Appendix B: Air Quality and Greenhouse Gas Emissions Impact Analysis

AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

NUTMEG RESIDENTIAL TOWNHOMES PROJECT

CITY OF ESCONDIDO

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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 Escondido
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
E-CAP	City of Escondido Adopted Climate Action Plan
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
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
Pb	Lead
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
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
TDM	Transportation Demand Management program
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 and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality and greenhouse gas (GHG) emissions impacts associated with the proposed Nutmeg Residential Townhomes 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 regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts;
- An analysis of the conformity of the proposed project with the San Diego County Air Pollution Control District's (SCAPCD) air quality strategies; and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

1.2 Site Location and Study Area

The project site is located in the northern portion of the City of Escondido (City). The approximately 7.66-acre project site is currently vacant and undeveloped. The project site is bounded by undeveloped land to the north, Centre City Parkway and rural residential uses to the east, and Interstate 15, undeveloped land and rural residential uses to the south and west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest offsite sensitive receptors to the project site consist of residents at the single-family homes located as near as 610 feet west of the project site on the west side of Interstate 15. There are also single-family homes located as near as 725 feet to the east and 770 feet to the southeast of the project site. The nearest school to the project site is North Broadway School, which is located as near as 0.7 miles southeast of the project site.

1.3 Proposed Project Description

The proposed project would consist of the development of 137 residential townhomes on the 7.66-acre project site. The site to the north of Nutmeg Street will be developed with 39 residential townhomes and the site to the south of Nutmeg Street would be developed with 98 residential townhomes.

The proposed project would include grading of approximately 1.3 acres of adjacent Caltrans property in addition to the 7.66-acre project site. In total, this would result in 8.96 acres of area to be graded. During grading of the proposed project, approximately 189,700 cubic yards of dirt will be imported to the project site.

Currently, the project site's General Plan Designation is Office (O) and zoned Residential Estate (R-E). The proposed project is requesting a General Plan Amendment and zone change to change the General Plan and zoning designations onsite to Urban III (U3) and Planned Residential Development (PRD) to allow high density multi-family residential development at (18 DU/AC). The proposed site plan is shown in Figure 2.

1.4 Standard Air Quality and GHG Regulatory Conditions

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

City of Escondido Municipal Code

The following lists the City of Escondido Municipal Code regulations that are applicable to the proposed project.

Section 33-924(a)(6) Project Level Air Quality Thresholds

Section 33-924(a)(6) of the City's Municipal Code provides project level air pollutant threshold levels that should be utilized to determine significance levels for CEQA.

Section 33-924(a)(7) Project Level GHG Emissions Thresholds

Section 33-924(a)(7) of the City's Municipal Code provides project level GHG emissions threshold levels that should be utilized to determine significance levels for CEQA.

San Diego County Air Pollution Control District Rules

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;

State of California Rules

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.

1.5 Summary of Analysis Results

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

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

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.

Create objectionable odors affecting a substantial number of people?

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.

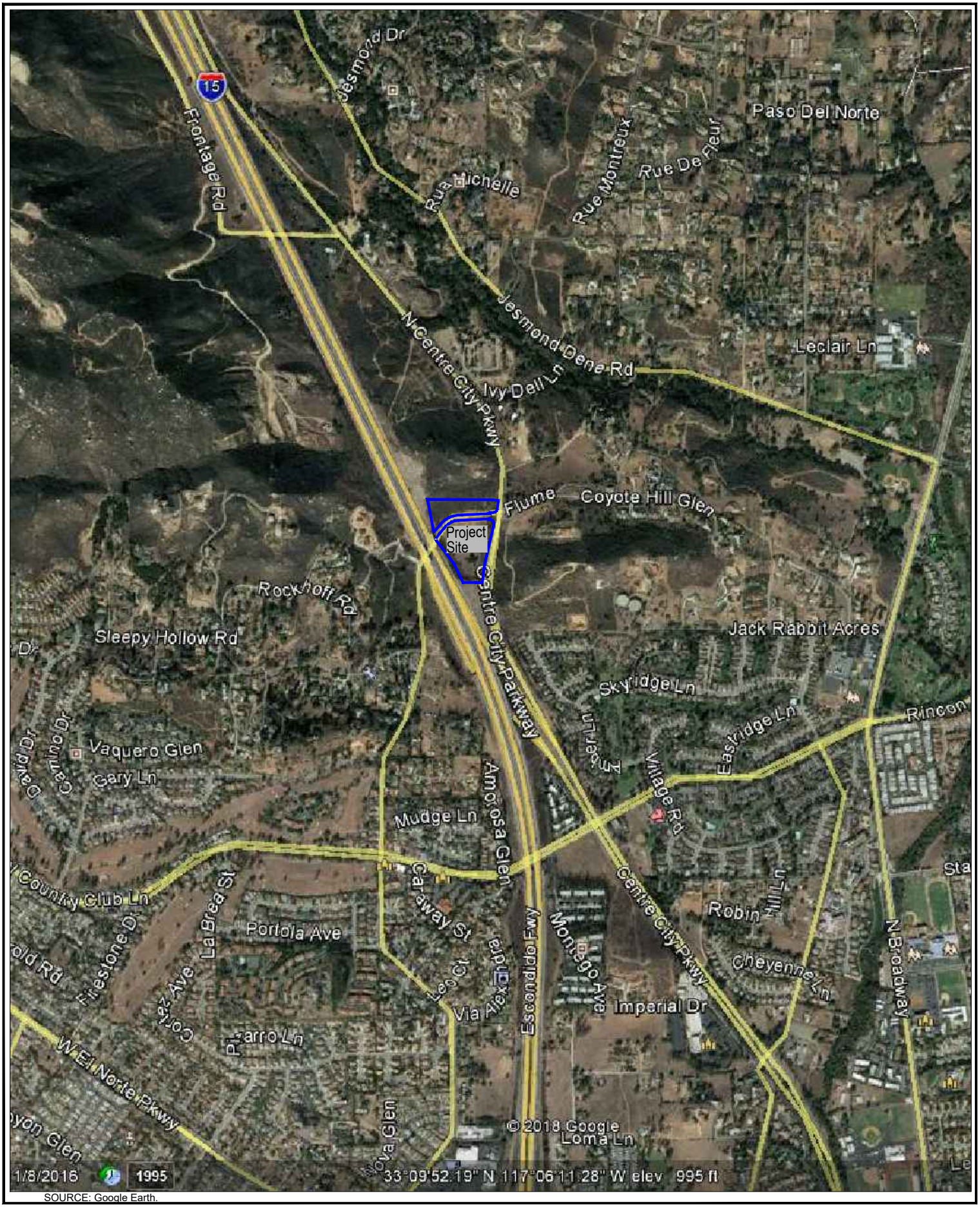
1.6 Project Design Features Required for the Proposed Project

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

> **Project Design Feature 1**
> The project applicant shall require all homes to be designed to meet the 2019 Title 24 Part 6 building energy efficiency standards even if building permits are pulled prior to January 1, 2020, when the 2019 standards becomes law. 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 Required for the Proposed Project

This analysis found that implementation of State, SDAPCD, and City of Escondido air quality 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 and GHG emissions.



SOURCE: Google Earth.

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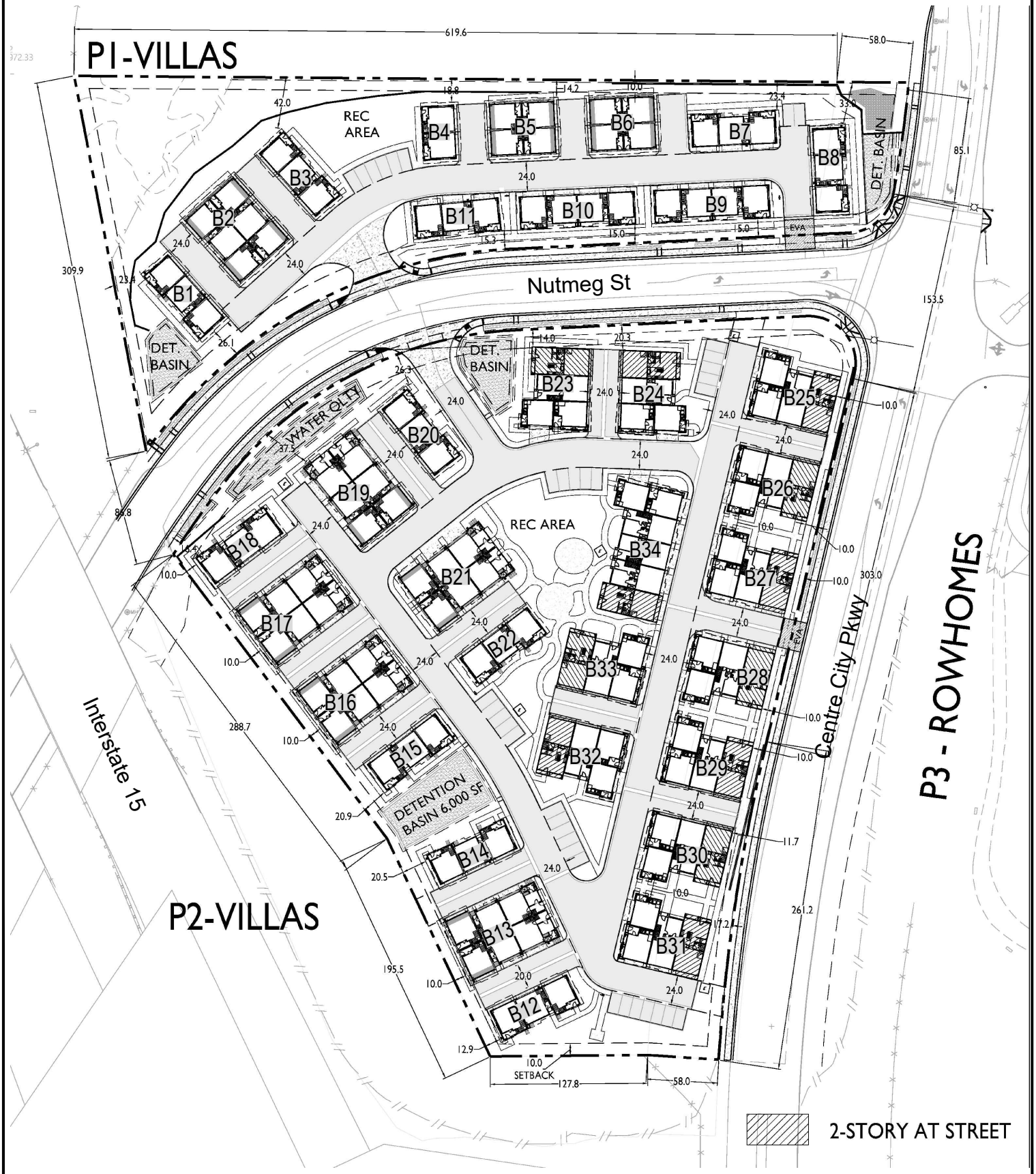
Figure 1
Project Local Study Area



SOURCE: Summa Architecture.

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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) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

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 50 miles northeast 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. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. 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

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.
Suspended Particulate Matter	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
($PM_{2.5}$)			
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**
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

Pollutant	Averaging Time	Attainment Status	
		Federal	California
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 residential 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 in Escondido. 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 Escondido Air Quality Regulations

The City of Escondido Municipal Code provides the following Section that establishes air quality thresholds for new projects within the City.

Section 33-924. Coordination of CEQA, quality of life standards, and growth management provisions.

The purpose of this section is to ensure consistency between the city's thresholds of environmental significance and the Public Facilities Master Plans which implements the growth management element of the general plan. The city's general plan contains quality of life standards that are to be considered in comprehensive planning efforts as well as individual project review. The degree to which a project, and

the area in which it is located, conforms to the quality of life standards, is an issue in determining threshold of significance. Notwithstanding the city's goal of providing adequate infrastructure concurrent with development, the Public Facilities Master Plans acknowledges that the concurrent provision of infrastructure cannot be provided in all cases, particularly in the short term. Instead, only critical infrastructure deficiencies affect the timing of development. The following criteria are intended to clarify how facility deficiencies should affect the following CEQA determinations:

(a) Negative and mitigates negative declarations. In situations where the preparation of a negative declaration is otherwise appropriate, yet quality of life standard deficiencies are found to exist, a negative declaration may still be prepared under the following circumstances, as applicable:

(6) After mitigation, the project does not individually generate air-quality impacts for fixed, mobile or construction sources within the general plan area by more than any of the following thresholds per day:

Table D – Section 33-924 Criteria Pollutant Emissions Pounds per Day Thresholds

	Pounds per Day Thresholds						
	PM10	**PM2.5**	**NOx**	**SOx**	**CO**	**Lead[1]**	**VOCs[2]**
Construction	100	55	250	250	550	3.2	75
Operation	100	55	250	250	550	3.2	55

Notes:
[1] Not applicable to construction
[2] Thresholds for VOCs per SCAQMD CEQA Air Quality Handbook.
Source: City of Escondido Municipal Code Section 33-924.

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. Currently the 2016 Title 24 standards are in effect and on January 1, 2020 the 2019 standards will go into effect, that have been designed so that the average new home built in California will now use zero-net-energy. 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. In addition to requiring rooftop solar systems, 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 2016 California Green Building Standards Code (CalGreen), which became effective on January 1, 2017 and replaced the 2013 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 2016 CALGreen Code over the prior 2013 CALGreen Code include: an increase in amount of bicycle parking requirements; an increase in number of EV charging stations and clean air vehicle parking at non-residential buildings; a reduction in water usage in urinals to 0.125 gallons per flush; an increased rate of diversion for construction and operational waste to 65 percent as well as adding organic waste as waste to be diverted; and a requirement for fireplaces to meet new EPA standards.

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.

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-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.

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

The SANDAG is the MPO for the region of the proposed project. SANDAG's Sustainability Community Strategy includes four building blocks:

1. A land use component that accommodates Regional Housing Needs Assessment and includes the protection of sensitive resources, including areas protected under habitat conservation plans;
2. Transportation networks including highways, transit, and local streets and roads;
3. Transportation demand management strategies; and
4. Transportation system management programs and policies.

The SCS describes how the region will meet GHG reduction targets set by CARB of seven percent by 2020 and 13 percent by 2035 from a 2005 baseline. The SANDAG Board of Directors certified the SCS and RTP on October 28, 2011. Several organizations challenged the SCS and RTP, which resulted in the State Supreme Court Decision of *Cleveland National Forest Foundation et al. v. San Diego Association of Governments et al.*, July 13, 2017, which upheld SANDAG's RTP/SCS by concluding that the EIR prepared for the RTP/SCS does not require an analysis of the GHG reduction requirements detailed in Executive Order No. S-3-05.

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 and 2017 updates to the Scoping Plan identifies strategies moving beyond the 2020 targets to the years 2030 and 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, 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.

5.3 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.

5.4 Local – City of Escondido Greenhouse Gas Regulations

The City of Escondido has established global climate change and GHG emissions thresholds for new projects in the City in both the Municipal Code and the *City of Escondido Adopted Climate Action Plan* (E-CAP), adopted December 2013, which are discussed separately below.

City of Escondido Municipal Code

The City of Escondido Municipal Code provides the following Section that establishes GHG emission thresholds for new projects within the City.

Section 33-924. Coordination of CEQA, quality of life standards, and growth management provisions.

The purpose of this section is to ensure consistency between the city's thresholds of environmental significance and the Public Facilities Master Plans which implements the growth management element of the general plan. The city's general plan contains quality of life standards that are to be considered in comprehensive planning efforts as well as individual project review. The degree to which a project, and the area in which it is located, conforms to the quality of life standards, is an issue in determining threshold of significance. Notwithstanding the city's goal of providing adequate infrastructure concurrent with development, the Public Facilities Master Plans acknowledges that the concurrent provision of infrastructure cannot be provided in all cases, particularly in the short term. Instead, only critical

infrastructure deficiencies affect the timing of development. The following criteria are intended to clarify how facility deficiencies should affect the following CEQA determinations:

(a) Negative and mitigates negative declarations. In situations where the preparation of a negative declaration is otherwise appropriate, yet quality of life standard deficiencies are found to exist, a negative declaration may still be prepared under the following circumstances, as applicable:

(7) Greenhouse gas (GHG) emissions. In situations where a negative declaration is otherwise appropriate, the following incremental GHG emissions are generally not considered significant:

a. Projects that do not generate more than two thousand five hundred (2,500) metric tons (MT) of carbon dioxide equivalent (CO_2e) greenhouse gas (GHG) emissions, or

b. Projects generating more than two thousand five hundred (2,500) MT CO_2e that have achieved one hundred (100) points implementing reduction measures outlined in the Escondido Climate Action Plan (E-CAP) screening tables, adopted by separate resolution, or

c. Projects generating more than two thousand five hundred (2,500) MT CO_2e that demonstrate through a project specific analysis quantifying GHG emissions that through mitigation and design features, the project reduces GHG emissions consistent with the E-CAP.

City of Escondido Climate Action Plan

The City of Escondido adopted the E-CAP and the *City of Escondido Greenhouse Gas Emissions – Adopted CEQA Thresholds and Screening Tables* (E-CAP Thresholds), on December 2013. The City prepared the E-CAP with the target of reducing GHG emissions within Escondido by 15 percent below 2013 levels by 2020. The City's target was developed to be consistent with the GHG emission reductions targets provided in AB 32 and ensures that the City is providing GHG reductions locally that complement statewide efforts. The E-CAP Thresholds Report provides a 2,500 MT CO_2e per year threshold of significance for new development projects in the City. This threshold was developed by the City based on the GHG emissions amount allowed by a project such that 90 percent of emissions on average from all projects would exceed that level and be "captured" by the Screening Table or alternate emission analysis method.

For projects that exceed 2,500 MT CO_2e per year, the Adopted CEQA Thresholds and Screening Tables assigns each mitigation measure a point value, and if a project garner's at least 100 points it will be consistent with the reduction quantities anticipated in the City's CAP. Table E below provides the description and point value of each mitigation measure.

Table E – City of Escondido
Screening Table for Implementation of GHG Reduction Measures for Residential Development

Feature	Description	Assigned Points
REDUCTION MEASURE R2 E7: ENERGY EFFICIENCY FOR NEW RESIDENTIAL		
Building Envelope		
Insulation	Title 24 standard (required)	0
	Modestly Enhanced Insulation (5% > Title 24)	2
	Enhanced Insulation (15% > Title 24)	6
	Greatly Enhanced Insulation (20% > Title 24)	8
Windows	Title 24 standard (required)	0

Table E – City of Escondido
Screening Table for Implementation of GHG Reduction Measures for Residential Development

Feature	Description	Assigned Points
	Modestly Enhanced Window Insulation (5% > Title 24)	2
	Enhanced Window Insulation (15% > Title 24)	6
	Greatly Enhanced Insulation (20% > Title 24)	8
Doors	Title 24 standard (required)	0
	Modestly Enhanced Insulation (5% > Title 24)	2
	Enhanced Insulation (15% > Title 24)	6
	Greatly Enhanced Insulation (20% > Title 24)	8
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage.	
	Title 24 standard (required)	0
	Modestly Enhanced Window Insulation (5% > Title 24)	2
	Enhanced Window Insulation (15% > Title 24)	6
	Greatly Enhanced Insulation (20% > Title 24)	8
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls.	
	Thermal storage to reduce heating/cooling by 5°F within the building	5
	Thermal storage to reduce heating/cooling by 10°Fwithin the building	9
	Note: Engineering details must be provided to substantiate the efficiency of the thermal storage device.	
Indoor Spaces		
Heating/Cooling Distribution System	Title 24 Standard (required)	0
	Modest Distribution Losses (5% > Title 24)	2
	Reduced Distribution Losses (15% > Title 24)	6
	Greatly Reduced Distribution Losses (5% > Title 24)	8
Space Heating/Cooling Equipment	Title 24 standard (required)	0
	Efficiency HVAC (5% > Title 24)	2
	High Efficiency HBAC (15% > Title 24)	6
	Very High Efficiency HBAC (20% > Title 24)	8
Water Heaters	Title 24 standard (require)	0
	Efficiency Water Heater (Energy Star conventional that is 5% > Title 24)	2
	High Efficiency Water Heater (Conventional water heater that is 15% > Title 24)	6
	High Efficiency Water Heater (Conventional water heater that is 20% > Title 24)	8
	Solar Water Heating System	11
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours.	
	All peripheral rooms within the living space have at least one window (require)	0
	All rooms within the living space have daylight (through use of windows, solar tubes, skylights, etc.) such that each room has at least 800 lumens of	2

Table E – City of Escondido
Screening Table for Implementation of GHG Reduction Measures for Residential Development

Feature	Description	Assigned Points
	light during a sunny day.	
	All rooms daylighted to at least 1,000 lumens	4
Artificial Lighting	Title 24 standard (required)	0
	Efficient Lights (5% > Title 24)	2
	High Efficiency Lights (LED, etc. 15% > Title 24)	6
	Very High Efficiency Lights (LED, etc. 20% > Title 24)	8
Appliances	Title 24 standard (required)	0
	Efficient Appliances (5% > Title 24)	2
	High Efficiency Energy Star Appliances (15% > Title 24)	6
	Very High Efficiency Appliance (20% > Title 24)	8
Indoor Space Performance Standard	Alternatively, projects that have not been designed to a level of detail to know the specific attributes of the interior design of the buildings needed to utilize the points for the features listed above can use this option instead in committing to one of the following performance standards:	
	Modestly Enhanced Interior and Appliances (5% > Title 24)	12
	Enhanced Interior and Appliances (15% > Title 24)	32
	Greatly Enhanced Interior and Appliances (20% > Title 24)	44
Building Placement	North/South alignment of building or other building placement such that the orientation of the buildings optimizes natural heating, cooling, and lighting.	3
Independent Energy Efficiency Calculations	Provide point values based upon energy efficiency modeling of the Project. Note that engineering data will be required documenting the energy efficiency and point values based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD
Other	This allows innovation by the applicant to provide design features that increases the energy efficiency of the project not provided in the table. Note that engineering data will be require documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD
Existing Residential Retrofits	The applicant may wish to provide energy efficiency retrofit projects to existing residential dwelling units to further the point value of their project. Retrofitting existing residential dwelling units within the City is a key reduction measure that is needed to reach the reduction goal. The potential for an applicant to take advantage of this program will be decided on a case by case basis and must have the approval of the Escondido Planning Department. The decision to allow applicants the ability to participate in this program will be evaluated based upon, but not limited to the following:	
	Will the energy efficiency retrofit project benefit low income or disadvantaged residents?	TBD
	Does the energy efficiency retrofit project fit within the overall assumptions in Reduction Measure R2 E3?	TBD
	Does the energy efficiency retrofit project provide co-benefits important to the City?	TBD
	Point value will be determined based upon engineering and design criteria of the energy efficiency retrofit project.	TBD
REDUCTION MEASURE R2 E2: NEW HOME RENEWABLE ENERGY		
Photovoltaic	Solar photovoltaic panels installed on individual homes or in collective	

Table E – City of Escondido
Screening Table for Implementation of GHG Reduction Measures for Residential Development

Feature	Description	Assigned Points
	neighborhood arrangements such that the total power provided augments:	
	Solar Ready Roofs (sturdy roof and electric hookups)	1
	10 percent of the power needs of the project	9
	20 percent of the power needs of the project	14
	30 percent of the power needs of the project	19
	40 percent of the power needs of the project	27
	50 percent of the power needs of the project	34
	60 percent of the power needs of the project	37
	70 percent of the power needs of the project	41
	80 percent of the power needs of the project	45
	90 percent of the power needs of the project	49
	100 percent of the power needs of the project	55
Wind Turbines	Some areas of the City lend themselves to wind turbine applications. Analysis of the area's capacity to support wind turbines should be evaluated prior to choosing this feature. Individual wind turbines at homes of collective neighborhood arrangements of wind turbines such that the total power provide augments:	
	10 percent of the power needs of the project	9
	20 percent of the power needs of the project	14
	30 percent of the power needs of the project	19
	40 percent of the power needs of the project	27
	50 percent of the power needs of the project	34
	60 percent of the power needs of the project	37
	70 percent of the power needs of the project	41
	80 percent of the power needs of the project	45
	90 percent of the power needs of the project	49
	100 percent of the power needs of the project	55
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.	TBD
REDUCTION MEASURE R2 W1: WATER USE REDUCTION INITIATIVE		
Irrigation and Landscaping		
Water Efficient Landscaping	Limit conventional turf to < 20% of each lot (required)	0
	Eliminate conventional turf from landscaping	2
	Eliminate turf and only provide drought tolerant plants	3
	Xeroscaping that requires not irrigation (after plants are established)	5
Water Efficient Irrigation Systems	Drip irrigation	1
	Smart irrigation control systems combined with drip irrigation (demonstrate 20% reduced water use)	2
Recycled Water	Graywater (purple pipe) irrigation system on site	3
Storm Water Reuse Systems	Innovative on-site storm water collection, filtration, and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a	TBD

Table E – City of Escondido
Screening Table for Implementation of GHG Reduction Measures for Residential Development

Feature	Description	Assigned Points
	project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	
Potable Water		
Showers	Title 24 standard (required)	0
	EPA High Efficiency Showerheads (15% > Title 24)	2
Toilets	Title 24 standard (required)	0
	EPA High Efficiency Toilets (15% > Title 24)	2
Faucets	Title 24 standard (required)	0
	EPA High Efficiency Faucets (15% > Title 24)	2
Potable Water Performance Standard	Alternatively, projects that have not been designed to a levele of detail to know the specific attributes of the interior design of the buildings needed to utilize the points for the features listed above can use this option instead in committing to a potable water supply performance standard:	
	EPA High Efficiency Water Fixtures (15% > Title 24)	6
REDUCTION MEASURE R2 T1: LAND USE BASED TRIPS AND VMT REDUCTION		
Mixed Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed use projects will be determined based upon a Transportation Impact Analysis (TIA) demonstrating trip reductions and/or reductions in vehicle miles traveled. Suggested ranges:	
	Diversity of land uses complementing each other (2-28 points)	
	Increased destination accessibility other than transit (1-18 points)	
	Increased transit accessibility (1-25 points)	
	Infill location that reduces vehicle trips or VMT beyond the measures described above (points TBD based on traffic data).	
Residential Near Local Retail (Residential Only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled.	TBD
	The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT).	TBD
Other Trip Reduction Measures	Other trip or VMT reduction measures not listed above with TIA and/or other traffic data supporting the trip and/or VMT for the project.	TBD
REDUCTION MEASURE R2 T3: BICYCLE MSATER PLAN DEVELOPMENT		
Bicycle Infrastructure	Escondido's Bicycle Master Plan is extensive and describes the construction on 11.5 miles of Class I bike paths and 23 miles of Class II and Class III bikeways to build upon the current 8 miles of bikeways.	
	Provide bicycle paths within project boundaries.	TBD
	Provide bicycle path linkages between residential and other land uses.	3
	Provide bicycle path linkages between residential and transit.	5
REDUCTION MEASURE R2 T4: NEIGHBORHOOD ELECTRIC VEHICLE PLAN		
Electric Vehicle Recharging	Provide circuit and capacity in garages of residential units for use by an electric vehicle. Charging stations are for on-road electric vehicles legally able to drive on all roadways including Interstate Highways and freeways.	1
	Provide connections to neighborhood electric vehicle (NEV) approved roads and bicycle lanes. NEVs are similar in size to gold carts and fun entirely on	4

Table E – City of Escondido
Screening Table for Implementation of GHG Reduction Measures for Residential Development

Feature	Description	Assigned Points
	electricity with maximum speeds between 30 to 60 MPH. They are not legal to drive on public roadways except when that roadway is NEV approved. NEV approved rods are those roadways with Class I, Class II, or Class III bicycle lanes. The NEV must drive within the bicycle lane on these types of roadways.	

Source: City of Escondido Greenhouse Gas Emissions – Adopted CEQA Thresholds and Screening Tables, December 2013.

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 Escondido, 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 Escondido 2 Monitoring Station, which is the nearest weather station to the project site with historical data are shown below in Table F. Table F shows that August is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table F – Monthly Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Max. Temperature	69.0	69.0	70.3	74.5	76.6	82.0	87.2	88.6	86.6	79.9	73.3	68.9
Avg. Min. Temperature	43.1	44.4	47.1	50.4	54.6	58.1	62.1	63.3	61.4	55.2	46.6	41.8
Avg. Total Precipitation (in.)	3.00	3.46	2.71	1.14	0.26	0.12	0.08	0.08	0.20	0.74	1.33	1.82

Source: Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2863

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.

The project site is located in Escondido. The nearest monitoring site is the Escondido-E Valley Parkway Monitoring Station (Escondido Station), which is located approximately 3.2 miles southeast of the project site at 600 East Valley Parkway, Escondido. The 2015 monitoring data is from the Escondido Station, however at the end of 2015 air monitoring was discontinued at the Escondido Station, so the 2016 and 2017 monitoring data has been obtained from both the Del Mar-Mira Costa College Monitoring Station (Del Mar Station), which is located approximately 13 miles southwest of the project site and the San Diego-Kearny Villa Road Monitoring Station (San Diego Station), which is located approximately 21 miles south of the project site. The monitoring data is presented in Table G and shows the most recent three years of monitoring data from CARB. CO measurements have not been provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013. It should also be noted that due to the air monitoring stations distances from the project site, recorded air pollution levels at the air monitoring stations reflect with varying degrees of accuracy, local air quality conditions at the project site. Table G shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below:

Ozone

The State 1-hour concentration standard for ozone has not been exceeded over the past three years at the Escondido Station and Del Mar Station. The State 8-hour ozone standard has been exceeded by 3 days at the Escondido Station in 2015 and by 3 days at the Del Mar Station in 2016 and no exceedances occurred in 2017. The Federal 8-hour ozone standard has been exceeded by 2 days at the Escondido Station in 2015 and by 1 day at the Del Mar Station in 2016 and no exceedances occurred in 2017.

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 Escondido, with the more significant areas being those directly upwind.

Table G – Local Area Air Quality Monitoring Summary

	Year		
Pollutant (Standard)	**2015[1]**	**2016[2]**	**2017[2]**
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.079	0.079	0.075
Days > CAAQS (0.09 ppm)	0	0	0
Maximum 8-Hour Concentration (ppm)	0.079	0.071	0.061
Days > NAAQS (0.070 ppm)	**2**	**1**	0
Days > CAAQs (0.070 ppm)	**3**	**3**	0
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppb)	48.0	53.0	54.0
Days > NAAQS (100 ppb)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour California Measurement (ug/m^3)	31.0	36	46
Days > NAAQS (150 ug/m^3)	0	0	0

Pollutant (Standard)	Year 2015[1]	2016[2]	2017[2]
Days > CAAQS (50 ug/m^3)	0	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	17.5	17.1	17.6
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	No	No	No
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour National Measurement (ug/m^3)	62.5	19.4	27.5
Days > NAAQS (35 ug/m^3)	0	0	0
Annual Arithmetic Mean (AAM) (ug/m^3)	ND	7.5	7.9
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	No

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 Escondido Station.
[2] Ozone data obtained from the Del Mar Station and NO_2, PM10, and PM2.5 data obtained from the San Diego Station.
Source: http://www.arb.ca.gov/adam/

Nitrogen Dioxide

Neither the Escondido Station nor the San Diego Station recorded any exceedances of the Federal 1-hour NO_2 standard for the last three years.

Particulate Matter

Both the State and Federal 24-hour and annual concentration standards for PM10 has not been exceed for the last three years at the Escondido and San Diego Stations. Over the past three years both the 24-hour concentration standard and annual concentration standard for PM2.5 has not been exceeded at the Escondido and San Diego Stations. 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 CARB 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 were set to a project location of San Diego County, a Climate Zone of 13, utility company of San Diego Gas & Electric, and the opening year of 2020 was utilized in this analysis.

Land Use Parameters

The proposed project would consist of the development of 137 townhome units with approximately 2-acres of onsite roads and parking spaces. In addition, approximately 1.3-acres of adjacent Caltrans property would be graded during development of the proposed project. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table H.

Table H – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving[3] (square feet)
Townhomes	Condo/Townhouse	137 DU	5.66	192,358
Parking	Other Asphalt Surfaces	2 AC	2.00	87,120
Adjacent Caltrans Property	Other Non-Asphalt Surfaces	1.3 AC	1.30	56,628

Notes:
[1] DU = Dwelling Unit; AC = Acre
[2] Lot acreage calculated based on a total lot acreage of 7.66.
[3] Building/Paving square feet represent area where architectural coatings will be applied.

Construction Parameters

Construction activities are anticipated to start in mid-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.

Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation phase is anticipated to start in mid-2019 and was modeled as 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 is anticipated to take place over approximately three months. The proposed project would include grading of approximately 1.3 acres of adjacent Caltrans property in addition to the 7.66 acre project site. In total, this would result in 8.96 acres of area to be graded. Approximately 189,700 cubic yards of material will be imported to the project site during grading, which would require a total of 23,713 haul trips or an average of 352 haul truck trips per day over the three month grading period. The onsite equipment would consist of one grader, one rubber tired dozer, and one tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix. The grading activities would require 15worker trips per day. In order to account for water truck emissions, six daily vendor truck trips were added to the grading phase.

According to the Geotechnical Report (Geotek, 2018), limited blasting may be required during grading of the northern portion of the project site. Since the CalEEMod model does not analyze emissions from blasting, the blasting emission factors from Chapter 13.3 Explosive Detonations from AP-42, prepared by EPA, January 1995, have been utilized. The daily NOx, CO, and SOx emissions from blasting of explosives were calculated using the following equation:

Rock blasted (cubic yards/day) x 1 pound explosive/cubic yard ÷ 2,000 pounds/ton x emission factor (pounds/ton of explosive) = pounds/day

Where:

Emission factors = 53 pounds/ton for NOx, 104 pounds/ton for CO and 1 pound/ton for SOx

The PM10 and PM2.5 emissions from blasting of explosives were calculated using the following equation:

$E = k \times 0.000014 \times A^{1.5}$

Where:

E = pounds of PM10 or PM2.5 per blast

K = particle size (0.52 for PM10 and 0.03 for PM2.5)

A = horizontal area shifted by each blast in square feet

It is anticipated that the maximum blasting that would occur in a day would consist of blasting 1,200 cubic yards of rock over a 10,000 square foot area. This would result in a maximum of 31.8 pounds of NOx per day, 62.4 pounds of CO per day, 0.6 pounds of SOx per day, 7.28 pounds of PM10 per day, and 0.42 pounds of PM2.5 per day from blasting activities.

Building Construction

The building construction would occur after the completion of the grading phase and is anticipated to take place over approximately 11 months. The building construction would require up to 159 worker trips and 38 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, three forklifts, one generator set, one welder, and three tractors, loaders, or backhoe, which is based on the CalEEMod default equipment mix.

Paving

The paving would occur after the completion of the building construction phase. The paving activities was modeled as occurring over four weeks and 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 occur after the completion of the building construction phase and would have the potential of occurring concurrently with the paving phase and possibly the building construction phase. The architectural coating phase was modeled as occurring over approximately three months. The architectural coating phase was modeled based on covering 389,525 square feet of residential interior area, 129,842 square feet of residential exterior area, and 8,625 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 analyze through the use of a trip rate of 8.0 daily trips per residential townhome unit, which was obtained from the *Nutmeg Residential Condominiums Traffic Impact Analysis* (Traffic Impact Analysis), prepared by Rick Engineering Company, February 1, 2019. This resulted in the proposed project generating 1,096 trips per day (137 townhomes x 8.0 = 1,096 daily trips). No other changes were made to the CalEEMod default mobile source parameters. The analysis included the CalEEMod mitigation of improved pedestrian network onsite, since the proposed project will be required to construct sidewalks on the project site, adjacent to Nutmeg Street and Centre City Parkway.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the 137 townhome units in the CalEEMod model. The CalEEMod model was modeled with no woodstoves or fireplaces, since the project applicant has stated that no fireplaces would be constructed in any of the residential townhome units. 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 137 townhome units in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

The 2019 Title 24, Part 6 building energy efficiency standards that will become effective on January 1, 2020 will be utilized by the proposed project even if building permits are pulled prior to January 1, 2020 (see Project Design Feature 1). The 2019 Title 24 standards 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 (192,358 square feet)

NDwell = Number of dwelling units (78 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 378.8 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 378.8 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 921,839 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 63 tons of solid waste per year from the proposed project. No changes were made to the default solid waste parameters 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 8,926,101.51 gallons per year of indoor water usage and 5,627,324.87 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 IMPACT ANALYSIS

8.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and global climate change would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people.
- 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.

8.2 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 consistent with the RAQS and the SIP.

The Escondido General Plan Update FEIR assessed whether development consistent with the General Plan would conflict or obstruct implementation of the RAQS and SIP. The FEIR determined that the growth accommodated General Plan would be consistent with the growth accounted for in the RAQS and SIP. As such, such development consistent with the Escondido General Plan would be consistent with the RAQS and SIP.

As discussed above in Section 1.3, currently the project site's General Plan Designation is Office (O) and zoned Residential Estate (R-E). The proposed project would require a General Plan Amendment and zone change to change the General Plan and zoning designations onsite to Urban III (U3) and Planned Residential Development (PRD) to allow high density multi-family residential development (18 DU/AC). Although this re-designation would not have 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 and the proposed development of a 137-unit townhouse complex would provide housing to meet the projected population growth in the County that is anticipated in SANDAG's 2050 Regional Growth Forecast. Therefore, the housing and population growth introduced by implementation of the proposed project would be consistent with SANDAG and RAQS growth forecasts. It should also be noted that the primary source of air emissions of a project is from project-generated vehicle emissions and the Traffic Impact Analysis prepared for the proposed project found that development of the project site under the current General Plan Designation would generate up to 2,298 daily vehicle trips, while the proposed project would generate 1,096 daily vehicle trips, which would result in the proposed project creating less than half of the mobile source emissions that would have been created with development under the current General Plan Designation. As such, the proposed project's emissions have been accounted for in the RAQS, which was created to bring the Air Basin into attainment for ozone and particulate matter.

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 SDAPCD's RAQS and SIP.

Level of Significance

Less than significant impact.

8.3 Air Quality Standard Violation

The proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. The Environmental Quality Regulations, as established in the City of Escondido Municipal Code Section 33-924(a)(6), establish criteria pollutant emissions thresholds to determine if a project's incremental contribution to air quality impacts would create a significant impact. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the City's standards.

Construction Emissions

The construction activities for the proposed project are anticipated to include site preparation and grading of both the 7.66-acre project site and approximately 1.3-acres of adjacent Caltrans property, building construction of 137 residential townhome units, 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 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 I and the CalEEMod daily printouts are shown in Appendix A. Since it is possible that building construction, paving, and architectural coating

activities may occur concurrently, Table I also shows the combined criteria pollutant emissions from building construction, paving, and architectural coating phases of construction.

Table I – 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 - CalEEMod	*5.79*	*134.96*	*41.17*	*0.31*	*15.01*	*6.82*
Grading - Blasting	*0.00*	*31.80*	*62.40*	*0.60*	*7.28*	*0.42*
Grading Total	5.79	166.76	103.57	0.91	22.29	7.24
Building Construction	*3.25*	*26.28*	*23.30*	*0.05*	*2.90*	*1.67*
Paving	*1.68*	*14.11*	*15.08*	*0.02*	*0.87*	*0.72*
Architectural Coatings	*57.20*	*1.77*	*2.74*	*0.00*	*0.37*	*0.18*
Combined Building Construction, Paving, and Architectural Coatings	62.13	42.16	41.12	0.07	4.14	2.57
Maximum Daily Construction Emissions	**62.13**	**166.76**	**103.57**	**0.91**	**22.29**	**12.19**
City of Escondido Construction Thresholds[1]	**75**	**250**	**550**	**250**	**100**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] City of Escondido Thresholds from Section 33-924(a)(6) of the Municipal Code.
Source: CalEEMod Version 2016.3.2.

Table I shows that during site preparation or grading or the combined building construction, paving, and architectural coatings phases that none of the analyzed criteria pollutants would exceed the City of Escondido emissions thresholds for construction activities as detailed in Section 33-924(a)(6) of the Municipal Code. 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 J and the CalEEMod daily emissions printouts are shown in Appendix A.

Table J – Operational Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Area Sources[1]	5.71	0.13	11.34	0.00	0.06	0.06
Energy Usage[2]	0.06	0.50	0.21	0.00	0.04	0.04
Mobile Sources[3]	2.09	8.89	24.57	0.08	6.71	1.85
Total Emissions	**7.86**	**9.52**	**36.12**	**0.08**	**6.81**	**1.95**
City of Escondido Operational Thresholds[4]	**55**	**250**	**550**	**250**	**100**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from 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.
[4] City of Escondido Thresholds from Section 33-924(a)(6) of the Municipal Code.
Source: Calculated from CalEEMod Version 2016.3.2.

Table J shows that during operation of the proposed project that none of the analyzed criteria pollutants would exceed the City of Escondido emissions thresholds for operational activities as detailed in Section 33-924(a)(6) of the Municipal Code. Therefore, a less than significant air quality impact would occur from operation of the proposed project

Level of Significance

Less than significant impact.

8.4 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel throughout the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature. As detailed above in Section 4.1, the Air Basin has been designated by the EPA as nonattainment for ozone and by CARB as nonattainment for ozone, PM10, and PM2.5. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the Air Basin.

Construction-Related Impacts

The Air Basin is currently designated by the EPA for federal standards as a non-attainment area for ozone and by CARB for the state standards as a non-attainment area for ozone, PM10, and PM2.5. The ozone, PM10, and PM2.5 emissions associated with construction of the proposed project have been calculated above in Section 8.3. The above analysis found that development of the proposed project would result in less than significant emissions of VOC and NOx (ozone precursors), PM10, and PM2.5 during construction of the proposed project. Therefore, a less than significant cumulative impact would occur from construction of the proposed project.

Operational-Related Impacts

The greatest cumulative operational impact on the air quality to the Air Basin will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development. The City of Escondido adopted project-level thresholds for ozone and particulate matter, in order to ensure that no individual project would create a significant cumulative impact to air quality. The ozone, PM10, and PM2.5 emissions created from the on-going operations of the proposed project have been calculated above in Section 8.3. The above analysis found that development of the proposed project would not exceed the City of Escondido's thresholds of significance as detailed in Section 33-924(a)(6) of the Municipal Code for VOC and NOx (ozone precursors), PM10, and PM2.5 during operation of the proposed project. However, the analysis above in Section 8.3 only assessed if an air quality violation would occur and did not assess the cumulative health impacts that may be created from the air emissions created from the on-going 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 J 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 K.

Table K – 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]	7.86	9.52	32.12	0.08	6.81	1.95
Total Emissions in Air Basin[2]	228,000	136,000	--	2,000	148,000	38,000
Project's Percent of Air Emissions	**0.0034%**	**0.007%**	**--**	**0.004%**	**0.0046%**	**0.0051%**

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

As shown in Table K, the project would increase criteria pollutant emissions by as much as 0.007 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. With respect to long-term emissions, the proposed project would create a less than significant cumulative impact.

Level of Significance

Less than significant impact.

8.5 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of 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 are residents at the single-family homes located as near as 610 feet west of the project site on the west side of Interstate 15. There are also single-family homes located as near as 725 feet to the east and 770 feet to the southeast 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.

Construction-Related Fugitive Dust Emissions

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 I. 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.

Toxic Air Contaminants Impacts from Construction

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.

Of the seven study intersections analyzed in the Traffic Impact Analysis, two are two-way stop controlled, one is all-way stop controlled, and four are signalized. Of the signalized intersections analyzed Centre City Parkway/El Norte Parkway is the only intersection to operate at LOS E or worse for the existing conditions. The Traffic Impact Analysis also shows that for the existing with project conditions for Centre City Parkway/El Norte Parkway will remain at LOS E, however the change in delay will improve by 0.6 second with development of the project. All other signalized intersections will operate at LOS D or better. As such, no local CO Hotspots are anticipated to be created at any 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.

8.6 Objectionable Odors

The proposed project would not create objectionable odors affecting a substantial number of people. Potential odor impacts have been analyzed separately for construction and operations below.

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.

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 137 residential townhouse units and associated parking. 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.

8.7 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 the development of a 137-unit residential townhouse complex. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment.

The City of Escondido has established GHG emissions thresholds in both Section 33-924(a)(7) of the City's Municipal Code and the *City of Escondido Adopted Climate Action Plan* (E-CAP), adopted December 2013. Both the Municipal Code and E-CAP provide a threshold of 2,500 MT CO_2e per year that is to be utilized in the determination of significance for CEQA analyses. It should be noted that the 2,500 MT CO_2e threshold was prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. The *Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets,* prepared by CARB October 2017, provides recommendations for the MPOs located within the State to meet the new SB 32 targets. For SANDAG, which is the MPO that represents San Diego County and includes the project site, this Report recommends that SANDAG increase its year 2035 efficiency target from an 18 percent reduction to a 21 percent reduction in order to account for AB 197 and SB 32. This equates to a 16.7 percent increase in SANDAG's GHG emissions reduction target for the year 2035. In order to provide a conservative analysis, the threshold of 2,500 MTCO_2e per year was reduced by 16.7 percent to account for AB 197 and SB 32, which results in a modified threshold of 2,083 MT CO_2e per year. Therefore, the proposed project would be considered to create a significant cumulative GHG emissions impact if the proposed project would exceed the annual threshold of 2,083 MT CO_2e.

In order to determine if the proposed project meets the GHG emissions threshold set forth in the E-CAP and Municipal Code, the proposed project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed in Section 7.1 above. A summary of the results is shown below in Table L and the CalEEMod model run annual printouts are provided in Appendix B.

Table L – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction				
2019 Construction	1,165.57	0.14	0.00	1,169.00
2020 Construction	429.21	0.07	0.00	430.88
Operations (Opening Year 2020)				
Area Sources[1]	1.66	0.00	0.00	1.70
Energy Usage[2]	22.86	0.00	0.00	23.19
Mobile Sources[3]	1,292.51	0.07	0.00	1,294.27
Solid Waste[4]	6.40	0.38	0.00	15.85
Water and Wastewater[5]	51.84	0.23	0.01	59.47
Total Operational Emissions	1,375.27	0.68	0.01	**1,394.48**
City of Escondido Modified GHG Emissions Threshold[6]				**2,083**
Exceed Thresholds?				**No**

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] City of Escondido GHG Emissions Threshold of 2,500 MT CO_2e from both Section 33-924(a)(7) of the Municipal Code and the *City of Escondido Greenhouse Gas Emissions – Adopted CEQA Thresholds and Screening Tables,* December 2013. The 2,500 MT CO_2e threshold was reduced by 16.7 percent to account for AB 197 and SB 32.
Source: CalEEMod Version 2016.3.2.

The data provided in Table L above shows that construction activities from the proposed project would generate GHG emissions as high as 1,169.00 MT CO_2e per year in year 2019 and operational activities would create 1,742.24 MT CO_2e per year for the worst-case project opening year 2020. The proposed project's calculated GHG emissions from both construction and operations would be within the City's GHG emissions threshold of 2,500 MT CO_2e per year as detailed in Section 33-924(a)(7) of the Municipal Code and the E-CAP and modified GHG emissions threshold of 2,083 that has been modified to account for the more stringent GHG emissions reductions required by AB 197 and SB 32. 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.

8.8 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. Increases in concentrations of GHG emissions have the potential to result in global climate change. Common activities that generate GHG emissions include vehicular travel, electricity use, natural gas use, water use and waste generation.

The City of Escondido adopted the E-CAP and the E-CAP Thresholds with the target of reducing GHG emissions within Escondido by 15 percent below 2013 levels by 2020. The City's target was developed to be consistent with the GHG emission reductions targets provided in AB 32 and ensures that the City is providing GHG reductions locally that complement statewide efforts. The E-CAP Thresholds Report provides a 2,500 MT CO_2e per year threshold of significance for new development projects in the City. This threshold was developed by the City based on the GHG emissions amount allowed by a project such that 90 percent of emissions on average from all projects would exceed that level and be "captured" by the Screening Table or alternate emission analysis method. It should be noted that the 2,500 MT CO_2e threshold was prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 GHG emission levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. The *Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets,* prepared by CARB October 2017, provides recommendations for the MPOs located within the State to meet the new SB 32 targets. For SANDAG, which is the MPO that represents San Diego County and includes the project site, this Report recommends that SANDAG increase its year 2035 efficiency target from an 18 percent reduction to a 21 percent reduction in order to account for AB 197 and SB 32. This equates to a 16.7 percent increase in SANDAG's GHG emissions reduction target for the year 2035. In order to provide a conservative analysis, the threshold of 2,500 MTCO_2e per year was reduced by 16.7 percent to account for AB 197 and SB 32, which results in a modified threshold of 2,083 MT CO_2e per year. Therefore, the proposed project would be considered to create a significant cumulative GHG emissions impact if the proposed project would exceed the annual threshold of 2,083 MT CO_2e.

As detailed above in Section 8.7, construction activities from the proposed project would generate GHG emissions as high as 1,169.00 MT CO_2e per year in year 2019 and operational activities would create 1,394.48 MT CO_2e per year for the worst-case project opening year 2020. The proposed project's calculated GHG emissions from both construction and operations would be within the E-CAP's GHG emissions threshold of 2,500 MT CO_2e per year CAP and modified GHG emissions threshold of 2,083 that has been modified to account for the more stringent GHG emissions reductions required by AB 197 and SB 32. Therefore, the proposed project would comply with the E-CAP reduction targets and would not conflict with the applicable plans for reducing GHG emissions. Impacts would be less than significant.

Level of Significance

Less than significant impact.

9.0 REFERENCES

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San Diego Association of Governments, *2050 Regional Transportation Plan*, October 28, 2011.

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APPENDIX A

CalEEMod Model Daily Printouts

Escondido Nutmeg Townhomes - Opening Year 2020

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	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	1.30	Acre	1.30	56,628.00	0
Condo/Townhouse	137.00	Dwelling Unit	5.66	192,358.00	392

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
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

Escondido Nutmeg Townhomes - Opening Year 2020 - San Diego County, Summer

Project Characteristics - Opening Year 2020

Land Use - 137 DU Townhomes on 5.66 AC and 192,358 sq ft of building; 2 AC Other Asphalt Surfaces; 1.3 AC Other Non-Asphalt Surfaces

Construction Phase - 10 days Site Prep; 68 days Grading; 230 days Building Construction; 20 days Paving; 60 days Painting.

Trips and VMT - To account for water trucks, 6 vendor trips added to both Site Prep and Grading phases.

Grading - 189,700 cubic yards imported during Grading

Architectural Coating - Residential Interior VOC set to 100 g/L per SDAPCD Rule 67.0.1

Vehicle Trips - Townhouse trip generation rate obtained from the Traffic Impact Analysis.

Woodstoves - Per project design, no woodstoves or fireplaces would be installed in the proposed townhomes.

Energy Use -

Mobile Land Use Mitigation - Provide sidewalks on project site.

Area Mitigation - Per project design, no hearths would be installed in the proposed townhomes.

Energy Mitigation - Per 2019 Title 24 requirements a 7% improvement to 2016 Title 24 and 378.8 kWh of panels will be provided.

Water Mitigation - Install low-flow fixtures and water-efficient irrigation systems

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Escondido Nutmeg Townhomes - Opening Year 2020 - San Diego County, Summer

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_Residential_Exterior	129842	92475
tblAreaCoating	Area_Residential_Interior	389525	277425
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	20.00	68.00
tblFireplaces	NumberGas	75.35	0.00
tblFireplaces	NumberNoFireplace	13.70	137.00
tblFireplaces	NumberWood	47.95	0.00
tblGrading	MaterialImported	0.00	189,700.00
tblLandUse	LandUseSquareFeet	137,000.00	192,358.00
tblLandUse	LotAcreage	8.56	5.66
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	5.67	8.00
tblVehicleTrips	SU_TR	4.84	8.00
tblVehicleTrips	WD_TR	5.81	8.00
tblWoodstoves	NumberCatalytic	6.85	0.00
tblWoodstoves	NumberNoncatalytic	6.85	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	5.6939	133.8792	39.5604	0.3093	18.2548	2.3966	20.6513	9.9816	2.2051	12.1866	0.0000	33,425.7621	33,425.7621	3.6179	0.0000	33,516.2101
2020	58.8655	23.8640	22.4471	0.0508	1.5634	1.1472	2.7106	0.4205	1.0788	1.4993	0.0000	5,010.3832	5,010.3832	0.7476	0.0000	5,029.0156
Maximum	**58.8655**	**133.8792**	**39.5604**	**0.3093**	**18.2548**	**2.3966**	**20.6513**	**9.9816**	**2.2051**	**12.1866**	**0.0000**	**33,425.7621**	**33,425.7621**	**3.6179**	**0.0000**	**33,516.2101**

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	5.6939	133.8792	39.5604	0.3093	18.2548	2.3966	20.6513	9.9816	2.2051	12.1866	0.0000	33,425.7621	33,425.7621	3.6179	0.0000	33,516.2101
2020	58.8655	23.8640	22.4471	0.0508	1.5634	1.1472	2.7106	0.4205	1.0788	1.4993	0.0000	5,010.3832	5,010.3832	0.7476	0.0000	5,029.0155
Maximum	**58.8655**	**133.8792**	**39.5604**	**0.3093**	**18.2548**	**2.3966**	**20.6513**	**9.9816**	**2.2051**	**12.1866**	**0.0000**	**33,425.7621**	**33,425.7621**	**3.6179**	**0.0000**	**33,516.2101**

	ROG	NOx	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	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486
Energy	0.0582	0.4975	0.2117	3.1800e-003		0.0402	0.0402		0.0402	0.0402		635.1170	635.1170	0.0122	0.0116	638.8912
Mobile	2.0928	8.6231	24.5721	0.0814	6.6362	0.0782	6.7144	1.7738	0.0734	1.8472		8,257.9599	8,257.9599	0.4331		8,268.7865
Total	**7.8655**	**9.2518**	**36.1244**	**0.0852**	**6.6362**	**0.1808**	**6.8170**	**1.7738**	**0.1760**	**1.9498**	**0.0000**	**8,913.4293**	**8,913.4293**	**0.4651**	**0.0116**	**8,928.5262**

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	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486
Energy	0.0553	0.4728	0.2012	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.5794	603.5794	0.0116	0.0111	607.1662
Mobile	2.0841	8.5704	24.3731	0.0806	6.5698	0.0775	6.6473	1.7560	0.0727	1.8288		8,179.9549	8,179.9549	0.4295		8,190.6930
Total	**7.8539**	**9.1744**	**35.9149**	**0.0843**	**6.5698**	**0.1781**	**6.7479**	**1.7560**	**0.1733**	**1.9294**	**0.0000**	**8,803.8867**	**8,803.8867**	**0.4609**	**0.0111**	**8,818.7077**

	ROG	NOx	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	0.15	0.84	0.58	1.09	1.00	1.49	1.01	1.00	1.51	1.05	0.00	1.23	1.23	0.89	4.90	1.23

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	7/1/2019	7/12/2019	5	10	
2	Grading	Grading	7/13/2019	10/16/2019	5	68	
3	Building Construction	Building Construction	10/17/2019	9/2/2020	5	230	
4	Paving	Paving	9/3/2020	9/30/2020	5	20	
5	Architectural Coating	Architectural Coating	9/3/2020	11/25/2020	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 34

Acres of Paving: 3.3

Residential Indoor: 389,525; Residential Outdoor: 129,842; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 8,625 (Architectural Coating – sqft)

OffRoad Equipment

Escondido Nutmeg Townhomes - Opening Year 2020 - 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	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	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	6	15.00	6.00	23,713.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	159.00	38.00	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	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 - 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					6.9444	0.0000	6.9444	3.4268	0.0000	3.4268			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.9444**	**1.3974**	**8.3417**	**3.4268**	**1.2856**	**4.7124**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	3.0269	104.7462	22.6109	0.2767	6.0935	0.3953	6.4888	1.6700	0.3782	2.0482		30,180.8154	30,180.8154	2.6709		30,247.5870
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	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**3.1135**	**105.5312**	**23.2671**	**0.2797**	**6.2574**	**0.4014**	**6.6587**	**1.7144**	**0.3839**	**2.0983**		**30,488.9553**	**30,488.9553**	**2.6888**		**30,556.1739**

3.3 Grading - 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					6.9444	0.0000	6.9444	3.4268	0.0000	3.4268			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.9444**	**1.3974**	**8.3417**	**3.4268**	**1.2856**	**4.7124**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	3.0269	104.7462	22.6109	0.2767	6.0935	0.3953	6.4888	1.6700	0.3782	2.0482		30,180.8154	30,180.8154	2.6709		30,247.5870
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	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**3.1135**	**105.5312**	**23.2671**	**0.2797**	**6.2574**	**0.4014**	**6.6587**	**1.7144**	**0.3839**	**2.0983**		**30,488.9553**	**30,488.9553**	**2.6888**		**30,556.1739**

3.4 Building Construction - 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					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

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	0.1749	4.7115	1.2164	0.0105	0.2573	0.0328	0.2900	0.0741	0.0314	0.1054		1,124.8632	1,124.8632	0.0869		1,127.0344
Worker	0.6243	0.4357	4.9197	0.0139	1.3062	9.3100e-003	1.3155	0.3465	8.5800e-003	0.3550		1,383.6174	1,383.6174	0.0442		1,384.7220
Total	**0.7992**	**5.1472**	**6.1360**	**0.0244**	**1.5634**	**0.0421**	**1.6055**	**0.4205**	**0.0399**	**0.4604**		**2,508.4806**	**2,508.4806**	**0.1310**		**2,511.7563**

3.4 Building Construction - 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					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

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	0.1749	4.7115	1.2164	0.0105	0.2573	0.0328	0.2900	0.0741	0.0314	0.1054		1,124.8632	1,124.8632	0.0869		1,127.0344
Worker	0.6243	0.4357	4.9197	0.0139	1.3062	9.3100e-003	1.3155	0.3465	8.5800e-003	0.3550		1,383.6174	1,383.6174	0.0442		1,384.7220
Total	**0.7992**	**5.1472**	**6.1360**	**0.0244**	**1.5634**	**0.0421**	**1.6055**	**0.4205**	**0.0399**	**0.4604**		**2,508.4806**	**2,508.4806**	**0.1310**		**2,511.7563**

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	0.1420	4.2848	1.0916	0.0104	0.2572	0.0210	0.2782	0.0741	0.0201	0.0941		1,117.3523	1,117.3523	0.0824		1,119.4130
Worker	0.5835	0.3931	4.5070	0.0135	1.3062	9.1700e-003	1.3153	0.3465	8.4400e-003	0.3549		1,339.9678	1,339.9678	0.0400		1,340.9681
Total	**0.7255**	**4.6779**	**5.5986**	**0.0239**	**1.5634**	**0.0301**	**1.5935**	**0.4205**	**0.0285**	**0.4490**		**2,457.3201**	**2,457.3201**	**0.1224**		**2,460.3811**

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	0.1420	4.2848	1.0916	0.0104	0.2572	0.0210	0.2782	0.0741	0.0201	0.0941		1,117.3523	1,117.3523	0.0824		1,119.4130
Worker	0.5835	0.3931	4.5070	0.0135	1.3062	9.1700e-003	1.3153	0.3465	8.4400e-003	0.3549		1,339.9678	1,339.9678	0.0400		1,340.9681
Total	**0.7255**	**4.6779**	**5.5986**	**0.0239**	**1.5634**	**0.0301**	**1.5935**	**0.4205**	**0.0285**	**0.4490**		**2,457.3201**	**2,457.3201**	**0.1224**		**2,460.3811**

3.5 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6186**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	**0.0550**	**0.0371**	**0.4252**	**1.2700e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**126.4121**	**126.4121**	**3.7700e-003**		**126.5064**

3.5 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6186**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	**0.0550**	**0.0371**	**0.4252**	**1.2700e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**126.4121**	**126.4121**	**3.7700e-003**		**126.5064**

3.6 Architectural Coating - 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					
Archit. Coating	56.8323					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**57.0744**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.1174	0.0791	0.9071	2.7100e-003	0.2629	1.8400e-003	0.2647	0.0697	1.7000e-003	0.0714		269.6791	269.6791	8.0500e-003		269.8804
Total	**0.1174**	**0.0791**	**0.9071**	**2.7100e-003**	**0.2629**	**1.8400e-003**	**0.2647**	**0.0697**	**1.7000e-003**	**0.0714**		**269.6791**	**269.6791**	**8.0500e-003**		**269.8804**

3.6 Architectural Coating - 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					
Archit. Coating	56.8323					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**57.0744**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.1174	0.0791	0.9071	2.7100e-003	0.2629	1.8400e-003	0.2647	0.0697	1.7000e-003	0.0714		269.6791	269.6791	8.0500e-003		269.8804
Total	**0.1174**	**0.0791**	**0.9071**	**2.7100e-003**	**0.2629**	**1.8400e-003**	**0.2647**	**0.0697**	**1.7000e-003**	**0.0714**		**269.6791**	**269.6791**	**8.0500e-003**		**269.8804**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	2.0841	8.5704	24.3731	0.0806	6.5698	0.0775	6.6473	1.7560	0.0727	1.8288		8,179.9549	8,179.9549	0.4295		8,190.6930
Unmitigated	2.0928	8.6231	24.5721	0.0814	6.6362	0.0782	6.7144	1.7738	0.0734	1.8472		8,257.9599	8,257.9599	0.4331		8,268.7865

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,096.00	1,096.00	1096.00	3,129,412	3,098,118
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1,096.00	1,096.00	1,096.00	3,129,412	3,098,118

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Other Asphalt Surfaces	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Other Non-Asphalt Surfaces	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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	0.0553	0.4728	0.2012	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.5794	603.5794	0.0116	0.0111	607.1662
NaturalGas Unmitigated	0.0582	0.4975	0.2117	3.1800e-003		0.0402	0.0402		0.0402	0.0402		635.1170	635.1170	0.0122	0.0116	638.8912

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	5398.49	0.0582	0.4975	0.2117	3.1800e-003		0.0402	0.0402		0.0402	0.0402		635.1170	635.1170	0.0122	0.0116	638.8912
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
Total		**0.0582**	**0.4975**	**0.2117**	**3.1800e-003**		**0.0402**	**0.0402**		**0.0402**	**0.0402**		**635.1170**	**635.1170**	**0.0122**	**0.0116**	**638.8912**

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	5.13042	0.0553	0.4728	0.2012	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.5794	603.5794	0.0116	0.0111	607.1662
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
Total		**0.0553**	**0.4728**	**0.2012**	**3.0200e-003**		**0.0382**	**0.0382**		**0.0382**	**0.0382**		**603.5794**	**603.5794**	**0.0116**	**0.0111**	**607.1662**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486
Unmitigated	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486

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	1.2017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1674					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.3454	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624		20.3524	20.3524	0.0199		20.8486
Total	**5.7144**	**0.1312**	**11.3406**	**6.0000e-004**		**0.0624**	**0.0624**		**0.0624**	**0.0624**	**0.0000**	**20.3524**	**20.3524**	**0.0199**	**0.0000**	**20.8486**

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	1.2017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1674					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.3454	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624		20.3524	20.3524	0.0199		20.8486
Total	**5.7144**	**0.1312**	**11.3406**	**6.0000e-004**		**0.0624**	**0.0624**		**0.0624**	**0.0624**	**0.0000**	**20.3524**	**20.3524**	**0.0199**	**0.0000**	**20.8486**

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

Escondido Nutmeg Townhomes - Opening Year 2020

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	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	1.30	Acre	1.30	56,628.00	0
Condo/Townhouse	137.00	Dwelling Unit	5.66	192,358.00	392

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
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

Escondido Nutmeg Townhomes - Opening Year 2020 - San Diego County, Winter

Project Characteristics - Opening Year 2020

Land Use - 137 DU Townhomes on 5.66 AC and 192,358 sq ft of building; 2 AC Other Asphalt Surfaces; 1.3 AC Other Non-Asphalt Surfaces

Construction Phase - 10 days Site Prep; 68 days Grading; 230 days Building Construction; 20 days Paving; 60 days Painting.

Trips and VMT - To account for water trucks, 6 vendor trips added to both Site Prep and Grading phases.

Grading - 189,700 cubic yards imported during Grading

Architectural Coating - Residential Interior VOC set to 100 g/L per SDAPCD Rule 67.0.1

Vehicle Trips - Townhouse trip generation rate obtained from the Traffic Impact Analysis.

Woodstoves - Per project design, no woodstoves or fireplaces would be installed in the proposed townhomes.

Energy Use -

Mobile Land Use Mitigation - Provide sidewalks on project site.

Area Mitigation - Per project design, no hearths would be installed in the proposed townhomes.

Energy Mitigation - Per 2019 Title 24 requirements a 7% improvement to 2016 Title 24 and 378.8 kWh of panels will be provided.

Water Mitigation - Install low-flow fixtures and water-efficient irrigation systems

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Escondido Nutmeg Townhomes - Opening Year 2020 - San Diego County, Winter

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_Residential_Exterior	129842	92475
tblAreaCoating	Area_Residential_Interior	389525	277425
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	20.00	68.00
tblFireplaces	NumberGas	75.35	0.00
tblFireplaces	NumberNoFireplace	13.70	137.00
tblFireplaces	NumberWood	47.95	0.00
tblGrading	MaterialImported	0.00	189,700.00
tblLandUse	LandUseSquareFeet	137,000.00	192,358.00
tblLandUse	LotAcreage	8.56	5.66
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	5.67	8.00
tblVehicleTrips	SU_TR	4.84	8.00
tblVehicleTrips	WD_TR	5.81	8.00
tblWoodstoves	NumberCatalytic	6.85	0.00
tblWoodstoves	NumberNoncatalytic	6.85	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	5.7882	134.9583	41.1762	0.3046	18.2548	2.3967	20.6514	9.9816	2.2051	12.1867	0.0000	32,905.3872	32,905.3872	3.7153	0.0000	32,998.2690
2020	58.8883	23.9088	22.3092	0.0497	1.5634	1.1476	2.7110	0.4205	1.0792	1.4997	0.0000	4,899.5193	4,899.5193	0.7483	0.0000	4,918.2273
Maximum	**58.8883**	**134.9583**	**41.1762**	**0.3046**	**18.2548**	**2.3967**	**20.6514**	**9.9816**	**2.2051**	**12.1867**	**0.0000**	**32,905.3872**	**32,905.3872**	**3.7153**	**0.0000**	**32,998.2690**

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	5.7882	134.9583	41.1762	0.3046	18.2548	2.3967	20.6514	9.9816	2.2051	12.1867	0.0000	32,905.3872	32,905.3872	3.7153	0.0000	32,998.2690
2020	58.8883	23.9088	22.3092	0.0497	1.5634	1.1476	2.7110	0.4205	1.0792	1.4997	0.0000	4,899.5193	4,899.5193	0.7483	0.0000	4,918.2273
Maximum	**58.8883**	**134.9583**	**41.1762**	**0.3046**	**18.2548**	**2.3967**	**20.6514**	**9.9816**	**2.2051**	**12.1867**	**0.0000**	**32,905.3872**	**32,905.3872**	**3.7153**	**0.0000**	**32,998.2690**

	ROG	NOx	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	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486
Energy	0.0582	0.4975	0.2117	3.1800e-003		0.0402	0.0402		0.0402	0.0402		635.1170	635.1170	0.0122	0.0116	638.8912
Mobile	2.0367	8.8906	24.1843	0.0772	6.6362	0.0787	6.7149	1.7738	0.0739	1.8477		7,830.5738	7,830.5738	0.4342		7,841.4279
Total	**7.8093**	**9.5193**	**35.7365**	**0.0810**	**6.6362**	**0.1813**	**6.8175**	**1.7738**	**0.1765**	**1.9503**	**0.0000**	**8,486.0431**	**8,486.0431**	**0.4662**	**0.0116**	**8,501.1676**

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	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486
Energy	0.0553	0.4728	0.2012	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.5794	603.5794	0.0116	0.0111	607.1662
Mobile	2.0281	8.8347	24.0022	0.0764	6.5698	0.0780	6.6478	1.7560	0.0732	1.8293		7,756.4608	7,756.4608	0.4307		7,767.2291
Total	**7.7979**	**9.4387**	**35.5440**	**0.0801**	**6.5698**	**0.1786**	**6.7484**	**1.7560**	**0.1738**	**1.9299**	**0.0000**	**8,380.3926**	**8,380.3926**	**0.4622**	**0.0111**	**8,395.2438**

	ROG	NOx	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	**0.15**	**0.85**	**0.54**	**1.10**	**1.00**	**1.49**	**1.01**	**1.00**	**1.51**	**1.05**	**0.00**	**1.24**	**1.24**	**0.86**	**4.90**	**1.25**

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	7/1/2019	7/12/2019	5	10	
2	Grading	Grading	7/13/2019	10/16/2019	5	68	
3	Building Construction	Building Construction	10/17/2019	9/2/2020	5	230	
4	Paving	Paving	9/3/2020	9/30/2020	5	20	
5	Architectural Coating	Architectural Coating	9/3/2020	11/25/2020	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 34

Acres of Paving: 3.3

Residential Indoor: 389,525; Residential Outdoor: 129,842; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 8,625 (Architectural Coating – sqft)

OffRoad Equipment

Escondido Nutmeg Townhomes - Opening Year 2020 - 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	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	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	6	15.00	6.00	23,713.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	159.00	38.00	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	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 - 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					6.9444	0.0000	6.9444	3.4268	0.0000	3.4268			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.9444**	**1.3974**	**8.3417**	**3.4268**	**1.2856**	**4.7124**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	3.1123	105.8196	24.2313	0.2721	6.0935	0.4045	6.4981	1.6700	0.3870	2.0570		29,672.9432	29,672.9432	2.7676		29,742.1321
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	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
Total	**3.2077**	**106.6103**	**24.8828**	**0.2749**	**6.2574**	**0.4107**	**6.6681**	**1.7144**	**0.3929**	**2.1072**		**29,968.5804**	**29,968.5804**	**2.7861**		**30,038.2328**

3.3 Grading - 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					6.9444	0.0000	6.9444	3.4268	0.0000	3.4268			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.9444**	**1.3974**	**8.3417**	**3.4268**	**1.2856**	**4.7124**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

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	3.1123	105.8196	24.2313	0.2721	6.0935	0.4045	6.4981	1.6700	0.3870	2.0570		29,672.9432	29,672.9432	2.7676		29,742.1321
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	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
Total	**3.2077**	**106.6103**	**24.8828**	**0.2749**	**6.2574**	**0.4107**	**6.6681**	**1.7144**	**0.3929**	**2.1072**		**29,968.5804**	**29,968.5804**	**2.7861**		**30,038.2328**

3.4 Building Construction - 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					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

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	0.1824	4.7153	1.3486	0.0102	0.2573	0.0334	0.2906	0.0741	0.0319	0.1060		1,096.3010	1,096.3010	0.0924		1,098.6106
Worker	0.7061	0.4893	4.6491	0.0130	1.3062	9.3100e-003	1.3155	0.3465	8.5800e-003	0.3550		1,298.8929	1,298.8929	0.0419		1,299.9406
Total	**0.8885**	**5.2047**	**5.9977**	**0.0233**	**1.5634**	**0.0427**	**1.6061**	**0.4205**	**0.0405**	**0.4610**		**2,395.1938**	**2,395.1938**	**0.1343**		**2,398.5513**

3.4 Building Construction - 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					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

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	0.1824	4.7153	1.3486	0.0102	0.2573	0.0334	0.2906	0.0741	0.0319	0.1060		1,096.3010	1,096.3010	0.0924		1,098.6106
Worker	0.7061	0.4893	4.6491	0.0130	1.3062	9.3100e-003	1.3155	0.3465	8.5800e-003	0.3550		1,298.8929	1,298.8929	0.0419		1,299.9406
Total	**0.8885**	**5.2047**	**5.9977**	**0.0233**	**1.5634**	**0.0427**	**1.6061**	**0.4205**	**0.0405**	**0.4610**		**2,395.1938**	**2,395.1938**	**0.1343**		**2,398.5513**

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	0.1487	4.2814	1.2115	0.0101	0.2572	0.0214	0.2786	0.0741	0.0204	0.0945		1,088.5564	1,088.5564	0.0876		1,090.7462
Worker	0.6608	0.4414	4.2492	0.0126	1.3062	9.1700e-003	1.3153	0.3465	8.4400e-003	0.3549		1,257.8998	1,257.8998	0.0379		1,258.8466
Total	**0.8095**	**4.7227**	**5.4607**	**0.0228**	**1.5634**	**0.0305**	**1.5939**	**0.4205**	**0.0289**	**0.4494**		**2,346.4562**	**2,346.4562**	**0.1255**		**2,349.5929**

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	0.1487	4.2814	1.2115	0.0101	0.2572	0.0214	0.2786	0.0741	0.0204	0.0945		1,088.5564	1,088.5564	0.0876		1,090.7462
Worker	0.6608	0.4414	4.2492	0.0126	1.3062	9.1700e-003	1.3153	0.3465	8.4400e-003	0.3549		1,257.8998	1,257.8998	0.0379		1,258.8466
Total	**0.8095**	**4.7227**	**5.4607**	**0.0228**	**1.5634**	**0.0305**	**1.5939**	**0.4205**	**0.0289**	**0.4494**		**2,346.4562**	**2,346.4562**	**0.1255**		**2,349.5929**

3.5 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6186**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	**0.0623**	**0.0416**	**0.4009**	**1.1900e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**118.6698**	**118.6698**	**3.5700e-003**		**118.7591**

3.5 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6186**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

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	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	**0.0623**	**0.0416**	**0.4009**	**1.1900e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**118.6698**	**118.6698**	**3.5700e-003**		**118.7591**

3.6 Architectural Coating - 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					
Archit. Coating	56.8323					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**57.0744**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.1330	0.0888	0.8552	2.5400e-003	0.2629	1.8400e-003	0.2647	0.0697	1.7000e-003	0.0714		253.1622	253.1622	7.6200e-003		253.3528
Total	**0.1330**	**0.0888**	**0.8552**	**2.5400e-003**	**0.2629**	**1.8400e-003**	**0.2647**	**0.0697**	**1.7000e-003**	**0.0714**		**253.1622**	**253.1622**	**7.6200e-003**		**253.3528**

3.6 Architectural Coating - 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					
Archit. Coating	56.8323					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**57.0744**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.1330	0.0888	0.8552	2.5400e-003	0.2629	1.8400e-003	0.2647	0.0697	1.7000e-003	0.0714		253.1622	253.1622	7.6200e-003		253.3528
Total	**0.1330**	**0.0888**	**0.8552**	**2.5400e-003**	**0.2629**	**1.8400e-003**	**0.2647**	**0.0697**	**1.7000e-003**	**0.0714**		**253.1622**	**253.1622**	**7.6200e-003**		**253.3528**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	2.0281	8.8347	24.0022	0.0764	6.5698	0.0780	6.6478	1.7560	0.0732	1.8293		7,756.4608	7,756.4608	0.4307		7,767.2291
Unmitigated	2.0367	8.8906	24.1843	0.0772	6.6362	0.0787	6.7149	1.7738	0.0739	1.8477		7,830.5738	7,830.5738	0.4342		7,841.4279

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,096.00	1,096.00	1096.00	3,129,412	3,098,118
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1,096.00	1,096.00	1,096.00	3,129,412	3,098,118

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Other Asphalt Surfaces	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Other Non-Asphalt Surfaces	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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	0.0553	0.4728	0.2012	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.5794	603.5794	0.0116	0.0111	607.1662
NaturalGas Unmitigated	0.0582	0.4975	0.2117	3.1800e-003		0.0402	0.0402		0.0402	0.0402		635.1170	635.1170	0.0122	0.0116	638.8912

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	5398.49	0.0582	0.4975	0.2117	3.1800e-003		0.0402	0.0402		0.0402	0.0402		635.1170	635.1170	0.0122	0.0116	638.8912
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
Total		**0.0582**	**0.4975**	**0.2117**	**3.1800e-003**		**0.0402**	**0.0402**		**0.0402**	**0.0402**		**635.1170**	**635.1170**	**0.0122**	**0.0116**	**638.8912**

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	5.13042	0.0553	0.4728	0.2012	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.5794	603.5794	0.0116	0.0111	607.1662
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
Total		**0.0553**	**0.4728**	**0.2012**	**3.0200e-003**		**0.0382**	**0.0382**		**0.0382**	**0.0382**		**603.5794**	**603.5794**	**0.0116**	**0.0111**	**607.1662**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486
Unmitigated	5.7144	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624	0.0000	20.3524	20.3524	0.0199	0.0000	20.8486

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	1.2017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1674					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.3454	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624		20.3524	20.3524	0.0199		20.8486
Total	**5.7144**	**0.1312**	**11.3406**	**6.0000e-004**		**0.0624**	**0.0624**		**0.0624**	**0.0624**	**0.0000**	**20.3524**	**20.3524**	**0.0199**	**0.0000**	**20.8486**

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	1.2017					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1674					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.3454	0.1312	11.3406	6.0000e-004		0.0624	0.0624		0.0624	0.0624		20.3524	20.3524	0.0199		20.8486
Total	**5.7144**	**0.1312**	**11.3406**	**6.0000e-004**		**0.0624**	**0.0624**		**0.0624**	**0.0624**	**0.0000**	**20.3524**	**20.3524**	**0.0199**	**0.0000**	**20.8486**

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

CalEEMod Model Year 2020 Annual Printouts

Escondido Nutmeg Townhomes - Opening Year 2020

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	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	1.30	Acre	1.30	56,628.00	0
Condo/Townhouse	137.00	Dwelling Unit	5.66	192,358.00	392

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
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

Escondido Nutmeg Townhomes - Opening Year 2020 - San Diego County, Annual

Project Characteristics - Opening Year 2020

Land Use - 137 DU Townhomes on 5.66 AC and 192,358 sq ft of building; 2 AC Other Asphalt Surfaces; 1.3 AC Other Non-Asphalt Surfaces

Construction Phase - 10 days Site Prep; 68 days Grading; 230 days Building Construction; 20 days Paving; 60 days Painting.

Trips and VMT - To account for water trucks, 6 vendor trips added to both Site Prep and Grading phases.

Grading - 189,700 cubic yards imported during Grading

Architectural Coating - Residential Interior VOC set to 100 g/L per SDAPCD Rule 67.0.1

Vehicle Trips - Townhouse trip generation rate obtained from the Traffic Impact Analysis.

Woodstoves - Per project design, no woodstoves or fireplaces would be installed in the proposed townhomes.

Energy Use -

Mobile Land Use Mitigation - Provide sidewalks on project site.

Area Mitigation - Per project design, no hearths would be installed in the proposed townhomes.

Energy Mitigation - Per 2019 Title 24 requirements a 7% improvement to 2016 Title 24 and 378.8 kWh of panels will be provided (921,839 kWh per year).

Water Mitigation - Install low-flow fixtures and water-efficient irrigation systems

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

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Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_Residential_Exterior	129842	92475
tblAreaCoating	Area_Residential_Interior	389525	277425
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	20.00	68.00
tblFireplaces	NumberGas	75.35	0.00
tblFireplaces	NumberNoFireplace	13.70	137.00
tblFireplaces	NumberWood	47.95	0.00
tblGrading	MaterialImported	0.00	189,700.00
tblLandUse	LandUseSquareFeet	137,000.00	192,358.00
tblLandUse	LotAcreage	8.56	5.66
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	ST_TR	5.67	8.00
tblVehicleTrips	SU_TR	4.84	8.00
tblVehicleTrips	WD_TR	5.81	8.00
tblWoodstoves	NumberCatalytic	6.85	0.00
tblWoodstoves	NumberNoncatalytic	6.85	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	0.3025	5.5672	2.1060	0.0120	0.5769	0.1092	0.6862	0.2347	0.1017	0.3365	0.0000	1,165.5718	1,165.5718	0.1371	0.0000	1,168.9988
2020	1.9834	2.3019	2.1895	4.8000e-003	0.1433	0.1119	0.2552	0.0386	0.1053	0.1439	0.0000	429.2107	429.2107	0.0668	0.0000	430.8818
Maximum	**1.9834**	**5.5672**	**2.1895**	**0.0120**	**0.5769**	**0.1119**	**0.6862**	**0.2347**	**0.1053**	**0.3365**	**0.0000**	**1,165.5718**	**1,165.5718**	**0.1371**	**0.0000**	**1,168.9988**

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	0.3025	5.5672	2.1060	0.0120	0.5769	0.1092	0.6862	0.2347	0.1017	0.3365	0.0000	1,165.5716	1,165.5716	0.1371	0.0000	1,168.9986
2020	1.9834	2.3019	2.1895	4.8000e-003	0.1433	0.1119	0.2552	0.0386	0.1053	0.1439	0.0000	429.2105	429.2105	0.0668	0.0000	430.8816
Maximum	**1.9834**	**5.5672**	**2.1895**	**0.0120**	**0.5769**	**0.1119**	**0.6862**	**0.2347**	**0.1053**	**0.3365**	**0.0000**	**1,165.5716**	**1,165.5716**	**0.1371**	**0.0000**	**1,168.9986**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2019	9-30-2019	4.2055	4.2055
2	10-1-2019	12-31-2019	1.6059	1.6059
3	1-1-2020	3-31-2020	0.8722	0.8722
4	4-1-2020	6-30-2020	0.8681	0.8681
5	7-1-2020	9-30-2020	1.3578	1.3578
		Highest	4.2055	4.2055

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0109	0.0118	1.0207	5.0000e-005		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	1.6617	1.6617	1.6200e-003	0.0000	1.7022
Energy	0.0106	0.0908	0.0386	5.8000e-004		7.3400e-003	7.3400e-003		7.3400e-003	7.3400e-003	0.0000	330.0593	330.0593	0.0111	3.8000e-003	331.4686
Mobile	0.3615	1.6223	4.3518	0.0142	1.1794	0.0143	1.1937	0.3159	0.0134	0.3293	0.0000	1,304.8336	1,304.8336	0.0710	0.0000	1,306.6079
Waste						0.0000	0.0000		0.0000	0.0000	12.7925	0.0000	12.7925	0.7560	0.0000	31.6929
Water						0.0000	0.0000		0.0000	0.0000	2.8318	58.4159	61.2477	0.2932	7.3500e-003	70.7695
Total	**1.3831**	**1.7249**	**5.4111**	**0.0148**	**1.1794**	**0.0272**	**1.2067**	**0.3159**	**0.0263**	**0.3422**	**15.6243**	**1,694.9705**	**1,710.5948**	**1.1329**	**0.0112**	**1,742.2411**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0109	0.0118	1.0207	5.0000e-005		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	1.6617	1.6617	1.6200e-003	0.0000	1.7022
Energy	0.0101	0.0863	0.0367	5.5000e-004		6.9800e-003	6.9800e-003		6.9800e-003	6.9800e-003	0.0000	22.8607	22.8607	-0.0012	1.1900e-003	23.1857
Mobile	0.3600	1.6121	4.3184	0.0140	1.1677	0.0141	1.1818	0.3127	0.0133	0.3260	0.0000	1,292.5133	1,292.5133	0.0704	0.0000	1,294.2733
Waste						0.0000	0.0000		0.0000	0.0000	6.3963	0.0000	6.3963	0.3780	0.0000	15.8464
Water						0.0000	0.0000		0.0000	0.0000	2.2655	49.5727	51.8382	0.2347	5.9100e-003	59.4655
Total	**1.3810**	**1.7102**	**5.3757**	**0.0146**	**1.1677**	**0.0267**	**1.1944**	**0.3127**	**0.0259**	**0.3386**	**8.6617**	**1,366.6084**	**1,375.2701**	**0.6835**	**7.1000e-003**	**1,394.4732**

	ROG	NOx	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	**0.15**	**0.85**	**0.65**	**1.08**	**1.00**	**1.80**	**1.02**	**1.00**	**1.82**	**1.06**	**44.56**	**19.37**	**19.60**	**39.67**	**36.32**	**19.96**

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2019	7/12/2019	5	10	
2	Grading	Grading	7/13/2019	10/16/2019	5	68	
3	Building Construction	Building Construction	10/17/2019	9/2/2020	5	230	
4	Paving	Paving	9/3/2020	9/30/2020	5	20	
5	Architectural Coating	Architectural Coating	9/3/2020	11/25/2020	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 34

Acres of Paving: 3.3

Residential Indoor: 389,525; Residential Outdoor: 129,842; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 8,625 (Architectural Coating – sqft)

OffRoad Equipment

Escondido Nutmeg Townhomes - Opening Year 2020 - 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	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	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	6	15.00	6.00	23,713.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	159.00	38.00	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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	3.7700e-003	1.0100e-003	1.0000e-005	2.0000e-004	3.0000e-005	2.3000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.7970	0.7970	6.0000e-005	0.0000	0.7986
Worker	3.5000e-004	2.7000e-004	2.6300e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6737	0.6737	2.0000e-005	0.0000	0.6742
Total	**4.9000e-004**	**4.0400e-003**	**3.6400e-003**	**2.0000e-005**	**9.2000e-004**	**4.0000e-005**	**9.6000e-004**	**2.5000e-004**	**2.0000e-005**	**2.8000e-004**	**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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0217	0.2279	0.1103	1.9000e-004		0.0120	0.0120		0.0110	0.0110	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0217**	**0.2279**	**0.1103**	**1.9000e-004**	**0.0903**	**0.0120**	**0.1023**	**0.0497**	**0.0110**	**0.0607**	**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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	3.7700e-003	1.0100e-003	1.0000e-005	2.0000e-004	3.0000e-005	2.3000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.7970	0.7970	6.0000e-005	0.0000	0.7986
Worker	3.5000e-004	2.7000e-004	2.6300e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6737	0.6737	2.0000e-005	0.0000	0.6742
Total	**4.9000e-004**	**4.0400e-003**	**3.6400e-003**	**2.0000e-005**	**9.2000e-004**	**4.0000e-005**	**9.6000e-004**	**2.5000e-004**	**2.0000e-005**	**2.8000e-004**	**0.0000**	**1.4707**	**1.4707**	**8.0000e-005**	**0.0000**	**1.4728**

3.3 Grading - 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					0.2361	0.0000	0.2361	0.1165	0.0000	0.1165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0877	0.9638	0.5540	1.0100e-003		0.0475	0.0475		0.0437	0.0437	0.0000	90.5837	90.5837	0.0287	0.0000	91.3002
Total	**0.0877**	**0.9638**	**0.5540**	**1.0100e-003**	**0.2361**	**0.0475**	**0.2836**	**0.1165**	**0.0437**	**0.1602**	**0.0000**	**90.5837**	**90.5837**	**0.0287**	**0.0000**	**91.3002**

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	0.1042	3.6334	0.7926	9.3400e-003	0.2029	0.0136	0.2165	0.0557	0.0130	0.0687	0.0000	924.3263	924.3263	0.0837	0.0000	926.4184
Vendor	9.6000e-004	0.0256	6.8800e-003	6.0000e-005	1.3500e-003	1.8000e-004	1.5300e-003	3.9000e-004	1.7000e-004	5.6000e-004	0.0000	5.4198	5.4198	4.3000e-004	0.0000	5.4307
Worker	2.0100e-003	1.5400e-003	0.0149	4.0000e-005	4.0900e-003	3.0000e-005	4.1200e-003	1.0900e-003	3.0000e-005	1.1100e-003	0.0000	3.8173	3.8173	1.2000e-004	0.0000	3.8204
Total	**0.1071**	**3.6606**	**0.8144**	**9.4400e-003**	**0.2083**	**0.0138**	**0.2221**	**0.0572**	**0.0132**	**0.0704**	**0.0000**	**933.5634**	**933.5634**	**0.0842**	**0.0000**	**935.6695**

3.3 Grading - 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					0.2361	0.0000	0.2361	0.1165	0.0000	0.1165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0877	0.9638	0.5540	1.0100e-003		0.0475	0.0475		0.0437	0.0437	0.0000	90.5836	90.5836	0.0287	0.0000	91.3001
Total	**0.0877**	**0.9638**	**0.5540**	**1.0100e-003**	**0.2361**	**0.0475**	**0.2836**	**0.1165**	**0.0437**	**0.1602**	**0.0000**	**90.5836**	**90.5836**	**0.0287**	**0.0000**	**91.3001**

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	0.1042	3.6334	0.7926	9.3400e-003	0.2029	0.0136	0.2165	0.0557	0.0130	0.0687	0.0000	924.3263	924.3263	0.0837	0.0000	926.4184
Vendor	9.6000e-004	0.0256	6.8800e-003	6.0000e-005	1.3500e-003	1.8000e-004	1.5300e-003	3.9000e-004	1.7000e-004	5.6000e-004	0.0000	5.4198	5.4198	4.3000e-004	0.0000	5.4307
Worker	2.0100e-003	1.5400e-003	0.0149	4.0000e-005	4.0900e-003	3.0000e-005	4.1200e-003	1.0900e-003	3.0000e-005	1.1100e-003	0.0000	3.8173	3.8173	1.2000e-004	0.0000	3.8204
Total	**0.1071**	**3.6606**	**0.8144**	**9.4400e-003**	**0.2083**	**0.0138**	**0.2221**	**0.0572**	**0.0132**	**0.0704**	**0.0000**	**933.5634**	**933.5634**	**0.0842**	**0.0000**	**935.6695**

3.4 Building Construction - 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					
Off-Road	0.0638	0.5691	0.4634	7.3000e-004		0.0348	0.0348		0.0327	0.0327	0.0000	63.4781	63.4781	0.0155	0.0000	63.8647
Total	**0.0638**	**0.5691**	**0.4634**	**7.3000e-004**		**0.0348**	**0.0348**		**0.0327**	**0.0327**	**0.0000**	**63.4781**	**63.4781**	**0.0155**	**0.0000**	**63.8647**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8100e-003	0.1288	0.0346	2.8000e-004	6.8100e-003	8.9000e-004	7.7000e-003	1.9700e-003	8.5000e-004	2.8200e-003	0.0000	27.2586	27.2586	2.1900e-003	0.0000	27.3133
Worker	0.0169	0.0130	0.1256	3.6000e-004	0.0344	2.5000e-004	0.0347	9.1500e-003	2.3000e-004	9.3800e-003	0.0000	32.1330	32.1330	1.0300e-003	0.0000	32.1588
Total	**0.0217**	**0.1418**	**0.1602**	**6.4000e-004**	**0.0412**	**1.1400e-003**	**0.0424**	**0.0111**	**1.0800e-003**	**0.0122**	**0.0000**	**59.3915**	**59.3915**	**3.2200e-003**	**0.0000**	**59.4720**

3.4 Building Construction - 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					
Off-Road	0.0638	0.5691	0.4634	7.3000e-004		0.0348	0.0348		0.0327	0.0327	0.0000	63.4781	63.4781	0.0155	0.0000	63.8647
Total	**0.0638**	**0.5691**	**0.4634**	**7.3000e-004**		**0.0348**	**0.0348**		**0.0327**	**0.0327**	**0.0000**	**63.4781**	**63.4781**	**0.0155**	**0.0000**	**63.8647**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8100e-003	0.1288	0.0346	2.8000e-004	6.8100e-003	8.9000e-004	7.7000e-003	1.9700e-003	8.5000e-004	2.8200e-003	0.0000	27.2586	27.2586	2.1900e-003	0.0000	27.3133
Worker	0.0169	0.0130	0.1256	3.6000e-004	0.0344	2.5000e-004	0.0347	9.1500e-003	2.3000e-004	9.3800e-003	0.0000	32.1330	32.1330	1.0300e-003	0.0000	32.1588
Total	**0.0217**	**0.1418**	**0.1602**	**6.4000e-004**	**0.0412**	**1.1400e-003**	**0.0424**	**0.0111**	**1.0800e-003**	**0.0122**	**0.0000**	**59.3915**	**59.3915**	**3.2200e-003**	**0.0000**	**59.4720**

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	0.1866	1.6884	1.4827	2.3700e-003		0.0983	0.0983		0.0924	0.0924	0.0000	203.8168	203.8168	0.0497	0.0000	205.0599
Total	**0.1866**	**1.6884**	**1.4827**	**2.3700e-003**		**0.0983**	**0.0983**		**0.0924**	**0.0924**	**0.0000**	**203.8168**	**203.8168**	**0.0497**	**0.0000**	**205.0599**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0127	0.3812	0.1013	9.1000e-004	0.0222	1.8600e-003	0.0241	6.4100e-003	1.7800e-003	8.1900e-003	0.0000	88.2353	88.2353	6.7600e-003	0.0000	88.4044
Worker	0.0516	0.0382	0.3744	1.1200e-003	0.1122	8.1000e-004	0.1130	0.0298	7.4000e-004	0.0306	0.0000	101.4246	101.4246	3.0400e-003	0.0000	101.5007
Total	**0.0643**	**0.4194**	**0.4757**	**2.0300e-003**	**0.1344**	**2.6700e-003**	**0.1371**	**0.0362**	**2.5200e-003**	**0.0388**	**0.0000**	**189.6598**	**189.6598**	**9.8000e-003**	**0.0000**	**189.9051**

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	0.1866	1.6884	1.4827	2.3700e-003		0.0983	0.0983		0.0924	0.0924	0.0000	203.8165	203.8165	0.0497	0.0000	205.0596
Total	**0.1866**	**1.6884**	**1.4827**	**2.3700e-003**		**0.0983**	**0.0983**		**0.0924**	**0.0924**	**0.0000**	**203.8165**	**203.8165**	**0.0497**	**0.0000**	**205.0596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0127	0.3812	0.1013	9.1000e-004	0.0222	1.8600e-003	0.0241	6.4100e-003	1.7800e-003	8.1900e-003	0.0000	88.2353	88.2353	6.7600e-003	0.0000	88.4044
Worker	0.0516	0.0382	0.3744	1.1200e-003	0.1122	8.1000e-004	0.1130	0.0298	7.4000e-004	0.0306	0.0000	101.4246	101.4246	3.0400e-003	0.0000	101.5007
Total	**0.0643**	**0.4194**	**0.4757**	**2.0300e-003**	**0.1344**	**2.6700e-003**	**0.1371**	**0.0362**	**2.5200e-003**	**0.0388**	**0.0000**	**189.6598**	**189.6598**	**9.8000e-003**	**0.0000**	**189.9051**

3.5 Paving - 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	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0162**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.0100e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0873	1.0873	3.0000e-005	0.0000	1.0881
Total	**5.5000e-004**	**4.1000e-004**	**4.0100e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0873**	**1.0873**	**3.0000e-005**	**0.0000**	**1.0881**

3.5 Paving - 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	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0162**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.0100e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0873	1.0873	3.0000e-005	0.0000	1.0881
Total	**5.5000e-004**	**4.1000e-004**	**4.0100e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0873**	**1.0873**	**3.0000e-005**	**0.0000**	**1.0881**

3.6 Architectural Coating - 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					
Archit. Coating	1.7050					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2700e-003	0.0505	0.0549	9.0000e-005		3.3300e-003	3.3300e-003		3.3300e-003	3.3300e-003	0.0000	7.6598	7.6598	5.9000e-004	0.0000	7.6746
Total	**1.7122**	**0.0505**	**0.0549**	**9.0000e-005**		**3.3300e-003**	**3.3300e-003**		**3.3300e-003**	**3.3300e-003**	**0.0000**	**7.6598**	**7.6598**	**5.9000e-004**	**0.0000**	**7.6746**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5400e-003	2.6200e-003	0.0257	8.0000e-005	7.7000e-003	6.0000e-005	7.7500e-003	2.0500e-003	5.0000e-005	2.1000e-003	0.0000	6.9588	6.9588	2.1000e-004	0.0000	6.9640
Total	**3.5400e-003**	**2.6200e-003**	**0.0257**	**8.0000e-005**	**7.7000e-003**	**6.0000e-005**	**7.7500e-003**	**2.0500e-003**	**5.0000e-005**	**2.1000e-003**	**0.0000**	**6.9588**	**6.9588**	**2.1000e-004**	**0.0000**	**6.9640**

3.6 Architectural Coating - 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					
Archit. Coating	1.7050					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2700e-003	0.0505	0.0549	9.0000e-005		3.3300e-003	3.3300e-003		3.3300e-003	3.3300e-003	0.0000	7.6598	7.6598	5.9000e-004	0.0000	7.6746
Total	**1.7122**	**0.0505**	**0.0549**	**9.0000e-005**		**3.3300e-003**	**3.3300e-003**		**3.3300e-003**	**3.3300e-003**	**0.0000**	**7.6598**	**7.6598**	**5.9000e-004**	**0.0000**	**7.6746**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5400e-003	2.6200e-003	0.0257	8.0000e-005	7.7000e-003	6.0000e-005	7.7500e-003	2.0500e-003	5.0000e-005	2.1000e-003	0.0000	6.9588	6.9588	2.1000e-004	0.0000	6.9640
Total	**3.5400e-003**	**2.6200e-003**	**0.0257**	**8.0000e-005**	**7.7000e-003**	**6.0000e-005**	**7.7500e-003**	**2.0500e-003**	**5.0000e-005**	**2.1000e-003**	**0.0000**	**6.9588**	**6.9588**	**2.1000e-004**	**0.0000**	**6.9640**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	0.3600	1.6121	4.3184	0.0140	1.1677	0.0141	1.1818	0.3127	0.0133	0.3260	0.0000	1,292.5133	1,292.5133	0.0704	0.0000	1,294.2733
Unmitigated	0.3615	1.6223	4.3518	0.0142	1.1794	0.0143	1.1937	0.3159	0.0134	0.3293	0.0000	1,304.8336	1,304.8336	0.0710	0.0000	1,306.6079

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,096.00	1,096.00	1096.00	3,129,412	3,098,118
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1,096.00	1,096.00	1,096.00	3,129,412	3,098,118

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Other Asphalt Surfaces	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Other Non-Asphalt Surfaces	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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	0.0000		0.0000	0.0000	0.0000	-77.0686	-77.0686	-0.0031	-0.0006	-77.3375
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	224.9086	224.9086	9.0500e-003	1.8700e-003	225.6930
NaturalGas Mitigated	0.0101	0.0863	0.0367	5.5000e-004		6.9800e-003	6.9800e-003		6.9800e-003	6.9800e-003	0.0000	99.9293	99.9293	1.9200e-003	1.8300e-003	100.5232
NaturalGas Unmitigated	0.0106	0.0908	0.0386	5.8000e-004		7.3400e-003	7.3400e-003		7.3400e-003	7.3400e-003	0.0000	105.1507	105.1507	2.0200e-003	1.9300e-003	105.7756

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	1.97045e+006	0.0106	0.0908	0.0386	5.8000e-004		7.3400e-003	7.3400e-003		7.3400e-003	7.3400e-003	0.0000	105.1507	105.1507	2.0200e-003	1.9300e-003	105.7756
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	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	0.0000
Total		**0.0106**	**0.0908**	**0.0386**	**5.8000e-004**		**7.3400e-003**	**7.3400e-003**		**7.3400e-003**	**7.3400e-003**	**0.0000**	**105.1507**	**105.1507**	**2.0200e-003**	**1.9300e-003**	**105.7756**

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	1.87261e+006	0.0101	0.0863	0.0367	5.5000e-004		6.9800e-003	6.9800e-003		6.9800e-003	6.9800e-003	0.0000	99.9293	99.9293	1.9200e-003	1.8300e-003	100.5232
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	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	0.0000
Total		**0.0101**	**0.0863**	**0.0367**	**5.5000e-004**		**6.9800e-003**	**6.9800e-003**		**6.9800e-003**	**6.9800e-003**	**0.0000**	**99.9293**	**99.9293**	**1.9200e-003**	**1.8300e-003**	**100.5232**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	688196	224.9086	9.0500e-003	1.8700e-003	225.6930
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
Total		**224.9086**	**9.0500e-003**	**1.8700e-003**	**225.6930**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	378738	123.7747	4.9800e-003	1.0300e-003	124.2065
Other Asphalt Surfaces	-307280	-100.4217	-0.0040	-0.0008	-100.7720
Other Non-Asphalt Surfaces	-307280	-100.4217	-0.0040	-0.0008	-100.7720
Total		**-77.0686**	**-0.0031**	**-0.0007**	**-77.3375**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0109	0.0118	1.0207	5.0000e-005		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	1.6617	1.6617	1.6200e-003	0.0000	1.7022
Unmitigated	1.0109	0.0118	1.0207	5.0000e-005		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	1.6617	1.6617	1.6200e-003	0.0000	1.7022

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	0.2193					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7606					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0311	0.0118	1.0207	5.0000e-005		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	1.6617	1.6617	1.6200e-003	0.0000	1.7022
Total	**1.0109**	**0.0118**	**1.0207**	**5.0000e-005**		**5.6100e-003**	**5.6100e-003**		**5.6100e-003**	**5.6100e-003**	**0.0000**	**1.6617**	**1.6617**	**1.6200e-003**	**0.0000**	**1.7022**

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	0.2193					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7606					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0311	0.0118	1.0207	5.0000e-005		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	1.6617	1.6617	1.6200e-003	0.0000	1.7022
Total	**1.0109**	**0.0118**	**1.0207**	**5.0000e-005**		**5.6100e-003**	**5.6100e-003**		**5.6100e-003**	**5.6100e-003**	**0.0000**	**1.6617**	**1.6617**	**1.6200e-003**	**0.0000**	**1.7022**

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	51.8382	0.2347	5.9100e-003	59.4655
Unmitigated	61.2477	0.2932	7.3500e-003	70.7695

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	8.9261 / 5.62732	61.2477	0.2932	7.3500e-003	70.7695
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
Total		**61.2477**	**0.2932**	**7.3500e-003**	**70.7695**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	7.14088 / 5.28406	51.8382	0.2347	5.9100e-003	59.4655
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
Total		**51.8382**	**0.2347**	**5.9100e-003**	**59.4655**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.3963	0.3780	0.0000	15.8464
Unmitigated	12.7925	0.7560	0.0000	31.6929

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	63.02	12.7925	0.7560	0.0000	31.6929
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
Total		**12.7925**	**0.7560**	**0.0000**	**31.6929**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	31.51	6.3963	0.3780	0.0000	15.8464
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
Total		**6.3963**	**0.3780**	**0.0000**	**15.8464**

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