81.00
tblConstructionPhase	NumDays	20.00	81.00
tblFireplaces	NumberGas	29.70	54.00
tblFireplaces	NumberGas	27.50	50.00
tblFireplaces	NumberWood	18.90	0.00
tblFireplaces	NumberWood	17.50	0.00
tblGrading	MaterialImported	0.00	62,000.00
tblLandUse	LandUseSquareFeet	54,000.00	77,435.00
tblLandUse	LandUseSquareFeet	90,000.00	93,728.00
tblLandUse	LotAcreage	3.38	2.00
tblLandUse	LotAcreage	16.23	3.92
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWoodstoves	NumberCatalytic	2.70	0.00
tblWoodstoves	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.70	0.00
tblWoodstoves	NumberNoncatalytic	2.50	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					
2019											0.0000	18.5550	18.5550	5.4900e-003	0.0000	18.6923
2020											0.0000	950.4855	950.4855	0.1421	0.0000	954.0388
2021											0.0000	297.9776	297.9776	0.0553	0.0000	299.3592
Maximum											**0.0000**	**950.4855**	**950.4855**	**0.1421**	**0.0000**	**954.0388**

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					
2019											0.0000	18.5550	18.5550	5.4900e-003	0.0000	18.6923
2020											0.0000	950.4850	950.4850	0.1421	0.0000	954.0384
2021											0.0000	297.9774	297.9774	0.0553	0.0000	299.3589
Maximum											**0.0000**	**950.4850**	**950.4850**	**0.1421**	**0.0000**	**954.0384**

	ROG	NOx	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)
		Highest		

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											0.0000	83.1771	83.1771	2.7800e-003	1.5000e-003	83.6941
Energy											0.0000	324.7874	324.7874	0.0109	3.7400e-003	326.1751
Mobile											0.0000	888.3900	888.3900	0.0436	0.0000	889.4802
Waste											16.9437	0.0000	16.9437	1.0013	0.0000	41.9772
Water											2.1497	44.3449	46.4946	0.2226	5.5800e-003	53.7228
Total											**19.0934**	**1,340.6993**	**1,359.7927**	**1.2812**	**0.0108**	**1,395.0493**

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											0.0000	83.1771	83.1771	2.7800e-003	1.5000e-003	83.6941
Energy											0.0000	103.1332	103.1332	2.0800e-003	1.8400e-003	103.7340
Mobile											0.0000	681.6316	681.6316	0.0347	0.0000	682.4996
Waste											8.4718	0.0000	8.4718	0.5007	0.0000	20.9886
Water											1.7198	37.6319	39.3516	0.1782	4.4800e-003	45.1417
Total											**10.1916**	**905.5738**	**915.7654**	**0.7184**	**7.8200e-003**	**936.0580**

	ROG	NOx	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**	**46.62**	**32.46**	**32.65**	**43.93**	**27.73**	**32.90**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	12/18/2019	12/31/2019	5	10	
2	Grading	Grading	1/1/2020	2/28/2020	5	43	
3	Building Construction	Building Construction	3/1/2020	4/23/2021	5	300	
4	Paving	Paving	1/1/2021	4/23/2021	5	81	
5	Architectural Coating	Architectural Coating	1/1/2021	4/23/2021	5	81	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 107.5

Acres of Paving: 5.62

Residential Indoor: 346,605; Residential Outdoor: 115,535; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 14,688 (Architectural Coating – sqft)

OffRoad Equipment

Rio Rockwell Residential Year 2025 - San Diego County, Annual

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	7,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	160.00	51.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	32.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total											**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

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
Vendor											0.0000	0.7970	0.7970	6.0000e-005	0.0000	0.7986
Worker											0.0000	0.6737	0.6737	2.0000e-005	0.0000	0.6742
Total											**0.0000**	**1.4707**	**1.4707**	**8.0000e-005**	**0.0000**	**1.4728**

3.2 Site Preparation - 2019

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total											**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

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
Vendor											0.0000	0.7970	0.7970	6.0000e-005	0.0000	0.7986
Worker											0.0000	0.6737	0.6737	2.0000e-005	0.0000	0.6742
Total											**0.0000**	**1.4707**	**1.4707**	**8.0000e-005**	**0.0000**	**1.4728**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	117.1412	117.1412	0.0379	0.0000	118.0884
Total											**0.0000**	**117.1412**	**117.1412**	**0.0379**	**0.0000**	**118.0884**

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	298.8589	298.8589	0.0269	0.0000	299.5317
Vendor											0.0000	3.4038	3.4038	2.6000e-004	0.0000	3.4103
Worker											0.0000	3.1170	3.1170	9.0000e-005	0.0000	3.1193
Total											**0.0000**	**305.3797**	**305.3797**	**0.0273**	**0.0000**	**306.0614**

3.3 Grading - 2020

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	117.1411	117.1411	0.0379	0.0000	118.0882
Total											**0.0000**	**117.1411**	**117.1411**	**0.0379**	**0.0000**	**118.0882**

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	298.8589	298.8589	0.0269	0.0000	299.5317
Vendor											0.0000	3.4038	3.4038	2.6000e-004	0.0000	3.4103
Worker											0.0000	3.1170	3.1170	9.0000e-005	0.0000	3.1193
Total											**0.0000**	**305.3797**	**305.3797**	**0.0273**	**0.0000**	**306.0614**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.6129	253.6129	0.0619	0.0000	255.1598
Total											**0.0000**	**253.6129**	**253.6129**	**0.0619**	**0.0000**	**255.1598**

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
Vendor											0.0000	147.3534	147.3534	0.0113	0.0000	147.6358
Worker											0.0000	126.9982	126.9982	3.8100e-003	0.0000	127.0935
Total											**0.0000**	**274.3516**	**274.3516**	**0.0151**	**0.0000**	**274.7293**

3.4 Building Construction - 2020

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											0.0000	253.6126	253.6126	0.0619	0.0000	255.1594
Total											**0.0000**	**253.6126**	**253.6126**	**0.0619**	**0.0000**	**255.1594**

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
Vendor											0.0000	147.3534	147.3534	0.0113	0.0000	147.6358
Worker											0.0000	126.9982	126.9982	3.8100e-003	0.0000	127.0935
Total											**0.0000**	**274.3516**	**274.3516**	**0.0151**	**0.0000**	**274.7293**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	93.8131	93.8131	0.0226	0.0000	94.3789
Total											**0.0000**	**93.8131**	**93.8131**	**0.0226**	**0.0000**	**94.3789**

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
Vendor											0.0000	54.0004	54.0004	4.0100e-003	0.0000	54.1006
Worker											0.0000	45.3939	45.3939	1.3000e-003	0.0000	45.4264
Total											**0.0000**	**99.3943**	**99.3943**	**5.3100e-003**	**0.0000**	**99.5270**

3.4 Building Construction - 2021

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											0.0000	93.8130	93.8130	0.0226	0.0000	94.3788
Total											**0.0000**	**93.8130**	**93.8130**	**0.0226**	**0.0000**	**94.3788**

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
Vendor											0.0000	54.0004	54.0004	4.0100e-003	0.0000	54.1006
Worker											0.0000	45.3939	45.3939	1.3000e-003	0.0000	45.4264
Total											**0.0000**	**99.3943**	**99.3943**	**5.3100e-003**	**0.0000**	**99.5270**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	81.0951	81.0951	0.0262	0.0000	81.7508
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**81.0951**	**81.0951**	**0.0262**	**0.0000**	**81.7508**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.2557	4.2557	1.2000e-004	0.0000	4.2587
Total											**0.0000**	**4.2557**	**4.2557**	**1.2000e-004**	**0.0000**	**4.2587**

3.5 Paving - 2021

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											0.0000	81.0950	81.0950	0.0262	0.0000	81.7507
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**81.0950**	**81.0950**	**0.0262**	**0.0000**	**81.7507**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.2557	4.2557	1.2000e-004	0.0000	4.2587
Total											**0.0000**	**4.2557**	**4.2557**	**1.2000e-004**	**0.0000**	**4.2587**

3.6 Architectural Coating - 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					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	10.3407	10.3407	7.1000e-004	0.0000	10.3584
Total											**0.0000**	**10.3407**	**10.3407**	**7.1000e-004**	**0.0000**	**10.3584**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.0788	9.0788	2.6000e-004	0.0000	9.0853
Total											**0.0000**	**9.0788**	**9.0788**	**2.6000e-004**	**0.0000**	**9.0853**

3.6 Architectural Coating - 2021

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	10.3407	10.3407	7.1000e-004	0.0000	10.3584
Total											**0.0000**	**10.3407**	**10.3407**	**7.1000e-004**	**0.0000**	**10.3584**

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
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.0788	9.0788	2.6000e-004	0.0000	9.0853
Total											**0.0000**	**9.0788**	**9.0788**	**2.6000e-004**	**0.0000**	**9.0853**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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											0.0000	681.6316	681.6316	0.0347	0.0000	682.4996
Unmitigated											0.0000	888.3900	888.3900	0.0436	0.0000	889.4802

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	432.00	306.18	261.36	1,112,565	836,827
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	500.00	495.50	431.00	1,397,671	1,051,272
Total	932.00	801.68	692.36	2,510,236	1,888,099

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
Condo/Townhouse	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Non-Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Single Family Housing	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive 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	4.9316	4.9316	2.0000e-004	4.0000e-005	4.9488
Electricity Unmitigated											0.0000	220.9403	220.9403	8.8900e-003	1.8400e-003	221.7109
NaturalGas Mitigated											0.0000	98.2016	98.2016	1.8800e-003	1.8000e-003	98.7852
NaturalGas Unmitigated											0.0000	103.8470	103.8470	1.9900e-003	1.9000e-003	104.4641

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					
Condo/Townhouse	776674											0.0000	41.4463	41.4463	7.9000e-004	7.6000e-004	41.6926
Other Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.16935e+006											0.0000	62.4008	62.4008	1.2000e-003	1.1400e-003	62.7716
Total												**0.0000**	**103.8470**	**103.8470**	**1.9900e-003**	**1.9000e-003**	**104.4641**

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					
Condo/Townhouse	738107											0.0000	39.3882	39.3882	7.5000e-004	7.2000e-004	39.6223
Other Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.10212e+006											0.0000	58.8134	58.8134	1.1300e-003	1.0800e-003	59.1629
Total												**0.0000**	**98.2016**	**98.2016**	**1.8800e-003**	**1.8000e-003**	**98.7852**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	271260	88.6501	3.5700e-003	7.4000e-004	88.9593
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	404794	132.2902	5.3200e-003	1.1000e-003	132.7516
Total		**220.9403**	**8.8900e-003**	**1.8400e-003**	**221.7109**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	105664	34.5321	1.3900e-003	2.9000e-004	34.6525
Other Asphalt Surfaces	-164737	-53.8373	-0.0022	-0.0005	-54.0251
Other Non-Asphalt Surfaces	-164737	-53.8373	-0.0022	-0.0005	-54.0251
Single Family Housing	238899	78.0742	3.1400e-003	6.5000e-004	78.3465
Total		**4.9316**	**1.9000e-004**	**4.0000e-005**	**4.9488**

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											0.0000	83.1771	83.1771	2.7800e-003	1.5000e-003	83.6941
Unmitigated											0.0000	83.1771	83.1771	2.7800e-003	1.5000e-003	83.6941

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	81.9156	81.9156	1.5700e-003	1.5000e-003	82.4024
Landscaping											0.0000	1.2615	1.2615	1.2100e-003	0.0000	1.2917
Total											**0.0000**	**83.1771**	**83.1771**	**2.7800e-003**	**1.5000e-003**	**83.6941**

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											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	81.9156	81.9156	1.5700e-003	1.5000e-003	82.4024
Landscaping											0.0000	1.2615	1.2615	1.2100e-003	0.0000	1.2917
Total											**0.0000**	**83.1771**	**83.1771**	**2.7800e-003**	**1.5000e-003**	**83.6941**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	39.3516	0.1782	4.4800e-003	45.1417
Unmitigated	46.4946	0.2226	5.5800e-003	53.7228

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.51832 / 2.21807	24.1414	0.1156	2.9000e-003	27.8945
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.2577 / 2.05377	22.3532	0.1070	2.6800e-003	25.8283
Total		**46.4946**	**0.2226**	**5.5800e-003**	**53.7228**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.81465 / 2.08277	20.4326	0.0925	2.3300e-003	23.4390
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.60616 / 1.92849	18.9191	0.0857	2.1600e-003	21.7028
Total		**39.3516**	**0.1782**	**4.4900e-003**	**45.1417**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.4718	0.5007	0.0000	20.9886
Unmitigated	16.9437	1.0013	0.0000	41.9772

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	24.84	5.0423	0.2980	0.0000	12.4921
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	58.63	11.9014	0.7034	0.0000	29.4851
Total		**16.9437**	**1.0013**	**0.0000**	**41.9772**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	12.42	2.5212	0.1490	0.0000	6.2460
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	29.315	5.9507	0.3517	0.0000	14.7426
Total		**8.4718**	**0.5007**	**0.0000**	**20.9886**

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