APPENDIX H

Greenhouse Gas Emissions Technical Report

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Greenhouse Gas Emissions Technical Report for the North River Farms Project Oceanside, California

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Oceanside
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
E-CAP	Climate Action Element
EIR	environmental impact report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
General Plan	City of Oceanside General Plan
GHG	greenhouse gas
GWP	global warming potential
HCFC	hydrochlorofluorocarbon
I-	Interstate
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
MT	metric ton
MMT	million metric ton
N_2O	nitrous oxide
NHTSA	National Highway Traffic Safety Administration
O_3	ozone
PFC	perfluorocarbon
PV	photovoltaic
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCS	Sustainable Communities Strategy
SDAPCD	San Diego Air Pollution Control District
SF_6	sulfur hexafluoride
SLCP	short-lived climate pollutants

Acronym/Abbreviation	Definition
TDM	Transportation Demand Management
ZEV	Zero Emissions Vehicle
ZNE	zero net energy

EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential greenhouse gas (GHG) impacts associated with implementation of the proposed North River Farms Project (Proposed Project). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

Project Overview

The Proposed Project consists of developing an agriculture-based community, which consists of an approximately 176.6-acre site with 559 single-family residential dwelling units and 130 multi-family residential dwelling units. Of the 176.6-acre site, approximately 31.6 acres would be dedicated for community agriculture, 24.9 acres dedicated to the commercial Village Core, which includes development of a restaurant, boutique hotel, a variety of space dedicated for specialty shops, agriculture, and park areas. The remainder of the project site, approximately 16 acres, would be dedicated for parks and open space.

Impact Analysis Summary

This GHG emissions analysis evaluates the potential for the Proposed Project to generate GHG emissions during construction and operation that may have a significant impact on the environment, and the potential for the Proposed Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Principal GHGs regulated under state and federal law includes carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential factors for CH_4 and N_2O. Estimated annual Proposed Project-generated emissions at full buildout in 2025 from area, energy, mobile, solid waste, and water/wastewater emissions sources, sequestered carbon, as well as amortized Proposed Project construction emissions, were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 (CAPCOA 2017).[1]

Potential to Generate Significant GHG Emissions

Construction of the Proposed Project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. Total Proposed Project-generated GHG emissions during construction were estimated to be 4,951 MT CO_2e, or 165 MT CO_2e per year when amortized over 30 years.

[1] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects.

The Proposed Project would generate operational GHG emissions from area sources (landscape maintenance equipment), energy sources (natural gas and electricity consumption), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. Estimated annual Proposed Project-generated operational GHG emissions at buildout in 2025 would be approximately 10,288 MT CO_2e per year.

Estimated annual Proposed Project-generated operational emissions in 2025, plus amortized Proposed Project construction emissions, would be approximately 10,453 MT CO_2e per year. The Proposed Project would result in the removal of vegetation (existing forest, scrub, and crop land) of approximately 163.70 acres. The removal of vegetation would result in the one-time release of sequestered carbon of approximately 1,049 MT CO_2e (or 35 MT CO_2e per year when amortized over 30 years). The emissions associated with the removal of vegetation would be in most part offset by the planting of at least 1,472 new tress, which would result in the one-time sequestration of approximately 1,042 MT CO_2e (or 35 MT CO_2e per year when amortized over 30 years). Therefore, Proposed Project-generated operational GHG emissions (10,288 MT CO_2e per year) plus amortized construction GHG emissions (165 MT CO_2e per year) and loss of sequestered carbon (35 MT CO_2e per year) minus the sequestered carbon from planting trees (35 MT CO_2e per year) results in annual Proposed Project emissions of 10,453 MT CO_2e per year. The Proposed Project would result in a service population of 2,161 people. The service population is based on SANDAG's Series 13 Regional Growth Forecast, which estimates an average household size of 2.86 persons per dwelling unit and 13.8 employees per developed acre by 2025. Further, an efficiency metric threshold was calculated by interpolating the City's efficiency metric thresholds of 3.0 MT per service population per year (MT CO_2e/SP/yr) for 2020 and 4.0 MT CO_2e/SP/yr for 2030. Based on the Proposed Project's service population and estimated operational GHG emissions, the Proposed Project would result in 4.8 MT CO_2e/SP/yr, which would exceed the calculated efficiency metric of 3.5 MT CO_2e/SP/yr for a build-out year of 2025. Therefore, the Proposed Project would have a **potentially significant** impact, and mitigation is required.

Implementing MM-GHG-1 ~~and~~through ~~MM-GHG-2~~MM-GHG-3 would reduce Proposed Project GHG emissions through energy, water, and waste conservation measures in addition to the purchasing of carbon offsets. With mitigation, the Proposed Project's impacts would be reduced to **less than significant**.

Consistency with Applicable GHG Reduction Plans

The Proposed Project was shown to be consistent with San Diego Association of Governments' (SANDAG's) Regional Plan, City of Oceanside's General Plan (General Plan); however, the Proposed Project could conflict with the goals of Senate Bill (SB) 32, and Executive Order (EO) S-3-05 because

the Proposed Project would exceed the calculated efficiency metric before mitigation. With implementation of MM-GHG-1 ~~and~~ through MM-GHG-3~~2~~, the Proposed Project would reduce GHG emissions to a level that does not exceed the calculated efficiency metric of 3.5 MT CO_2e/SP/yr. Therefore, the Proposed Project would not conflict with an applicable plan adopted for the purpose of reducing GHG emissions, and plan consistency impacts would be **less than significant**.

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1 INTRODUCTION

1.1 Report Purpose and Scope

The purpose of this report is to evaluate the potential greenhouse gas (GHG) emissions impacts associated with construction and operation of the proposed North River Farms Project (Proposed Project) located in the City of Oceanside (City), California, within the County of San Diego (County). Potential GHG impacts are evaluated for their significance based on the criteria provided in the City's Initial Study Checklist (City of Oceanside 2011).

This introductory section provides a description of the Proposed Project. Section 2, Environmental Setting, describes the local environment. Section 3, Regulatory Setting, identifies relevant federal, state, and local regulations and policies regarding GHG emissions. Section 4, Significance Criteria and Analysis Methodologies, includes the thresholds of significance applied herein, which are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, and presents the methodology for estimating emissions and evaluating impacts. Section 5, Project Impact Analysis, evaluates the Proposed Project's potential impacts per the thresholds identified in Section 4. Section 6, References, provides a list of the references cited. Section 7, List of Preparers, provides a list of those who prepared this technical report.

1.2 Regional and Local Setting

The Proposed Project site is located in the City of Oceanside, along North River Road and is situated directly north of State Route 76 (SR-76). The Proposed Project site consists of approximately 176.6 acres. Figures 1 and 2, Regional Map and Vicinity Map, show the Proposed Project location within the County of San Diego and the City. Regionally, the City is situated within the northeastern portion of San Diego County, about 46 miles north of Downtown San Diego via Interstate 5 (I-5). The project site is generally bisected into northern and southern sections by the existing North River Road alignment. The northern portion of the project site is bordered on the east by Wilshire Road. The Proposed Project is approximately 7.7 miles to the east of I-5, and about 0.32 mile north of SR-76. The Proposed Project is adjacent to the San Luis Rey River.

The Proposed Project is located within the San Diego Air Basin and is within the jurisdictional boundaries of the San Diego Air Pollution Control District (SDAPCD). The San Diego Air Basin and the SDAPCD are discussed further in Chapter 2, Environmental Setting, and Chapter 3, Regulatory Setting, respectively.

1.3 Proposed Project Description

The Proposed Project is located within the northeastern portion of the City (Figures 1 and 2) and is situated directly north of SR-76 and is bisected by North River Road. Existing land uses surrounding and within the project area includes agriculture, institutional (church and school), and residential uses. Integral Communities is proposing to develop an agriculture-based community, which consists of an approximately 176.6-acre site with 559 single-family residential dwelling units and 130 multi-family residential dwelling units. Of the 176.6-acre site, approximately 31.6 acres would be dedicated for community agriculture, 24.9 acres dedicated to the commercial Village Core, which includes development of a restaurant, boutique hotel, a variety of space dedicated for specialty shops, agriculture, and park areas. The remainder of the project site, approximately 16 acres, would be dedicated for parks and open space. (see Figure 3).

Construction of the Proposed Project is expected to commence mid-2019 occurring over a 5-year period with buildout at the end of 2024. Demolition of existing on-site structures would last for 1-month. Site preparation would occur thereafter and would require approximately 1-month. Grading of approximately 155 acres of the project site would be completed over a 7-month period from the end of 2019 through the beginning of 2020. Site paving would occur over a 6-month period following grading, which would include the paving of roadways and other asphalt surfaces. The development of site infrastructure and building construction including single-family and multifamily residential uses, the Village Core, and agriculture facilities, would occur over 4 years beginning in late 2020. For purposes of modeling, it was assumed that architectural coatings would be applied halfway through the building construction phase, late 2022 and would last approximately 2 years.

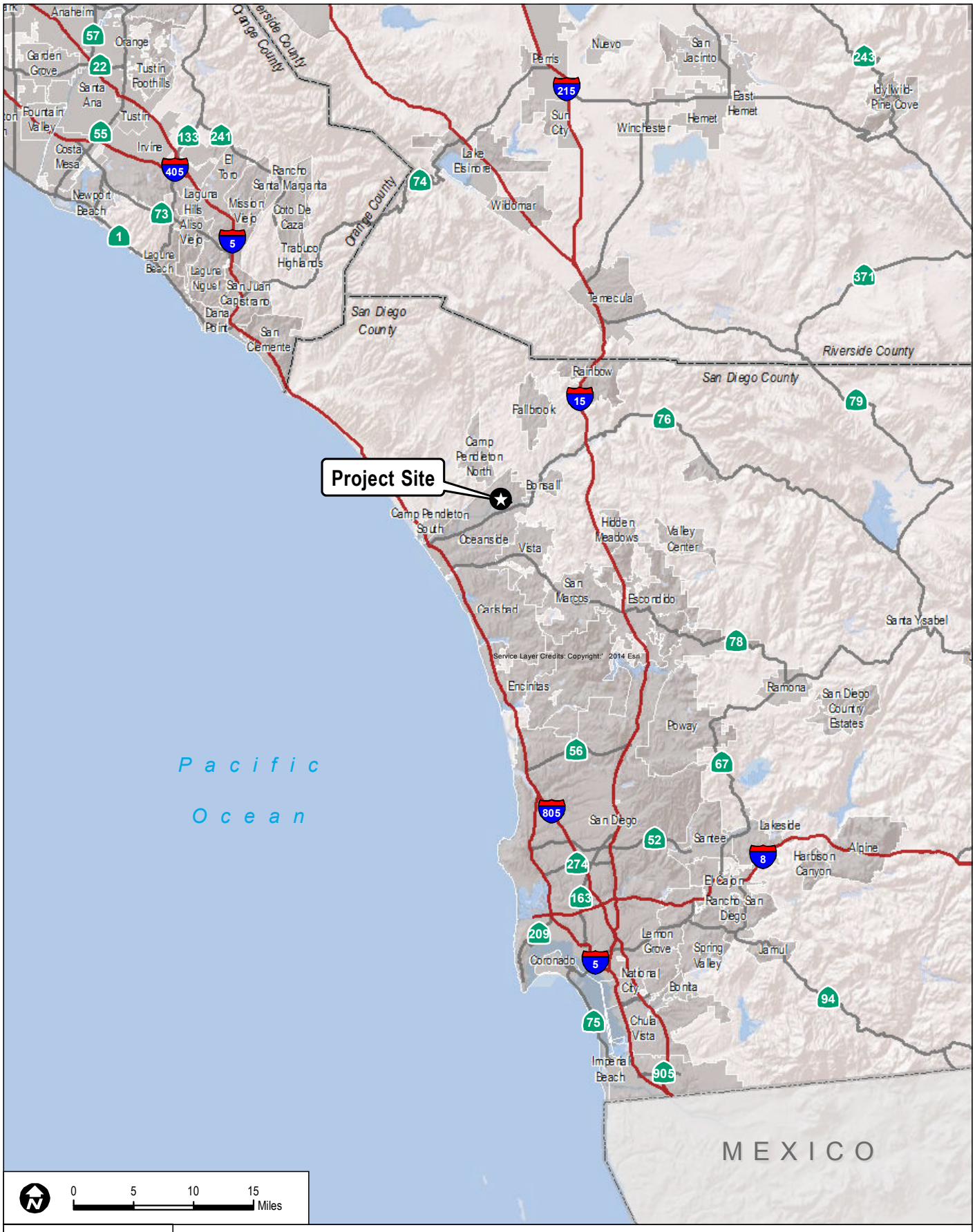

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FIGURE 1
Regional Map

North River Farms Project Greenhouse Gas Emissions Technical Report

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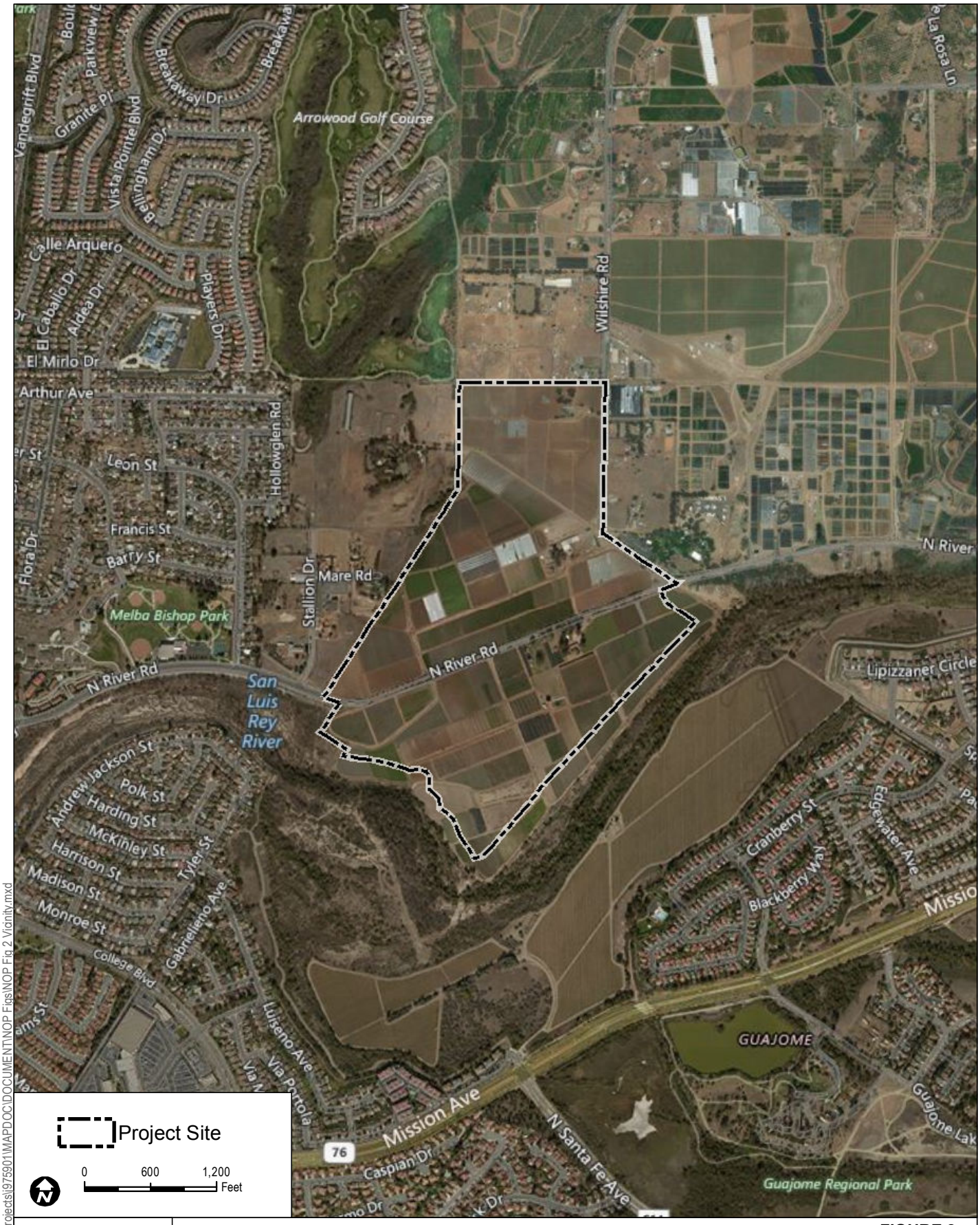

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AERIAL SOURCE: BING MAPPING SERVICE

FIGURE 2
Vicinity Map

North River Farms Project Greenhouse Gas Emissions Technical Report

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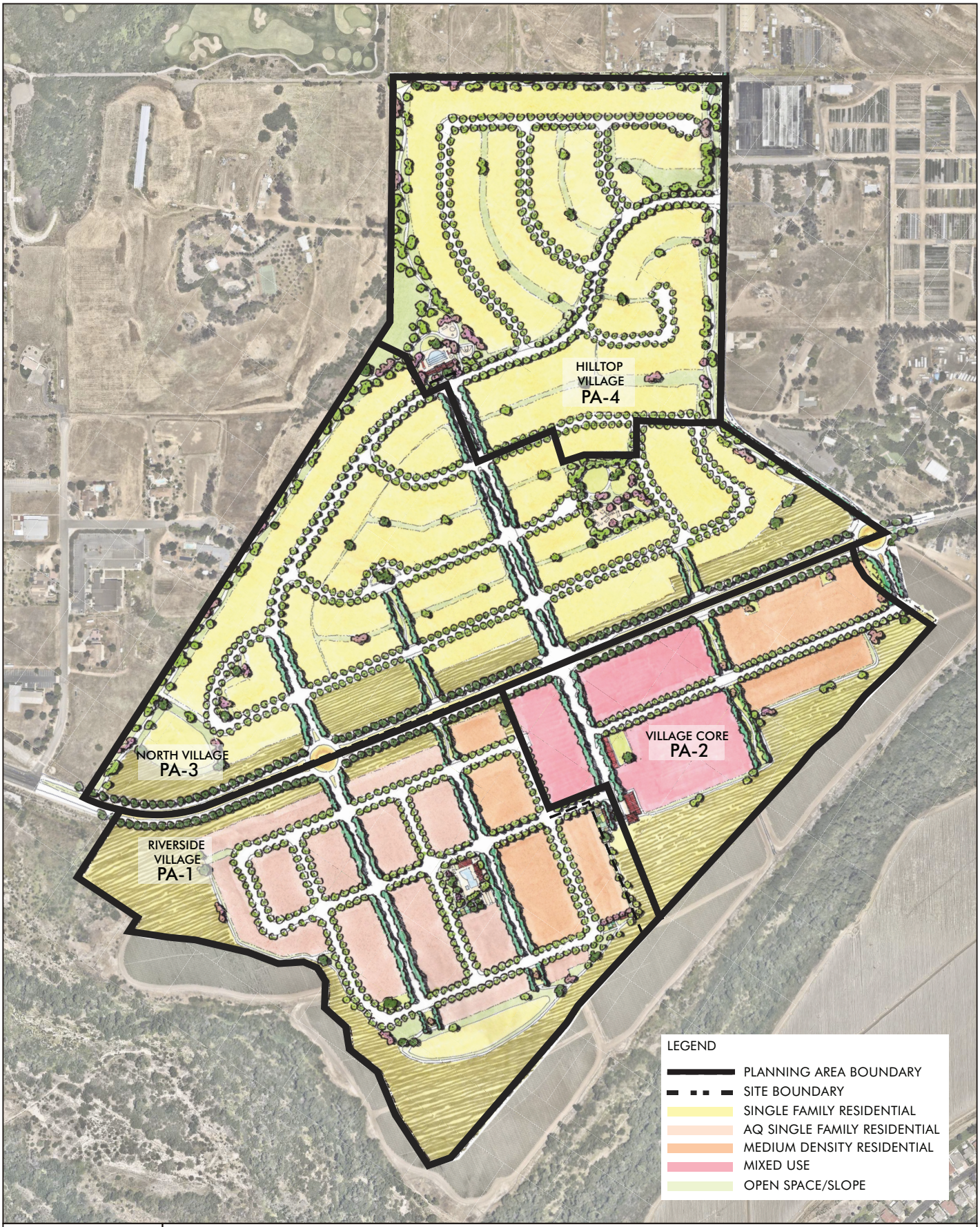

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1 inch = 200 feet

SOURCE: SWA 2017

FIGURE 3
Land Use Plan

North River Farms Project Greenhouse Gas Emissions Technical Report

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2 ENVIRONMENTAL SETTING

2.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and is the most significant driver of observed climate change (IPCC 2013, EPA 2017). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 2.6, Potential Effects of Climate Change.

2.2 GHGs and other Climate-Forcing Substances

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).[2] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[3] Also included is a discussion of other climate forcing substances.

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood, and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, race cars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for

[2] California Health and Safety Code 38505 identifies seven GHGs that the California Air Resources Board (CARB) is responsible for monitoring and regulating to reduce emissions: CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, and NF_3.

[3] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's Glossary of Terms Used in GHG Inventories (2015), and the U.S. Environmental Protection Agency's (EPA's) Glossary of Climate Change Terms (2016d).

stratospheric O_3-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the O_3-depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere), and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter ($PM_{2.5}$), which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential (GWP). Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminants that have been regulated and controlled in California for

several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board's (CARB's) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas 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.

2.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016). The Intergovernmental Panel on Climate Change (IPCC) developed the GWP concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of carbon dioxide equivalent (MT CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Proposed Project.

2.4 Sources of GHG Emissions

Global Inventory

Anthropogenic GHG emissions worldwide in 2014 (the most recent year for which data is available) totaled approximately 45,741 million metric tons (MMT) CO_2e, excluding land use change and forestry (WRI 2015). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, approximately 29,920 MMT CO_2e (WRI 2015). Table 2 presents the top GHG-emissions-producing countries.

Table 1
Six Top GHG Producer Countries and the European Union

Emitting Countries	GHG Emissions (MMT CO_2e)
China	11,911.71
United States	6,371.10
European Union	4,053.66
India	3,079.81
Russian Federation	2,137.83
Japan	1,314.59
Brazil	1,051.00
Total	**29,919.70**

Source: WRI 2015.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.

National and State Inventories

Per the U.S. Environmental Protection Agency's (EPA's) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2016 (EPA 2018), total U.S. GHG emissions were approximately 6,511.3 MMT CO_2e in 2016. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6% of total GHG emissions (5,310.9 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.5% of CO_2 emissions in 2016 (4,996.0 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2016 are higher by 2.4%, down from a high of 15.7% above 1990 levels in 2007. GHG emissions decreased from 2015 to 2016 by 1.9% (126.8 MMT CO_2e) and overall, net emissions in 2016 were 11.1% below 2005 levels (EPA 2018).

According to California's 2000–2015 GHG emissions inventory (2017 edition), California emitted 440.36 MMT CO_2e in 2015, including emissions resulting from out-of-state electrical generation (CARB 2017a). The sources of GHG emissions in California include transportation, industrial uses, electric

power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan; CARB 2008)) and their relative contributions in 2015 are presented in Table 2.

Table 2
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	164.63	37%
Industrial uses[b]	91.71	21%
Electricity generation[c]	83.67	19%
Residential and commercial uses	37.92	9%
Agriculture	34.65	8%
High GWP substances	19.05	4%
Recycling and waste	8.73	2%
Totals	**440.36**	**100%**

Source: CARB 2017a.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent per year.
Emissions reflect 2015 California GHG inventory.
[a] Percentage of total has been rounded and total may not sum due to rounding.
[b] The Aliso Canyon natural gas leak event released 1.96 MMT CO_2e of unanticipated emissions in 2015 and 0.52 MMT CO_2e in 2016. These leak emissions will be fully mitigated according to legal settlement and are tracked separately from routine inventory emissions.
[c] Includes emissions associated with imported electricity, which account for 33.74 MMT CO_2e.

2.5 Carbon Sequestration

Carbon sequestration is the process by which CO_2 is removed from the atmosphere and deposited into a carbon reservoir (e.g., vegetation). Trees and vegetation take in CO_2 from the atmosphere during photosynthesis, break down the CO_2, store the carbon within plant parts, and release the oxygen back into the atmosphere (CARB 2017a). A development that changes land use type results in potential release of sequestered carbon to the atmosphere as CO_2, which would not have been released had there been no land-type change. The planting of new trees and vegetation would store new carbon as their wood mass increases via normal growth. This GHG analysis estimates the loss of sequestered carbon associated with the proposed land use change.

2.6 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred

include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2° Celsius (°C) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36° Fahrenheit (°F)) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the state's water supply, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in central and, most notably, Southern California. By late-century, all

projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

A summary of current and future climate change impacts to resource areas in California, as discussed in the *Safeguarding California: Reducing Climate Risk* (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. The agriculture sector and farmers face some specific challenges that include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated.

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts amongst public, private, and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change, based on geographic region.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Increased temperatures will also increase electricity demand associated with

air conditioning. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events.

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of carbon dioxide, renewable energy, and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality, or other climate change effects on vegetation.

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities, as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health impacts that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality.

Transportation. Residents of California rely on airports, seaports, public transportation, and an extensive roadway network to gain access to destinations, goods, and services. While the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes, and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat.

In March 2016, the CNRA released Safeguarding California: Implementation Action Plans, a document that shows how California is acting to convert the recommendations contained in the 2014 Safeguarding California plan into action (CNRA 2016). Additionally, in May 2017, CNRA released the draft Safeguarding California Plan: 2017 Update, which is a survey of current programmatic responses for climate change and contains recommendations for further actions (CNRA 2017).

The CNRA released *Safeguarding California Plan: 2018 Update* in January 2018, which provides a roadmap for state agencies to protect communities, infrastructure, services, and the natural environment from climate change impacts. The 2018 Safeguarding California Plan includes 69

recommendations across 11 sectors and more than 1,000 ongoing actions and next steps developed by scientific and policy experts across 38 state agencies (CNRA 2018). As with previous state adaptation plans, the 2018 Update addresses the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming.

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3 REGULATORY SETTING

3.1 Federal Activities

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the

Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200), and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

3.2 State of California

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

EO S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan. In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

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

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

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

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.

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

In the Scoping Plan, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual"). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants; no further regulatory action would impact vehicle fuel efficiency; and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the Business-As-Usual conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS; CPUC 2015; 12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the Business-As-Usual conditions.

More recently, in 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update). The stated purpose of the First Update is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050" (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions

further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050" (CARB 2014). Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and, (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

CARB's research efforts presented in the First Update indicate that it has a "strong sense of the mix of technologies needed to reduce emissions through 2050" (CARB 2014). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the Business-As-Usual conditions.

On January 20, 2017, CARB released The *2017 Climate Change Scoping Plan Update* (Second Update) for public review and comment (CARB 2017b). This update presents CARB's strategy for achieving the state's 2030 GHG target as established in SB 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016). When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant

environmental impact of climate change under CEQA" (CARB 2017b). The Second Update was approved by CARB's Governing Board on December 14, 2017.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets, make changes to CARB's membership and increase legislative oversight of CARB's climate change-based activities, and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for CH_4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its *Short-Lived Climate Pollutant Reduction Strategy* (SLCP Reduction Strategy) in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4 and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). These standards are updated to consider and incorporate new energy-efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2017. In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).

The 2019 Title 24 standards were approved and adopted by the California Building Standards Commission in December 2018. The 2019 standards will become effective January 1, 2020. The standards would require that all low-rise residential buildings shall have a PV system meeting the minimum qualification requirements such that annual electrical output equal to or greater than the dwelling's annual electrical usage. Notably, net energy metering rules limit residential rooftop solar generation to produce no more electricity than the home is expected to consume on an annual basis. Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards.

The California Public Utilities Commission (CPUC), CEC, and CARB previously established a goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013). As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a ZNE code building is

"one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2015b).

The 2019 Title 24 standards take a significant step towards the state's ZNE goal. However, as explained by the CEC, California's energy landscape has changed since the ZNE target was set. Electricity produced for the grid now comes substantially from renewables, and 60 percent renewable electricity generation is required by 2030. Further, new net energy metering rules also limit the amount of residential rooftop solar generation to no more electricity production than the home is annually expected to consume.

The 2019 Title 24 standards therefore focus on building energy efficiency and ensuring solar electricity generated onsite is used onsite. "Looking beyond the 2019 standards, the most important energy characteristic for a building will be that it produces and consumes energy at times that are appropriate and responds to the needs of the grid, which reduces the building's emissions" (CEC 2018). In furtherance of that characteristic, the 2019 standards require that new homes include solar PV to meet the home's expected annual electric needs, and also encourage demand responsive technologies including battery storage, heat pump water heaters, and improving the building's thermal envelope through high performance attics, walls and windows. These smarter homes perform better and affect the grid less, which reduces the building's GHG emissions.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (CALGreen 2016) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (CALGreen 2016):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance.
- 65% of construction and demolition waste must be diverted from landfills.

- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations.
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

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

The California Building Standards Commission approved amendments to the voluntary measures of the CALGreen standards in December 2018. The 2019 CALGreen standards will become effective January 1, 2020. As with the 2019 Title 24 standards, the 2019 CALGreen standards focus on building energy efficiency. As previously discussed, current CalGreen Tier 1 and 2 structure relies on percentage targets of 15 percent and 30 percent above standard code. These percentages would be replaced by Energy Design Rating (EDR) scores; somewhere between 14 and 12 for Tier 1 and 0 for Tier 2, where an EDR score of 0 is the threshold for Zero Net Energy code building.

~~The California Public Utilities Commission (CPUC), CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013).[4] As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2015b).~~

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and

~~[4] It is expected that achievement of the ZNE goal will occur via revisions to the Title 24 standards.~~

room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

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

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

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

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (2002) established the RPS program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

***SB 1368*.** SB 1368 (2006) requires the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

SB X1 2. SB X1 2 (2011) expanded the RPS by establishing that 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

***SB 350*.** SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

Mobile Sources

***AB 1493*.** In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste. In September 2018, CARB adopted regulatory amendments to extend the LCFS for an additional 10 years with a target of 20% carbon intensity reduction from 2010 levels by 2030.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, an metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), an SCS does not: (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for San Diego Association of Governments (SANDAG) are a 7% reduction in emissions per capita by 2020 and a 13% reduction by 2035.

SANDAG completed and adopted its *2050 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) in October 2011 (SANDAG 2011). In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others. The case was decided in July 2017, and the court found that the EIR's did not have to use EO S-3-05's 2050 goal of an 80% reduction in GHG emissions from 1990 levels as a threshold because the EIR sufficiently informed the public of the potential impacts.

Although the EIR for SANDAG's 2050 RTP/SCS is pending before the California Supreme Court, in 2015, SANDAG adopted the next iteration of its RTP/SCS in accordance with statutorily mandated timelines, and no subsequent litigation challenge was filed. More specifically, in October 2015, SANDAG adopted *San Diego Forward: The Regional Plan*. Like the 2050 RTP/SCS, this planning document meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region. In March 2018, CARB approved updates to the SB 375 GHG emission reduction targets including a reduction of 15% reduction in emissions per capita by 2020 and a 19% reduction by 2035 for SANDAG. SANDAG will demonstrate progress towards meeting the updated GHG emission reduction targets in the next update to the RTP/SCS.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold before 2012. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The Zero Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

EO B-16-12. EO B-16-12 (2012) directs state entities under the governor's direction and control to support and facilitate development and distribution ZEVs. This EO also sets a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency

Working Group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (2015) as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission, as specified. The bill requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that creates an expedited and streamlined permitting process for electric vehicle charging stations, as specified. Prior to this statutory deadline, in August 2016, the County Board of Supervisors adopted Ordinance No. 10437 (N.S.) adding a section to its County Code related to the expedited processing of electric vehicle charging stations permits consistent with AB 1236.

SB 350. In 2015, SB 350—the Clean Energy and Pollution Reduction Act—was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code Section 740.12).

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

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

Water

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

Other State Regulations and Goals

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The California Natural Resources Agency adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The California Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009a), and an update, *Safeguarding California: Reducing Climate Risk,* followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water. Issuance of the *Safeguarding California: Implementation Action Plans* followed in March 2016 (CNRA 2016). Presently, a draft of the *Safeguarding California Plan: 2017 Update* is being prepared to communicate current and needed actions that state government should take to build climate change resiliency (CNRA 2017).

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to two tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than 2°C by 2050. The Under 2 MOU agreement pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reach a per-capita annual emissions goal of less than two metric tons by 2050. A total of 187 jurisdictions representing

38 countries and 6 continents, including California, have signed or endorsed the Under 2 MOU (Under 2 Coalition 2017).

3.3 Local Regulations

San Diego Air Pollution Control District

The SDAPCD does not have established GHG rules, regulations, or policies.

City of Oceanside

General Plan

The City of Oceanside's General Plan Circulation Element includes goals and policies to reduce GHG emissions within the City (City of Oceanside 2002). The following goals and policies from the City's General Plan are relevant to the Proposed Project:

Circulation Element

- **Policy 2.5:** The City will strive to incorporate complete streets throughout the Oceanside transportation network which are designed and constructed to serve all users of streets, roads and highways, regardless of their age or ability, or whether they are driving, walking, bicycling, or using transit.
- **Pedestrian Facilities**
    - **Goal 5:** Support walking as a primary means of transportation that in turn supports transit and bike options. A positive walking environment is essential for supporting smart growth, mixed land uses, transit oriented development, traffic calming and reducing traffic congestion and greenhouse gas emissions.
- **Intelligent Transportation System Technologies**
    - **Policy 4.1:** The City shall encourage the reduction of vehicle miles traveled, reduction of the total number of daily and peak hour vehicle trips, and provide better utilization of the circulation system through development and implementation of TDM strategies. These may include, but not limited to, implementation of peak hour trip reduction, encourage staggered work hours, telework programs, increased development of employment centers where transit usage is highly viable, encouragement of ridesharing options in the public and private sector, provision for park-and-ride facilities adjacent to the regional transportation system, and provision for transit subsidies.

- **Transportation Demand Management**
  - **Policy 4.9:** The City shall look for opportunities to incorporate TDM [transportation demand management] programs into their Energy Roadmap that contributes to state and regional goals for saving energy and reducing greenhouse gas emissions.

Land Use Element

- **Air Quality**
  - The City will continue to cooperate with the SDAPCD Board. This will include participation in the development of the Regional Air Quality Strategy (RAQS) through cooperation with the San Diego County Air Quality Planning Team.
- **Bicycle Facilities**
  - **Policy A**: Development shall provide Class II Bikeways (Bike Lanes) on all secondary, major, and prime arterials.
  - **Policy D**: The use of land shall integrate the Bicycle Circulation System with auto, pedestrian, and transit systems:
    1. Development shall provide short-term bicycle parking and long-term bicycle storage facilities such as bicycle racks, pedestal posts, and rental bicycle lockers.
    2. Development shall provide safe and convenient bicycle access to high activity land uses, such as schools, parks, shopping, employment, and entertainment centers.
- **Pedestrian**
  - **Policy A**: The construction of five (5) foot wide sidewalks adjacent to the curb shall be required in all new developments and street improvements.
- Transit System
  - **Policy A**: The City shall coordinate and encourage the existing bus system to serve newly developed areas.
- **Energy**
  - **Policy A: The City shall encourage the design, installation, and use of passive and active solar collection systems.**
  - **Policy B**: The City shall encourage the use of energy efficient design, structures, materials, and equipment in all land developments or uses.

Environmental Resource Management Element

- The City will continue to cooperate with the SDAPCD Board. This will include participation in the development of the Regional Air Quality Strategy (RAQS) through cooperation with the San Diego County Air Quality Planning Team.

Oceanside Draft Climate Action Plan and Energy and Climate Action Element

The City has held public workshops on the City's General Plan Update, which includes development of a draft Climate Action Pan (CAP) and a draft policy framework to the Energy and Climate Action Element (E-CAP). The E-CAP is intended to proactively support statewide efforts to cut GHG emissions by expanding local renewable energy generation, reducing energy use, promoting recycling and reuse, facilitating active transportation, and encouraging other sustainable practices. The E-CAP will build upon a variety of City projects that promote energy efficiency, increased renewable energy use, water conservation, and solid waste reduction. These include the Oceanside Boulevard Vision Statement, which encourages the restoration of Loma Alta Creek in conjunction with a transit-oriented mixed-use development; the Coast Highway Vision and Strategic Plan, which promotes environmentally and economically sustainable infill and redevelopment within the Coast Highway corridor; the Water Conservation Master Plan; the Zero Waste Plan; and the Energy Roadmap. As part of this effort to ensure a sustainable future, the City is now preparing a GHG emissions inventory and a Climate Action Plan, both of which will inform the E-CAP. In conjunction with developing a CAP, the City has established efficiency metric thresholds, which projects are to use to evaluate impacts from GHG emissions, in order to help the City to meet state reduction targets for 2020 and 2030. Projects are required to meet an efficiency metric threshold of 4.0 MT of CO_2e per service population per year (MT CO_2e/SP/yr) for year 2020 and an efficiency metric threshold of 3.0 MT CO_2e/SP/yr for year 2030. Projects that meet these thresholds would be considered consistent with the City's CAP. The final CAP is anticipated to be released in ~~2018~~2019.

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4 SIGNIFICANCE CRITERIA AND ANALYSIS METHODOLOGIES

4.1 Significance Criteria

The significance criteria used to evaluate the Proposed Project's GHG emissions impacts are based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this GHG emissions analysis, the Proposed Project would have a significant environmental impact if it would (14 CCR 15000 et seq.):

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

As stated in CEQA Guidelines Section 15064.4(b)(1)-(3), "a lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment: (1) the extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and, (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."

Section 15064(h)(3) of the CEQA Guidelines also states that: "A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located."

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific quantitative thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009b).

The OPR Technical Advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review* states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency

determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established quantitative thresholds for assessing whether the GHG emissions of a project, such as the Proposed Project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated on a project-level under CEQA.

City of Oceanside

~~The City does not have adopted thresholds or guidance for GHG emissions.~~ As the lead agency, the City has the discretion to choose the significance threshold for discretionary projects. Consistent with recent projects certified by the City, the Proposed Project will utilize a 900 MT CO_2e per year threshold consistent with the California Air Pollution Control Officers Association (CAPCOA) interim screening level as discussed below.

The analysis for compliance with regulatory programs only applies to the individual area addressed by the regulatory program. If the Proposed Project is determined to have GHG emissions less than 900 MT CO_2e per year, then the Proposed Project's cumulative contribution of GHG emissions would be considered less than significant.[5] Conversely, if the Proposed Project is determined to exceed the 900 MT CO_2e per year threshold, then the Proposed Project would be compared to an efficiency metric, also called a service population, threshold developed specifically for the City and the Project's buildout year to evaluate the potential for the Proposed Project to result in a significant GHG emissions impact.

[5] Thresholds of significance must be backed by substantial evidence, which is defined in the CEQA statute to mean "facts, reasonable assumptions predicated on facts, and expert opinion supported by facts" (Cal. Code Regs., tit. 14, § 15384, subd. (b)).[5] Substantial evidence can be in the form of technical studies, agency staff reports or opinions, expert opinions supported by facts, and prior CEQA assessments and planning documents. The 900 MT CO_2e per year screening threshold is supported by expert opinion (i.e., CAPCOA 2008), agency guidance (e.g., County of San Diego's (2015) Recommended Approach for Addressing Climate Change), and prior environmental impact reports (e.g., Oceanside Coast Highway Corridor Study (ESA 2017), at a minimum.

An efficiency metric approach, which is the basis for the GHG emission reduction targets established in the City's draft CAP, is appropriate for the Proposed Project because it measures the Project's emissions on a per-service population basis to determine its overall GHG efficiency relative to regulatory GHG reduction goals. Under the efficiency metric, the Project's GHG emissions are evaluated herein relative to the emissions level in the Project's build-out year and the build-out year's associated efficiency metric. To that end, an efficiency metric threshold was calculated based on the interpolation between the City's 2020 and 2030 efficiency metric thresholds as discussed below.

As there are no emissions, employment, or population data specific to the Proposed Project's build-out year (2025), an efficiency metric was generated for year 2025 by interpolating the efficiency metrics for years 2020 and 2030. The 2020 efficiency metric was estimated to be 4.0 MT CO_2e/SP/yr. The 4.0 MT CO_2e/SP/yr was arrived at by dividing the City's anticipated 2020 GHG emissions (889,200 MT CO_2e) by the total number of residents and employees (i.e., service population) anticipated to exist within the City in 2020 (226,039 people). The 2020 efficiency target was established based on the goal of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2030 efficiency metric was estimated to be 3.0 MT CO_2e/SP/yr. Like the 2020 threshold, the 3.0 MT CO_2e/SP/yr was arrived at by dividing the City's anticipated 2030 GHG emissions (739,764 MT CO_2e) by the service population in 2030 (236,207 people). The 2030 targets were selected to be consistent with the GHG reduction target date of SB 32. Because the efficiency metric threshold is based on the City's GHG emissions inventory and anticipated service population, the threshold is geographically- and jurisdictionally-specific to the City.

The efficiency metric for 2020, 2030, and the interpolation for 2025 are illustrated below in Table 3. If the Project achieves the 2025 efficiency metric, the Proposed Project would not interfere with the State's ability to achieve the mid-term and long-term GHG reduction targets per SB 32 and EO S-3-05.

Table 3
2025 Interpolated Efficiency Metric

	2020 Efficiency Metric (MT CO_2e/SP/yr)	2030 Efficiency Metric (MT CO_2e/SP/yr)	2025 Efficiency Metric[1] (MT CO_2e/SP/yr)
2025 Efficiency Metric	4.0	3.0	3.5

Notes: MT = metric ton; CO_2e = carbon dioxide equivalent; SP = service population; yr = year

[1] The 2025 efficiency metric was calculated as follows: (((2030 Efficiency Metric – 2020 Efficiency Metric) ÷ (2030 – 2020)) × (2025 – 2020)) + (2025 Efficiency Metric).

As shown in Table 3, the calculated efficiency metric for 2025 was 3.5 MT CO_2e/SP/yr.

4.2 Construction Emissions Methodology

Emissions from the construction phase of the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017).

For the purposes of modeling, it was assumed that construction of the Proposed Project would commence in June 2019 and would occur over a period of approximately 5 years, ending in August 2024.

As described in Section 1.3, Proposed Project Description, the Proposed Project would grade approximately 155 acres of the 176.6-acre site. Cut-and-fill quantities would be balanced on site (within the Project Area) and no external soil export would be required. Soil balance would occur within each subset area and hauling would not be required between subset areas. A total of approximately 1,200,000 cubic yards of cut and fill would occur within the Project Area. Balancing activities are anticipated to be performed through the use of off-road construction equipment (e.g., excavators, graders, dozers, and scrapers). The analysis contained herein is based on the assumptions outlined in Table 4 (duration of phases is approximate). The Proposed Project schedule was based on information provided by the Proposed Project applicant.

Table 4
Construction Phasing Assumptions

Proposed Project Construction Phase	Construction Start Month/Year	Construction End Month/Year
Demolition	06/2019	07/2019
Site Preparation	07/2019	08/2019
Grading	08/2019	03/2020
Paving	03/2020	09/2020
Building Construction	08/2020	08/2024
Architectural Coating	08/2022	08/2024

Source: Integral Communities 2017.

The construction equipment mix used for estimating the construction emissions of the Proposed Project is based on information provided by the applicant and is shown in Table 5.

Table 5
Construction Scenario Assumptions

Construction Phase	One-way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Usage Hours*
Demolition	15	0	145	Concrete/Industrial Saws	1	8
				Excavators	3	8
				Rubber Tired Dozers	2	8
Site Preparation	18	0	0	Rubber Tired Dozers	3	8
				Tractors/Loaders/Backhoes	4	8
Grading	20	0	0	Excavators	2	8
				Graders	1	8
				Rubber Tired Dozers	1	8
				Scrapers	2	8
				Tractors/Loaders/Backhoes	2	8
Paving	15	0	0	Pavers	2	8
				Paving Equipment	2	8
				Rollers	2	8
Building Construction	96	183	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/Backhoes	3	7
				Trenchers	1	8
				Welders	1	8
Architectural Coating	20	0	0	Air Compressors	1	6

Notes: See Appendix A for details.

Construction phasing specifications were provided by the project applicant, while the default values generated by CalEEMod were used for the construction equipment mix. This equipment mix accounts for both on-site construction equipment, as well as construction equipment required for off-site improvements. For the analysis, it was generally assumed that heavy construction equipment would be operating both on the project site and at the off-site improvement areas for approximately 8 hours per day, 5 days per week (22 days per month) during project construction. CalEEMod defaults were applied for the worker, haul, and vendor trips. Construction worker and vendor trips were calculated using the methodology presented in CalEEMod Users Guide, Appendix A (CAPCOA 2017). In CalEEMod, the estimate of worker trips for site preparation, grading, paving, and trenching are based on 1.25 workers per each individual piece of equipment. The CalEEMod worker rate was utilized for all phases of construction.

Construction of Proposed Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. This rule requires that construction of Proposed Project components include steps

to restrict visible emissions of fugitive dust beyond the property line (SDAPCD 2009b). Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities.

A detailed depiction of the construction schedule—including information regarding subphases, demolition, and equipment used during each subphase—is included in Appendix A of this report. The information contained in Appendix A was used as CalEEMod model inputs.

4.3 Operational Emissions Methodology

Emissions from the operational phase of the Proposed Project were estimated using the CalEEMod. Operational year 2025 was assumed as it would be the first full year following completion of construction.

4.3.1 Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from landscape maintenance equipment. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as described in the following text.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For San Diego County, the average annual number of summer days is estimated at 180 days (CAPCOA 2017).

4.3.2 Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for greenhouse gases in CalEEMod, because criteria pollutant emissions occur at the site of the power plant, which is typically off site.

The Proposed Project would incorporate solar photovoltaic (PV) panels on all residential units and non-residential uses in order to offset the Proposed Project's energy use. According to the PV Loads Report, It was estimated that a total of 1.81 megawatts (MW) of PV panels would be

required to offset electrical energy consumption from residential uses ~~and to meet the CEC's definition of zero net energy (ZNE) buildings~~ (VCA Green 2018). ~~(ZNE buildings are designed to achieve enhanced energy efficiency in the building envelope and to use renewable energy sources, such as rooftop-mounted solar panels). Further, approximately~~ Furthermore, PV systems would be installed on non-residential buildings in order to offset the proposed project's electrical energy consumption. A total of approximately 0.44 MW of panels would be installed to offset the energy use from non-residential uses.

For non-residential buildings, CalEEMod default values for each land use were updated to reflect the annual electrical consumption provided in the PV Loads Report. An energy intensity rate for each category (e.g., Title 24 electricity, Non-Title 24 electricity, lighting electricity) was calculated from the total energy consumption from the PV Loads Report, using the default proportions in CalEEMod to allocate the appropriate energy consumption rate for each land use type. Similarly, the CalEEMod default energy intensity rates for residential were updated to reflect the Proposed Project's annual electricity consumption. Overall, residential and non-residential energy consumption would be offset through the installation of 2.25 MW of PV panels. The residential and non-residential energy use rates input into CalEEMod are presented in Table 6.

Table 6
Energy Use Rates

Land Use	Title 24 Electricity	Non-Title 24 Electricity	Lighting Electricity
	kWh per unit per year		
Retail	1.24	1.23	2.43
Restaurant	5.02	14.45	4.14
Hotel	3.14	2.41	2.96
Apartment Low-Rise	141.68	2,366.28	624.21
Condo/Townhouse	185.50	3,449.26	901.45
Single-Family Housing	190.92	3,550.02	927.78

Source: VCA Green 2017.
Notes: kWh = kilowatt hour.

Community Swimming Pool

The Proposed Project would include a private swimming pool located in River Village Park with an approximate size of 127,908 gallons. Energy demand for swimming pools was estimated using a baseline demand in the SDG&E service area (SCE 2016). The swimming pool is assumed to use electricity for filters and pumps and natural gas for water heating. Table 6 shows the estimated energy use associated with heating the Proposed Project's swimming

pool and from the electricity demand from the filters and pumps. As shown in Table 7, pool heating would require 7,165 million British thermal units (MMBtu) and 21.77 megawatt hours (MWh) of electricity annually.

Table 7
Swimming Pool Energy Use

Facility Name	Pool Volume (gallons)	MMBtu/gallons/year	MMBtu/year	MWh/year
River Village Park	127,908	0.056	7,165	21.77

Sources: SCE 2016; DOE 2017.
Notes: MMBtu = million British thermal units; MWh = megawatt hour.
Pool hours of operation assume 12 hours daily.
Pool heaters from the SDG&E study were assumed to use 78% efficient heaters (the minimum required by 10 CFR Part 431). Newer pools use heaters with 89%–95% efficiency (DOE 2017). Heaters in the Proposed Project were assumed to use 90% efficient heaters.

4.3.3 Mobile Sources

To quantify emissions associated with project operational mobile sources, trip generation rates and trip lengths for each analyzed project land use were adjusted in CalEEMod to match the overall weekday daily trips (8,180 trips) and the total average daily vehicle miles traveled (VMT) length data (11.3 miles per trip) provided by the traffic consultant (Hilgesen 2017~~LLG 2018~~). Notably, because the Proposed Project includes a mix of uses including residential and commercial uses, the Proposed Project would include a mixed-use trips reduction (5% of the total trips). In order to account for the mixed-use reduction from the traffic analysis, the traffic mitigation section of CalEEMod was updated to reflect a VMT reduction of 5% by selecting suburban center and increase diversity options in CalEEMod.[6] CalEEMod default data, including trip characteristics, variable start information and emissions factors were conservatively used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles consistent with CalEEMod default vehicle fleet assumptions. Emission factors for 2025 (the first full year of project operation) were used to estimate emissions associated with full buildout of the proposed project. The traffic consultant did not account for a reduction in internal vehicle trips based on the pedestrian and bicycle amenities provided because it is difficult to quantify the reduction in trips assuming people would walk or ride their bicycles to go to the Village Core or park, for example. No VMT reduction associated with pedestrian and bicycle was assumed in CalEEMod. Not accounting for any internal trip reduction provides a more conservative analysis.

[6] The traffic analysis calculated a reduction because the Proposed Project includes a mixed-use development; however, the VMT of 11.3 miles per trip did not account for this.

4.3.4 Solid Waste

The Proposed Project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste. A diversion rate of 75% was assumed for the Proposed Project, which is consistent with the City (City of Oceanside 2012) and statewide goals outlined in AB 341.

4.3.5 Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the Proposed Project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the Proposed Project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Water consumption estimates for indoor use were based on data within the Water Sever Analysis (Dexter Wilson Engineering 2017). The total water demand for each land use type as provided in the Water Sever Analysis were allocated based on the default proportions from CalEEMod's indoor and outdoor water use.

4.4 Land Use Change and Vegetation Carbon Sequestration

4.4.1 Loss of Sequestered Carbon

Most of the proposed site recently has been recently used for agriculture uses while the remainder is undisturbed. The calculation methodology and default values provided in CalEEMod (CAPCOA 2017) were used to calculate potential CO_2 emissions associated with the one-time change in carbon sequestration capacity of a vegetation land use type. The calculation of the one-time loss of sequestered carbon is the product of the converted acreage value and the carbon content value for each land use type (vegetation community). The mass of sequestered carbon per unit area (expressed in units of MT of CO_2 per acre) is dependent on the specific land use type. Assuming that the sequestered carbon is released as CO_2 after removal of the vegetation, annual CO_2 is calculated by multiplying total biomass (MT of dry matter per acre) from IPCC data by the carbon fraction in plant material, and then converting MT of carbon to MT of CO_2 based on the molecular weights of carbon and CO_2.

It is conservatively assumed that all sequestered carbon from the removed vegetation will be returned to the atmosphere; that is, the wood from the trees and vegetation communities would not be re-used in a solid form or another form that would retain carbon. GHG emissions generated during construction activities, including clearing, tree removal, and grading, are estimated in the construction emissions analysis.

CalEEMod calculates GHG emissions resulting from land conversion and uses six[7] general IPCC land use classifications for assigning default carbon content values (in units of MT CO_2/acre). CalEEMod default carbon content values were assumed to estimate the loss of sequestered carbon (release of CO_2) from the removal of the scrub (14.3 MT CO_2/acre), forest (111 MT CO_2/acre), and cropland (6.2 MT CO_2/acre) vegetation categories, which are based on data and formulas provided in the IPCC reports. The Proposed Project would permanently disturb a total of 810.15 acres with varying carbon content values.

4.4.2 Gain of Sequestered Carbon

The calculation methodology and default values provided in CalEEMod were used to estimate the one-time carbon-stock change from planting new trees. Trees sequester CO_2 while they are actively growing, and the amount of CO_2 sequestered depends on the type of tree. Thereafter, the accumulation of carbon in biomass slows with age and is assumed to be offset by losses from clipping, pruning, and occasional death. Active growing periods are subject to, among other things, species, climate regime, and planting density; however, for modeling purposes, CalEEMod assumes the IPCC active growing period of 20 years (CAPCOA 2017).

The sequestered carbon from new trees modeling does not include CO_2 emissions estimates associated with planting, care, and maintenance activities (e.g., tree planting and care vehicle travel and maintenance equipment operation). Landscape maintenance equipment emissions, which are anticipated to be minimal, were included in the area source emission estimates included in the operational GHG emissions calculations. Conservatively, this analysis does not consider carbon sequestration associated with land preservation or conservation.

CalEEMod calculates GHG sequestration that results from planting of new trees and has default carbon content values (in units of MT CO_2/tree/year) for ten different general tree species and a miscellaneous tree category.[8] The landscape plan for the Proposed Project currently shows the planting of approximately 1,472 trees, which will be one of 34 different species that may be suitable for the project site. Because of the large number of different trees which will be planted within the project site, the CO_2 sequestration rate of 0.0354 MT CO_2/tree/year was assumed in this analysis. It is assumed that all 1,472 trees will grow for a minimum of 20 years.

[7] Forest land (scrub), forest land (trees), cropland, grassland, wetlands, and other.

[8] Aspen (*Populus* sp.), soft maple (*Acer* sp.), mixed hardwood, hardwood maple (*Acer* sp.), juniper (*Juniperus* sp.), cedar/larch (Cupressaceae/*Larix* sp.), Douglas fir (*Pseudotsuga menziesii*), true fir/hemlock (*Abies* sp./*Tsuga* sp.), pine (Pinaceae), spruce (*Picea* sp.), and miscellaneous.

5 PROJECT IMPACT ANALYSIS

5.1 Potential to Generate Significant GHG Emissions

5.1.1 Construction Related GHG Emissions

Table 8, Estimated Annual Construction GHG Emissions, shows the estimated annual GHG construction emissions associated with the Proposed Project by year.

Table 8
Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2019	391.82	0.12	0.00	394.77
2020	720.24	0.14	0.00	723.84
2021	1,053.11	0.13	0.00	1,056.47
2022	1,061.56	0.13	0.00	1,064.88
2023	1,071.57	0.13	0.00	1,074.81
2024	634.28	0.08	0.00	636.19
Total	**4,932.58**	**0.73**	**0.00**	**4,950.96**

Notes:
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent
See Appendix A for complete results.

As shown in Table 8, estimated total Proposed Project-generated construction GHG emissions are approximately 4,951 MT CO_2e over 5 years (2019 through 2024). The amortized construction GHG emissions over the lifetime of the Proposed Project (30 years) would be approximately 165 MT CO_2e per year.

Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis below.

5.1.2 Operational GHG Emissions

As discussed in Section 4.3, the Proposed Project would generate operational GHG emissions from area sources (landscape maintenance equipment), energy sources (natural gas and electricity consumption), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. In regards to energy use, as discussed in Section 4.3.2, the Proposed Project energy demand on-site was adjusted ~~for the stringent efficiency standards of ZNE~~to account for the offset of the Proposed Project's energy consumption (electricity and natural gas).~~,~~ ~~reflected~~As reflected in CalEEMod, ~~because~~ the Proposed Project would offset the residential component's energy

consumption through the implementation of rooftop PV systems on all residential buildings. Furthermore, PV systems would be installed on all non-residential buildings in order to offset the Proposed Project's electrical energy consumption. Table 8 presents the Proposed Project's operational GHG emissions, which includes energy offsets from on-site PV system production on residential and non-residential buildings.

Table 9
Estimated Annual Operational GHG Emissions (2025)

Emissions Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	496.79	0.02	0.01	499.89
Energy	386.26	0.01	0.02	389.70
Mobile	8,933.89	0.43	0.00	8,944.73
Solid Waste	33.08	1.95	0.00	81.95
Water and Wastewater	319.09	1.62	0.04	372.04
			Total	**10,288.31**

Source: See Appendix A for detailed results.
Notes: Emissions were modeled with CalEEMod and are based on the "Mitigated" CalEEMod outputs including a 75% waste diversion pursuant to AB 341 even though compliance with the standard would not be considered actual mitigation. Additionally, a project setting of Suburban Center and Increase Diversity were selected in the model to account for a 5% mixed use reduction as provided in the traffic analysis. Numbers may not add exactly due to rounding. Energy emissions ~~are based on~~ assumes that the Propose Project's residential and nonresidential buildings will be constructed ~~to meet ZNE design standards~~ with installation of PV panels in ~~addition~~ order to ~~the~~ offset ~~of~~ the electrical energy consumption ~~for non-residential buildings~~.
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.

As discussed in Section 4.4.2, this GHG analysis also estimates the net loss of sequestered carbon that would result from removal of vegetation. The loss of sequestered carbon resulting from the removal of vegetation on site is estimated based on the carbon sequestration rate for the vegetation type and the approximate acreages. Table 10 presents the estimated one-time carbon-stock change resulting from Proposed Project.

Table 10
Planted Trees – Estimated Loss of Sequestered Carbon

Vegetation Land Use Category	Total Acres	Total Acres Impacted	Biogenic CO_2 Sequestered Factor (MT CO_2/Acre)	Sequestered CO_2 (MT CO_2)
Trees	0.69	0.69	111	76.59
Scrub	0.47	0.10	14.3	1.43
Cropland	169.57	156.56	6.2	971.04
			Total	**1,049.06**

Source: CAPCOA 2017.
Notes: MT CO_2 = metric tons carbon dioxide.
See Appendix A for calculations and references.

As presented in Table 10, the loss in sequestered carbon resulting from the removal of vegetation would be approximately 1,049 MT CO_2. To interpret an annual sequestration the total sequestered CO_2 was divided by the Proposed Project life time of 30 years, resulting in 35 MT CO_2 annually.

As discussed in Section 4.4.2, this GHG analysis also estimates the gain of sequestered carbon that would result from planting and growth of trees on site. The gain of sequestered carbon resulting from planting and growth of approximately 1,472 miscellaneous trees on site is estimated based on the carbon sequestration rate for the tree species, the number of new trees, and the growing period. Table 11 presents the estimated one-time carbon-stock change resulting from proposed planting of new trees.

Table 11
Planted Trees – Estimated Gain of Sequestered Carbon

Proposed Project Tree Category/Species	Tree Category	Growing Period (year)	Number of Trees (trees)	Tree CO_2 Sequestered Factor (MT CO_2/Tree/Year)	Gain of Sequestered CO_2 (MT CO_2)
Unknown	Miscellaneous	20	1,472	0.0354	1,042.18
				Total	**1,042.18**

Source: CAPCOA 2017.
Notes: MT CO_2 = metric tons carbon dioxide.
See Appendix A for calculations and references.

As presented in Table 11, the gain in sequestered carbon resulting from planting 1,472 trees would be approximately 1,042 MT CO_2. To interpret an annual sequestration the total sequestered CO_2 was divided by the Proposed Project life time of 30 years, resulting in 35 MT CO_2 annually.

Table 12
Estimated Annual Net GHG Emissions (2025)

Emission Source	CO_2e Metric Tons per Year
Construction Emissions (Amortized Over 30 Years)	165
Annual Operational Emissions (Includes reductions from PV systems and water efficient infrastructure)	10,288
Loss of Carbon from Vegetation Removal (Amortized Over 30 Years)	35
Annual Gain from Sequestered Carbon (Amortized Over 30 Years)	(35)
Total Annual Emissions	**10,453**
Project Service Population	**2,161**
Service Person/Per Capita GHG Efficiency	**4.8**[9]

Notes: CO_2e = carbon dioxide equivalent.
Numbers in parentheses represent negative numbers.

[9] 10,453 MT CO_2e ÷ 2,161 service population = 4.8 MT CO_2e/SP/yr.

As shown in Table 12, the total Proposed Project emissions during operation were estimated to be approximately 10,488 MT CO_2e per year which includes amortized construction emissions of 165 MT CO_2e per year and the loss of carbon from vegetation removal of 35 MT CO_2e per year. Furthermore, the planting of trees would reduce the amount of operational emissions by an estimated 35 MT CO_2e per year resulting in an overall operational GHG impact of 10,453 MT CO_2e per year. The Proposed Project's service population, defined as the number of residents plus the number of jobs supported by the Proposed Project, is 2,161 people. The Proposed Project's service population is based on SANDAG's Series 13 Regional Growth Forecast, which estimates an average household size of 2.86 persons per dwelling unit and 13.8 employees per developed acre by 2025. Based on a service population of 2,161 people, the Proposed Project would result in GHG emissions of approximately 4.8 MT CO_2e/SP/yr. Thus, the Proposed Project's estimated GHG emissions would exceed the 2025 efficiency significance threshold of 3.5 MT CO_2e/SP/yr and the Proposed Project's GHG emissions prior to mitigation would be **potentially significant**.

Mitigation Measures

Mitigation Measures MM-GHG-1 are provided, lists Proposed Project's on-site features and measures to reduce GHG emissions. These measures are consistent with recommendations by SDAPCD and CAPCOA. The City has determined that additional on-site and off-site mitigation can further reduce impacts from GHG emissions to a less-than-significant level through the purchase of carbon offsets. Implementation of mitigation measures MM-GHG-1 ~~and~~ through MM-GHG-~~2~~3, as set forth below, would result in the Proposed Project offsetting ~~approximately 30~~100% of its ~~annual~~ GHG emissions in order to reduce impacts from GHG emissions ~~to a level which meets the calculated efficiency metric of 3.5 MT CO_2e/SP/yr~~.

MM-GHG-1 **~~Greenhouse Gas Emissions Reduction Measures.~~** The following GHG emission reduction measures shall be implemented:

All residential buildings shall:

- Meet or exceed CALGreen Tier 1 requirements in place at the time of Building Permit issuance.
- Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating compliance with the ~~zero net energy (ZNE)~~applicable design standards defined by the the approved building code at the time of permit application~~California Energy Commission~~.

- Be pre-plumbed and structurally engineered for the installation of a complete solar energy system.
- Include a tankless water heating system, a whole house ceiling fan, and "Energy Star" appliances (stoves, dishwashers, and any other appliances typically included within the initial installation by the builder).
- Include an energy efficient air conditioning unit(s) that exceeds the seasonal energy efficiency ratio (SEER) by a minimum of two points at the time of building permit issuance.
- Include programmable thermostat timers.
- Include exterior outlets on all residential buildings to allow the use of electrically-powered landscape equipment.
- All private residential garages shall include one electric vehicle charging station~~Include wiring for at least one electric car charging station~~.
- Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence only utilize low flow water fixtures such as low flow toilets, faucets, showers, etc.
- Prior to approval of Improvement Plans, the applicant shall verify the exclusive use of energy efficient lighting that meets or exceeds CalGreen Tier 1 requirements for all street, parking, and area lighting associated with the proposed project, including all on-site and off-site lighting.~~Prior to approval of Improvement Plans the applicant shall only show energy efficient lighting for all street, parking, and area lighting associated with the Proposed Project, including all on-site and off-site lighting~~.

All non-residential buildings shall:

- Be pre-plumbed and structurally engineered for the installation of a complete solar energy system.
- Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that the Proposed Project's non-residential land uses shall achieve an 8% greater building energy efficiency than required by the current State energy efficiency standards in Title 24, Part 6 of the California Code of Regulations.
- Use "Energy Star" rated (or greater) roofing materials.

- Prior to approval of Improvement Plans, the applicant shall verify the exclusive use of energy efficient lighting that meets or exceeds CalGreen Tier 1 requirements for all street, parking, and area lighting associated with the proposed project, including all on-site and off-site lighting.~~Use both indoor and outdoor energy efficient lighting that meets or exceeds Title 24 requirements~~.
- Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that the Proposed Project includes a complete solar water heating system.
- Include an energy efficient heating system and an air conditioning system that exceeds the SEER ratio by a minimum of two points at the time of building permit issuance.
- Only use low flow water fixtures such as low flow toilets, faucets, showers, etc.
- Only use programmable thermostat timers.
- Prior to approval of Improvement Plans, the applicant shall only show energy efficient lighting for all street, parking, and area lighting associated with the Proposed Project, including all on-site and off-site lighting.
- Include pedestrian-friendly paths and cross walks in all parking lots.
- In all on-site, non-residential parking areas with ten or more spaces, dedicated electric vehicle ~~charging stations~~ parking shall be installed in a minimum of 12 percent of the parking spaces.
- Prior to the issuance of building permits, the Project applicant or its designee shall submit building plans illustrating that all outdoor pavement including, all parking lots and walkways, are paved with ~~Pave all parking lots with~~ reflective coatings (albedo = 0.30 or better) or concrete.~~. This measure is considered feasible if the additional cost is less than 10% of the cost of applying a standard asphalt product.~~
- Maximize the amount of drought tolerant landscaping used~~ by minimizing the amount of turf in all areas where this option is feasible~~. Turf should be limited to parks or other active use and/or high visibility areas. Low groundcover and native grasses shall be used as an alternative to turf. Any turf used shall be warm-season turf or shall have a plant species factor of 0.6 or lower.
- Ensure recycling of construction debris and waste through administration by an on-site recycling coordinator and presence of recycling/separation areas.

MM-GHG-22 ~~Purchase of Carbon Offsets.~~ As to operational greenhouse gas (GHG) emissions, ~~Prior~~ prior to the City's issuance of the first building permit~~s for each implementing Site Plan ("D" Designator),~~ the project applicant or its designee shall purchase and retire carbon offsets in a quantity sufficient to offset ~~approximately 30~~100% of the Proposed Project generated GHG emissions in order to achieve carbon neutrality (i.e., a net zero emissions level), for a 30-year period, consistent with the performance standards and requirements set forth below.

First, "carbon offset" shall mean an instrument issued by any of the following: (i) the Climate Action Reserve, the American Carbon Registry, and the Verra (formerly, Verified Carbon Standard); (ii) any registry approved by the California Air Resources Board (CARB) to act as a registry under the state's cap-and-trade program; or (iii) ~~if no registry is in existence as identified in options (i) and (ii), above, then~~ any other reputable registry or entity that issues carbon offsets. Prior to use of option (iii), it shall be demonstrated that the other reputable registry or entity follows accounting, quantification and monitoring protocols, as well as eligibility and procedural performance standards, that are comparable to those used by the registries identified in option (i). For additional information about the protocols and standards referenced in this paragraph, please see the State-approved "Newhall Ranch Greenhouse Gas Reduction Plan," which is included in Appendix H1 of the EIR. Section IX of the "Newhall Ranch Greenhouse Gas Reduction Plan" outlines the protocols and standards that must be followed in order for a registry and the offsets it issues to qualify under this measure.

Second, consistent with CEQA Guidelines Section 15126.4(c), any carbon offset utilized to reduce the project's GHG emissions shall be a carbon offset that represents the past reduction or sequestration of one metric tonne of carbon dioxide equivalent that is "not otherwise required." ~~(CEQA Guidelines section 15126.4(c)(3)).~~

Third, "Project applicant" shall mean NRF Project Owner LLC~~Integral Communities~~ or its designee.

Fourth, as to operational emissions, prior to the City's issuance of the first building permit~~s for each implementing Site Plan ("D" Designator)~~, the Proposed Project applicant shall provide evidence to the satisfaction of the Development Services Director, that the Proposed Project applicant has purchased and retired carbon offsets in a quantity sufficient to offset ~~approximately 30~~100% of the Proposed Project's GHG emissions for a 30-year period. The "project life" is 30 years. This methodology is consistent with the

30-year project life time frame used by the South Coast Air Quality Management District's GHG guidance, as well as the methodological parameters used by the California Air Resources Board when reviewing AB 900 projects (SCAQMD 2008). The emissions reduction obligation associated the building permit shall be calculated by reference to the certified EIR's Greenhouse Gas Emissions Technical Report (Appendix H), which determined total operational emissions as equaling 10,288 MT CO_2e annually, which equates to 308,640 MT CO_2e (10,288 MT CO_2e x 30 years). In making such a determination, the Development Services Director shall require the Project applicant or its designee to provide an attestation or similar documentation from the selected registry(ies) that a sufficient quantity of carbon offsets meeting the standards set forth in this measure have been purchased and retired, thereby demonstrating that the necessary emission reductions are realized.

Fifth, the purchased carbon offsets used to reduce operational GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions ~~(Cal. Health & Saf. Code section 38562(d)(1)).~~.

Sixth, the amount of carbon offsets required ~~for each implementing Site Plan~~ shall be based on the ~~GHG emissions with the implementing Site Plan, and shall include~~ operational GHG emissions as identified in the approved Greenhouse Gas Emissions Report.

Seventh, each implementing Site Plan shall include a tabulation that identifies the overall carbon offsets required to mitigate the entire Proposed Project's GHG emissions, ~~and shall identify~~ the amount of carbon offsets purchased ~~to date~~, and the locational attributes of the carbon offsets in order to allow Development Services Director to track and monitor the implementation of the geographic priority provision~~as well as the remaining carbon offsets required to reduce the Proposed Project's emissions. Such tabulation and tracking shall be to the satisfaction of the Director of PDS~~.

~~**Eighth**, this EIR acknowledges that the project's GHG emissions estimates are conservative because the project's GHG emissions are expected to decrease beyond the estimates presented in the EIR's analysis, in part, due to reasonably foreseeable improvements in fuel efficiency, vehicle fleet turnover, technological improvements related to transportation and energy, and updates to emissions models and methodologies. Thus, the operational emission~~

~~estimates that govern implementation of this Proposed Project are subject to the satisfaction of the Development Services Director.~~

~~Ninth~~**Eighth**, all carbon offsets required to reduce the proposed project's operational emissions shall be associated with reduction activities that are geographically prioritized according to the following locational attributes~~the City of Oceanside Development Services Department will consider~~, to the satisfaction of the Development Services Director, the following geographic priorities for GHG reduction features, and GHG reduction projects and programs: 1) project design features/on-site reduction measures; 2) off-site within the City of Oceanside; 3) off-site within the County of San Diego; 4) off-site within the State of California; 5) off-site within the United States; and 6) off-site internationally. As listed, geographic priorities would focus first on local reduction ~~features~~ options (including projects and programs that would reduce GHG emissions) to ensure that reduction efforts achieved locally would provide cross-over, co-benefits related to other environmental resource areas, even though the co-benefits are not needed to mitigate impacts to these other environmental resource areas~~air quality criteria pollutant reductions within the San Diego Air Basin, and to aid in San Diego County jurisdictions' efforts to meet their GHG reduction goals~~. The Proposed Project applicant or its designee shall first pursue carbon offsets ~~projects and programs~~ locally within ~~within unincorporated areas of~~ the City of Oceanside consistent with this geographic priority strategy~~to the extent such offset projects and programs are financially competitive in the global offset market~~.

The project applicant or its designee shall submit proof to the City that offsets are unavailable in a higher priority category before seeking offsets from the next lower priority category. The Development Services Director shall issue a written determination that offsets are unavailable in a higher priority geographic category before allowing the Project applicant or its designee to use offsets from the next lower priority category. In considering whether offsets are unavailable, the Development Services Director shall consider the feasibility factors as defined in CEQA Guidelines Section 15364 and information available at the time the first building permit request is submitted, including but not limited to:

- The availability of in-State emission reduction opportunities;
- The geographic attributes of carbon offsets that are listed for purchase and retirement;
- The temporal attributes of carbon offsets that are listed for purchase and retirement;

- The pricing attributes of carbon offsets that are listed for purchase and retirement; and/or,
- Any other information deemed relevant to the evaluation, such as periodicals and reports addressing the availability of carbon offsets.

MM-GHG-3 As to construction greenhouse gas (GHG) emissions, prior to the City's issuance of the grading permit, the Proposed Project applicant shall purchase and retire carbon offsets in a quantity sufficient to offset 100% of the Proposed Project's construction emissions (including sequestration loss from vegetation removal) associated with each such grading permit, consistent with the performance standards and requirements set forth below.

First, "carbon offset" shall mean an instrument issued by any of the following: (i) the Climate Action Reserve, the American Carbon Registry, and the Verra (formerly, Verified Carbon Standard), (ii) any registry approved by the California Air Resources Board (CARB) to act as a registry under the state's cap-and-trade program, or (iii) any other reputable registry or entity that issues carbon offsets. Prior to use of option (iii), it shall be demonstrated that the other reputable registry or entity follows accounting, quantification and monitoring protocols, as well as eligibility and procedural performance standards, that are comparable to those used by the registries identified in option (i). For additional information about the protocols and standards referenced in this paragraph, please see the State-approved "Newhall Ranch Greenhouse Gas Reduction Plan," which is included in Appendix H1 of the EIR. Section IX of the "Newhall Ranch Greenhouse Gas Reduction Plan" outlines the protocols and standards that must be followed in order for a registry and the offsets it issues to qualify under this measure.

Second, consistent with CEQA Guidelines Section 15126.4(c), any carbon offset used to reduce the Proposed Project's GHG emissions shall be a carbon offset that represents the past reduction or sequestration of one metric ton of carbon dioxide equivalent that is "not otherwise required."

Third, "Project applicant" shall mean NRF Project Owner LLC or its designee.

Fourth, as to construction GHG emissions, prior to the City's issuance of the Proposed Project's grading permit, the Proposed Project applicant shall provide evidence to the satisfaction of the Development Services Director that the Proposed Project applicant has purchased and retired carbon offsets in a quantity sufficient

to offset 100% of the construction GHG emissions generated by the Proposed Project, as associated with the grading permit, which total 4,951 MT CO_2e.

Fifth, the purchased carbon offsets used to reduce construction GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions.

Sixth, all carbon offsets required to reduce the proposed project's operational emissions shall be associated with reduction activities that are geographically prioritized according to the following locational attributes: 1) project design features/on-site reduction measures; 2) off-site within the City of Oceanside; 3) off-site within the County of San Diego; 4) off-site within the State of California; 5) off-site within the United States; and 6) off-site internationally. As listed, geographic priorities would focus first on local reduction options (including projects and programs that would reduce GHG emissions) to ensure that reduction efforts achieved locally would provide cross-over, co-benefits related to other environmental resource areas, even though the co-benefits are not needed to mitigate impacts to these other environmental resource areas. The Proposed Project applicant or its designee shall first pursue carbon offsets locally within the City of Oceanside consistent with this geographic priority strategy.

The project applicant or its designee shall submit proof to the City that offsets are unavailable in a higher priority category before seeking offsets from the next lower priority category. The Development Services Director shall issue a written determination that offsets are unavailable in a higher priority geographic category before allowing the Project applicant or its designee to use offsets from the next lower priority category. In considering whether offsets are unavailable, the Development Services Director shall consider the feasibility factors as defined in CEQA Guidelines Section 15364 and information available at the time the grading permit request is submitted, including but not limited to:

- The availability of in-State emission reduction opportunities;
- The geographic attributes of carbon offsets that are listed for purchase and retirement;
- The temporal attributes of carbon offsets that are listed for purchase and retirement;
- The pricing attributes of carbon offsets that are listed for purchase and retirement; and/or,
- Any other information deemed relevant to the evaluation, such as periodicals and reports addressing the availability of carbon offsets.

Level of Significance After Mitigation

Implementation of MM-GHG-1 would reduce GHG emissions associated with the Proposed Project. The emission reductions associated with measures listed in MM-GHG-1 have been quantified in CalEEMod to the extent feasible (i.e., installation of PV systems for all residential and non-residential buildings and inclusion of water efficient infrastructure such as irrigation systems). Implementation of mitigation measure MM-GHG-1 would reduce GHG emissions associated with Proposed Project operations. Further, as a result of MM-GHG-2 and MM-GHG-3, the applicant would be required to purchase a total of ~~86,704~~4,951~~0~~ MT CO_2e of carbon offset credits to offset construction emissions and a total of 308,640 MT CO_2e of carbon offset credits to offset operational emissions~~; representing 30 years of operation with an annual emissions rate of 2,890 MT CO_2e (see Table 13 below)~~. The use of offsets to mitigate GHG emissions is expressly recognized in CEQA Guidelines Section 15126.4(c)(3)-(c)(4), and would reduce Proposed Project impacts associated with GHG emissions to a level that is **less than significant**.

Table 13
Estimated Annual GHG Emissions With Mitigation Measures (2025)

Emission Source	CO_2e Metric Tons per Year
Construction Emissions (~~Amortized Over 30 Years~~one time)	4,951
Reductions from MM-GHG-3	(4,951)~~165~~
Annual Operational Emissions (Includes reductions from PV systems and water efficient infrastructure per MM-GHG-1)	10,288
Loss of Carbon from Vegetation Removal (Amortized Over 30 Years)	35
Annual Gain from Sequestered Carbon (Amortized Over 30 Years)	(35)
Project Life Operational Emissions (30 years)	308,640
Reductions from MM-GHG-2	(308,640~~2,890~~)
~~**Total Annual Emissions**~~	~~**7,563**~~
~~**Project Service Population**~~	~~**2,161**~~
~~**Service Person/Per Capita GHG Efficiency**~~**Net Emissions After Mitigation**	~~**3.5**~~[10]**0**

Notes: CO_2e = carbon dioxide equivalent.
Numbers in parentheses represent negative numbers.

5.2 Consistency with Applicable Plans, Policies, and Regulations Adopted for the Purpose of Reducing GHG Emissions

Consistency with SANDAG'S San Diego Forward: The Regional Plan

Regarding consistency with SANDAG's Regional Plan, the Proposed Project would be developed to support the policy objectives of the RTP and SB 375. For example, the Proposed

~~[10] 7,563 MT CO_2e ÷ 2,161 service population = 3.5 MT CO_2e/SP/yr.~~

Project would develop a mixed use community that would include residential uses, agriculture supported activities, and commercial amenities. Additionally, on-site generation of energy for electricity which will offset a portion of residential electricity consumption and power all community facilities would support environmental stewardship in everyday operations of the Proposed Project.

Table 14 illustrates the Proposed Project's consistency with applicable goals and policies of *San Diego Forward: The Regional Plan* (SANDAG 2015).

Table 14
San Diego Forward: The Regional Plan Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
The Regional Plan – Policy Objectives		
Mobility Choices	Provide safe, secure, healthy, affordable, and convenient travel choices between the places where people live, work, and play.	*Not applicable.* The Proposed Project would not impair the ability of SANDAG to provide additional transportation choices within the region.
Mobility Choices	Take advantage of new technologies to make the transportation system more efficient and environmentally friendly.	*Not applicable.* The Proposed Project would not impair the ability of SANDAG to implement new technologies within the transportation system within the region.
Habitat and Open Space Preservation	Focus growth in areas that are already urbanized, allowing the region to set aside and restore more open space in our less developed areas.	*Consistent.* The Proposed Project would not impact any open space. The Proposed Project would develop existing agriculture land with a community farm which would promote sustainability, provide education and opportunities to capture elements of local agriculture and would promote agritourism.
Habitat and Open Space Preservation	Protect and restore our region's urban canyons, coastlines, beaches, and water resources.	*Consistent.* The Proposed Project would be located on an already utilized site that has been used for agriculture. The Proposed Project would not impact any open space.
Regional Economic Prosperity	Invest in transportation projects that provide access for all communities to a variety of jobs with competitive wages.	*Not Applicable.* The Proposed Project would not impair the ability of SANDAG to invest in transportation projects available to all members of the Community.
Regional Economic Prosperity	Build infrastructure that makes the movement of freight in our community more efficient and environmentally friendly.	*Not Applicable.* The Proposed Project does not propose regional freight movement, nor would it impair SANDAG's ability to preserve and expand options for regional freight movement.

Table 14
San Diego Forward: The Regional Plan Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
Partnerships/Collaboration	Collaborate with Native American tribes, Mexico, military bases, neighboring counties, infrastructure providers, the private sector, and local communities to design a transportation system that connects to the mega-region and national network, and works for everyone and fosters a high quality of life for all.	*Not Applicable.* The Proposed Project would not impair the ability of SANDAG to provide transportation choices to better connect the San Diego region with Mexico, neighboring counties, and tribal nations. Furthermore, the Proposed Project has coordinated with Native American tribes and neighboring jurisdictions.
Partnerships/Collaboration	As we plan for our region, recognize the vital economic, environmental, cultural, and community linkages between the San Diego region and Baja California.	*Not Applicable.* The Proposed Project would not impair the ability of SANDAG to provide transportation choices to better connect the San Diego region with Mexico.
Healthy and Complete Communities	Create great places for everyone to live, work, and play.	*Consistent*. The proposed project's internal circulation features would provide residents the opportunity to access recreational and commercial uses via multiple modes of transportation. The proposed project would encourage non-vehicular modes of transportation through the inclusion of an extensive walking and bicycling network.~~*Not Applicable.* The Proposed Project would develop a community farm which encompasses promoting local and sustainable agriculture. The Proposed Project would not impair the SANDAG to provide healthy and complete communities.~~
Healthy and Complete Communities	Connect communities through a variety of transportation choices that promote healthy lifestyles, including walking and biking.	*Not Applicable.* The Proposed Project would not impair the ability for SANDAG to create additional transportation opportunities to promote a healthy lifestyle.
Environmental Stewardship	Make transportation investments that result in cleaner air, environmental protection, conservation, efficiency, and sustainable living.	*Consistent.* The Proposed Project would promote walkability and alternative transportation by creating neighborhoods that are linked by a series of interconnected multi use trails, sidewalks, and bicycle facilities that will connect residents to existing transit and the river trail system. Thus the Proposed Project would help reduce the local GHG and air emissions.
Environmental Stewardship	Support energy programs that promote sustainability.	*Consistent.* The Proposed Project would include on-site renewable energy production through a solar photovoltaic rooftop system for residential units which would offset a portion of their electricity consumption.
Sustainable Communities Strategy (SCS) – Strategies		
Strategy #1	Focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure, including transit.	*Consistent.* The Proposed Project would be located near major urban and employment centers.

Table 14
San Diego Forward: The Regional Plan Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
Strategy #2	Protect the environment and help ensure the success of smart growth land use policies by preserving sensitive habitat, open space, cultural resources, and farmland.	*Consistent.* The Proposed Project would not impact any sensitive habitat or open space as it would be located on existing agriculture land.
Strategy #3	Invest in a transportation network that gives people transportation choices and reduces GHG emissions.	*Not Applicable.* The Proposed Project would not impair SANDAG's ability to invest in transportation network choices that reduce GHG emissions.
Strategy #4	Address the housing needs of all economic segments of the population.	*Not Applicable.* The Proposed Project would develop 689 residential units which includes single family and medium residential.
Strategy #5	Implement the Regional Plan through incentives and collaboration.	*Not Applicable.* The Proposed Project would not impair the ability of SANDAG to implement the RTP through incentives and collaborations.

Source: SANDAG 2015.

As shown in Table 14, the Proposed Project is consistent with applicable Policy Objectives and Strategies from the Regional Plan.

Consistency Analysis with City of Oceanside General Plan

The Proposed Project also would be consistent with the goals set forth in the City's Environmental Resource Management Element, Land Use Element, and Circulation Element of the General Plan that are designed to reduce the emissions of GHGs; reduce energy use in buildings and infrastructure; and promote the use of renewable energy sources, conservation, and other methods of efficiency. Table 15 outlines the Proposed Project's consistency with applicable General Plan goals.

Table 15
City of Oceanside General Plan – Project Consistency Analysis

Goal	Consistency Analysis
Environmental Resource Management Element[a]	
Air Quality. Cooperate with County, State, and federal agencies in continuing programs of air quality improvement.	*Consistent*. The Proposed Project would not impair the City's ability to work with the County, State, and other local agencies.
Land Use Element[b]	
Air Quality. The City shall cooperate with the San Diego County Air Pollution Control Board, and participate in the Regional Air Control Strategy (RAQS).	*Consistent.* The Proposed Project would not impair the City's ability to work with the SDAPCD Board or RAQS.

Table 15
City of Oceanside General Plan – Project Consistency Analysis

Goal	Consistency Analysis
Bicycle Facilities. Policy A: Development shall provide Class II Bikeways (Bike Lanes) on all secondary, major, and prime arterials.	*Consistent.* The implementation of road improvements by the Proposed Project would create new linkages to the City's existing bicycle and pedestrian network and implements recommendations identified in the City of Oceanside 2008 Bicycle Master Plan. The Proposed Project would improve the current street design by continuing the Class II bike lanes for North River Road and creating a multi-purpose Class III trail along North River Road and the backbone streets. This trail will connect to internal off street connections linking pedestrian and bicycle access into the transportation network.
Bicycle Facilities. Policy D: The use of land shall integrate the Bicycle Circulation System with auto, pedestrian, and transit systems: 1. Development shall provide short-term bicycle parking and long-term bicycle storage facilities such as bicycle racks, pedestal posts, and rental bicycle lockers. 2. Development shall provide safe and convenient bicycle access to high activity land uses, such as schools, parks, shopping, employment, and entertainment centers.	*Consistent.* The Proposed Project would include Class II and Class III bicycle lanes and Class I trails along private roads and North River Road within the project site. A multi-use trail system would also be developed throughout and around the perimeter of the community that totals over 3 miles. Additionally, smart stops will be integrated into the street network to allow for the safe drop-off and pick-up of bicycle sharing passengers.
Pedestrian. Policy A: The construction of five (5) foot wide sidewalks adjacent to the curb shall be required in all new developments and street improvements.	*Consistent.* The implementation of road improvements by the Proposed Project would create new linkages to the City's existing pedestrian network and implements recommendations identified in the City of Oceanside 2008 Bicycle Master Plan. Additionally, a multi-use trail system is planned throughout and around the perimeter of the community that totals over 3 miles.
Transit System. Policy A: The City shall coordinate and encourage the existing bus system to serve newly developed areas.	*Consistent.* The North County Transit District operates a transit center at Vandergrift and North River Road located approximately 1 mile from the Village Core.
Energy. Policy A. The City shall encourage the design, installation, and use of passive and active solar collection systems.	*Consistent.* All residential units would include the installation of photovoltaic panels to offset a portion of their electrical consumption. Additionally, photovoltaic panels will power all streetlights on community facilities (e.g., pool areas, recreation centers) to offset electrical use.
Energy. Policy B. The City shall encourage the use of energy efficient design, structures, materials, and equipment in all land developments or uses.	*Consistent.* The Proposed Project would incorporate integrated energy efficient measures such as daylighting, passive solar design, high efficiency HVAC equipment, and natural ventilation. Additionally, the Proposed Project would look to exceed the City's minimum requirement of the 2016 California Green Building Standards (CalGreen) Tier 1 equipment.
Circulation Element[c]	
Policy 2.5. The City will strive to incorporate complete streets throughout Oceanside.	*Not applicable.* The Proposed Project would not impair the City's ability to incorporate complete streets throughout the City.
Pedestrian Facilities. Support walking as a primary means of transportation.	*Not applicable.* The Proposed Project would not impair the City's ability to improve the walkability throughout the City.

Table 15
City of Oceanside General Plan – Project Consistency Analysis

Goal	Consistency Analysis
Intelligent Transportation System Technologies. Improve air quality and reduce greenhouse gas emissions through traffic signal optimization and the use of advanced signal control technologies.	*Not applicable.* The Proposed Project would not impair the City's ability to optimize traffic signals or use advanced signal control technologies.
Transportation Demand Management. The City shall look for opportunities to incorporate TDM programs into their Energy Roadmap that contributes to state and regional goals for saving energy and reducing greenhouse gas emissions.	*Not applicable.* The Proposed Project would not impair the City's ability to incorporate TDM strategies into their Energy Roadmap. The Proposed Project would reduce haul truck traffic as a result in the reduction of operational throughput.

Sources:
[a] City of Oceanside 1975; [b] City of Oceanside 1986; [c] City of Oceanside 2002.

As shown in Table 15, the Proposed Project would be consistent with applicable and goals and policies of the City's General Plan to the extent feasible.

Consistency with SB 32 and EO S-3-05

- **EO S-3-05.** This EO establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.
- **SB 32.** This bill establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030.

This section evaluates whether the GHG emissions trajectory after Proposed Project completion would impede the attainment of the 2030 and 2050 GHG reduction goals identified in EOs B-30-15 and S-3-05.

To begin, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014, p. ES2). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the *First Update to the Climate Change Scoping Plan* states the following (CARB 2014, p. 34):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable

> distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, EO B-30-15, and EO S-3-05. This is confirmed in the Second Update which states (CARB 2017b, p. 7):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The Proposed Project may interfere with implementation of any of the above-described GHG reduction goals for 2030 or 2050 because the Proposed Project would result in an exceedance of the calculated efficiency metric (as described in Section 5.1). Therefore, the Proposed Project would not be consistent with SB 32 and EO S-3-05 and GHG emissions could be a **potentially significant impact**.

Mitigation Measures

Implementation of MM-GHG-1 ~~and~~ through MM-GHG-~~2~~ 3 would be required to reduce impacts related to the potential for the Proposed Project to conflict with SB 32 and EO S-3-05. No mitigation measures in addition to MM-GHG-1 through~~and~~ MM-GHG-~~2~~ 3 would be required.

Level of Significance After Mitigation

The Proposed Project was shown to be consistent with SANDAG's Regional Plan and the City of Oceanside General Plan, and would not require mitigation.

Implementation of MM-GHG-1 would reduce GHG emissions associated with the Proposed Project operations. The emission reductions associated with measures listed in MM-GHG-1 have been quantified in CalEEMod to the extent feasible. With implementation of MM-GHG-2 and MM-GHG-3, the Proposed Project would reduce impacts from GHG emissions through the

purchase of carbon offsets resulting ~~in GHG emissions that~~that would ensure the Proposed Project would not exceed the calculated efficiency metric of 3.5 MT CO_2e/SP/yr. Therefore, the Proposed Project would not interfere with implementation of any of the GHG reduction goals for 2030 or 2050 (described in Section 5.2) with implementation of mitigation. In addition, since the specific path to compliance for future long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the Proposed Project which could further reduce operational GHG emissions would be speculative and cannot be identified at this time. Therefore, the Proposed Project would be consistent with SB 32 and EO S-3-05 with implementation of mitigation.

With implementation of MM-GHG-1 ~~and~~ through MM-GHG-~~2~~3, the Proposed Project would not conflict with any plans adopted with the purpose of reducing GHG emissions; therefore, the Proposed Project's impacts on GHG emissions would be **less than significant with mitigation**.

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APPENDIX A

Emission Calculations

CalEEMod Version: CalEEMod.2016.3.2

Date: 4/25/2018 8:17 AM

North River Farms - Construction

San Diego County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	30.00	4,000.00	0
Other Asphalt Surfaces	40.40	Acre	40.40	1,759,824.00	0
Parking Lot	421.00	Space	3.79	168,400.00	0
City Park	12.96	Acre	12.96	564,537.60	0
Hotel	100.00	Room	3.33	60,000.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0
Condo/Townhouse	130.00	Dwelling Unit	8.13	130,000.00	372
Single Family Housing	559.00	Dwelling Unit	73.05	1,006,200.00	1599
Regional Shopping Center	25.00	1000sqft	6.57	25,000.00	0

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction run.

Land Use - 559 SF residences, 130 MF residences, 30 acres of agriculture, 12.96 acres in park/open space, 25 ksf in retail, 5 ksf restaurant, 100 room hotel, 40.4 acres in roadway, and 421 parking spaces. Service population based on 2.81 persons per du.

Construction Phase - Construction would begin June 2019 and woould be completed in August 2024.

Off-road Equipment - Default equipment.

Off-road Equipment - Default equipment. Added 1 trencher for utlity work.

Off-road Equipment - Default equipment.

Off-road Equipment - Default equipment.

Off-road Equipment - Default equipment.

Off-road Equipment - Default equipment.

Trips and VMT - Default trips

On-road Fugitive Dust -

Demolition - 1,464 tons of debris removed.

Grading - Assumed soil balanced onsite.

Architectural Coating - Assume low VOC architectural coatings per SDAPCD Rule 67.0.1 (150g/L).

Construction Off-road Equipment Mitigation - Water three times per day. On-site speed limit of 15 mph.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	21.00
tblConstructionPhase	NumDays	120.00	24.00
tblConstructionPhase	NumDays	310.00	155.00
tblConstructionPhase	NumDays	220.00	135.00
tblConstructionPhase	NumDays	3,100.00	1,045.00
tblConstructionPhase	NumDays	220.00	525.00
tblLandUse	LandUseSquareFeet	0.00	4,000.00
tblLandUse	LandUseSquareFeet	145,200.00	60,000.00
tblLandUse	LotAcreage	0.00	30.00
tblLandUse	LotAcreage	181.49	73.05
tblLandUse	LotAcreage	0.57	6.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Building Construction
tblTripsAndVMT	VendorTripNumber	498.00	183.00
tblTripsAndVMT	WorkerTripNumber	1,379.00	96.00
tblTripsAndVMT	WorkerTripNumber	276.00	20.00

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	0.3488	3.8660	2.3291	4.3600e-003	0.7731	0.1752	0.9483	0.3243	0.1614	0.4856	0.0000	391.8187	391.8187	0.1182	0.0000	394.7745
2020	0.4575	4.5619	3.2999	7.9200e-003	0.5533	0.1853	0.7386	0.1555	0.1719	0.3274	0.0000	720.2448	720.2448	0.1437	0.0000	723.8366
2021	0.4154	5.2185	3.4707	0.0113	0.4581	0.1643	0.6223	0.1213	0.1539	0.2752	0.0000	1,053.1097	1,053.1097	0.1343	0.0000	1,056.4672
2022	2.9082	4.8863	3.4971	0.0114	0.4651	0.1460	0.6111	0.1232	0.1370	0.2602	0.0000	1,061.5637	1,061.5637	0.1328	0.0000	1,064.8829
2023	6.3181	4.3046	3.5706	0.0115	0.4772	0.1323	0.6095	0.1264	0.1245	0.2509	0.0000	1,071.5724	1,071.5724	0.1295	0.0000	1,074.8105
2024	3.7549	2.4643	2.0992	6.8300e-003	0.2845	0.0709	0.3554	0.0754	0.0667	0.1420	0.0000	634.2808	634.2808	0.0765	0.0000	636.1927
Maximum	**6.3181**	**5.2185**	**3.5706**	**0.0115**	**0.7731**	**0.1853**	**0.9483**	**0.3243**	**0.1719**	**0.4856**	**0.0000**	**1,071.5724**	**1,071.5724**	**0.1437**	**0.0000**	**1,074.8105**

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	0.3488	3.8660	2.3291	4.3600e-003	0.3093	0.1752	0.4845	0.1286	0.1614	0.2899	0.0000	391.8183	391.8183	0.1182	0.0000	394.7741
2020	0.4575	4.5619	3.2999	7.9200e-003	0.3398	0.1853	0.5251	0.0935	0.1719	0.2654	0.0000	720.2443	720.2443	0.1437	0.0000	723.8361
2021	0.4154	5.2185	3.4707	0.0113	0.4581	0.1643	0.6223	0.1213	0.1539	0.2752	0.0000	1,053.1093	1,053.1093	0.1343	0.0000	1,056.4668
2022	2.9082	4.8863	3.4971	0.0114	0.4651	0.1460	0.6111	0.1232	0.1370	0.2602	0.0000	1,061.5632	1,061.5632	0.1328	0.0000	1,064.8825
2023	6.3181	4.3046	3.5706	0.0115	0.4772	0.1323	0.6095	0.1264	0.1245	0.2509	0.0000	1,071.5719	1,071.5719	0.1295	0.0000	1,074.8100
2024	3.7549	2.4643	2.0992	6.8300e-003	0.2845	0.0709	0.3554	0.0754	0.0667	0.1420	0.0000	634.2805	634.2805	0.0765	0.0000	636.1924
Maximum	**6.3181**	**5.2185**	**3.5706**	**0.0115**	**0.4772**	**0.1853**	**0.6223**	**0.1286**	**0.1719**	**0.2899**	**0.0000**	**1,071.5719**	**1,071.5719**	**0.1437**	**0.0000**	**1,074.8100**

	ROG	NOx	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**	**22.49**	**0.00**	**17.43**	**27.83**	**0.00**	**14.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2019	7/1/2019	5	21	
2	Site Preparation	Site Preparation	7/2/2019	8/2/2019	5	24	
3	Grading	Grading	8/3/2019	3/6/2020	5	155	
4	Paving	Paving	3/7/2020	9/11/2020	5	135	
5	Building Construction	Building Construction	8/1/2020	8/2/2024	5	1045	
6	Architectural Coating	Architectural Coating	8/1/2022	8/2/2024	5	525	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 387.5

Acres of Paving: 44.19

Residential Indoor: 2,300,805; Residential Outdoor: 766,935; Non-Residential Indoor: 144,000; Non-Residential Outdoor: 48,000; Striped

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
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
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	Trenchers	1	8.00	78	0.50
Building Construction	Welders	1	8.00	46	0.45
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
Demolition	6	15.00	0.00	145.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	96.00	183.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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					0.0159	0.0000	0.0159	2.4000e-003	0.0000	2.4000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0369	0.3757	0.2316	4.1000e-004		0.0189	0.0189		0.0175	0.0175	0.0000	36.3577	36.3577	0.0101	0.0000	36.6105
Total	**0.0369**	**0.3757**	**0.2316**	**4.1000e-004**	**0.0159**	**0.0189**	**0.0347**	**2.4000e-003**	**0.0175**	**0.0199**	**0.0000**	**36.3577**	**36.3577**	**0.0101**	**0.0000**	**36.6105**

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	6.4000e-004	0.0222	4.8500e-003	6.0000e-005	1.2400e-003	8.0000e-005	1.3200e-003	3.4000e-004	8.0000e-005	4.2000e-004	0.0000	5.6521	5.6521	5.1000e-004	0.0000	5.6649
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.8000e-004	4.6100e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.1789	1.1789	4.0000e-005	0.0000	1.1798
Total	**1.2600e-003**	**0.0227**	**9.4600e-003**	**7.0000e-005**	**2.5000e-003**	**9.0000e-005**	**2.5900e-003**	**6.8000e-004**	**9.0000e-005**	**7.6000e-004**	**0.0000**	**6.8309**	**6.8309**	**5.5000e-004**	**0.0000**	**6.8447**

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					6.1900e-003	0.0000	6.1900e-003	9.4000e-004	0.0000	9.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0369	0.3757	0.2316	4.1000e-004		0.0189	0.0189		0.0175	0.0175	0.0000	36.3576	36.3576	0.0101	0.0000	36.6105
Total	**0.0369**	**0.3757**	**0.2316**	**4.1000e-004**	**6.1900e-003**	**0.0189**	**0.0250**	**9.4000e-004**	**0.0175**	**0.0185**	**0.0000**	**36.3576**	**36.3576**	**0.0101**	**0.0000**	**36.6105**

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	6.4000e-004	0.0222	4.8500e-003	6.0000e-005	1.2400e-003	8.0000e-005	1.3200e-003	3.4000e-004	8.0000e-005	4.2000e-004	0.0000	5.6521	5.6521	5.1000e-004	0.0000	5.6649
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.8000e-004	4.6100e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.1789	1.1789	4.0000e-005	0.0000	1.1798
Total	**1.2600e-003**	**0.0227**	**9.4600e-003**	**7.0000e-005**	**2.5000e-003**	**9.0000e-005**	**2.5900e-003**	**6.8000e-004**	**9.0000e-005**	**7.6000e-004**	**0.0000**	**6.8309**	**6.8309**	**5.5000e-004**	**0.0000**	**6.8447**

3.3 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					0.2168	0.0000	0.2168	0.1192	0.0000	0.1192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0520	0.5469	0.2648	4.6000e-004		0.0287	0.0287		0.0264	0.0264	0.0000	41.0024	41.0024	0.0130	0.0000	41.3267
Total	**0.0520**	**0.5469**	**0.2648**	**4.6000e-004**	**0.2168**	**0.0287**	**0.2455**	**0.1192**	**0.0264**	**0.1456**	**0.0000**	**41.0024**	**41.0024**	**0.0130**	**0.0000**	**41.3267**

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	8.5000e-004	6.5000e-004	6.3200e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.6168	1.6168	5.0000e-005	0.0000	1.6181
Total	**8.5000e-004**	**6.5000e-004**	**6.3200e-003**	**2.0000e-005**	**1.7300e-003**	**1.0000e-005**	**1.7400e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.6168**	**1.6168**	**5.0000e-005**	**0.0000**	**1.6181**

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					0.0846	0.0000	0.0846	0.0465	0.0000	0.0465	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0520	0.5469	0.2648	4.6000e-004		0.0287	0.0287		0.0264	0.0264	0.0000	41.0024	41.0024	0.0130	0.0000	41.3267
Total	**0.0520**	**0.5469**	**0.2648**	**4.6000e-004**	**0.0846**	**0.0287**	**0.1132**	**0.0465**	**0.0264**	**0.0729**	**0.0000**	**41.0024**	**41.0024**	**0.0130**	**0.0000**	**41.3267**

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	8.5000e-004	6.5000e-004	6.3200e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.6168	1.6168	5.0000e-005	0.0000	1.6181
Total	**8.5000e-004**	**6.5000e-004**	**6.3200e-003**	**2.0000e-005**	**1.7300e-003**	**1.0000e-005**	**1.7400e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.6168**	**1.6168**	**5.0000e-005**	**0.0000**	**1.6181**

3.4 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					0.5277	0.0000	0.5277	0.1993	0.0000	0.1993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2535	2.9168	1.7857	3.3200e-003		0.1275	0.1275		0.1173	0.1173	0.0000	298.0021	298.0021	0.0943	0.0000	300.3592
Total	**0.2535**	**2.9168**	**1.7857**	**3.3200e-003**	**0.5277**	**0.1275**	**0.6551**	**0.1993**	**0.1173**	**0.3166**	**0.0000**	**298.0021**	**298.0021**	**0.0943**	**0.0000**	**300.3592**

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	4.2200e-003	3.2400e-003	0.0313	9.0000e-005	8.5800e-003	6.0000e-005	8.6400e-003	2.2800e-003	6.0000e-005	2.3400e-003	0.0000	8.0089	8.0089	2.6000e-004	0.0000	8.0154
Total	**4.2200e-003**	**3.2400e-003**	**0.0313**	**9.0000e-005**	**8.5800e-003**	**6.0000e-005**	**8.6400e-003**	**2.2800e-003**	**6.0000e-005**	**2.3400e-003**	**0.0000**	**8.0089**	**8.0089**	**2.6000e-004**	**0.0000**	**8.0154**

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					0.2058	0.0000	0.2058	0.0777	0.0000	0.0777	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2535	2.9168	1.7857	3.3200e-003		0.1275	0.1275		0.1173	0.1173	0.0000	298.0017	298.0017	0.0943	0.0000	300.3588
Total	**0.2535**	**2.9168**	**1.7857**	**3.3200e-003**	**0.2058**	**0.1275**	**0.3333**	**0.0777**	**0.1173**	**0.1950**	**0.0000**	**298.0017**	**298.0017**	**0.0943**	**0.0000**	**300.3588**

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	4.2200e-003	3.2400e-003	0.0313	9.0000e-005	8.5800e-003	6.0000e-005	8.6400e-003	2.2800e-003	6.0000e-005	2.3400e-003	0.0000	8.0089	8.0089	2.6000e-004	0.0000	8.0154
Total	**4.2200e-003**	**3.2400e-003**	**0.0313**	**9.0000e-005**	**8.5800e-003**	**6.0000e-005**	**8.6400e-003**	**2.2800e-003**	**6.0000e-005**	**2.3400e-003**	**0.0000**	**8.0089**	**8.0089**	**2.6000e-004**	**0.0000**	**8.0154**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3500	0.0000	0.3500	0.1016	0.0000	0.1016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1068	1.2047	0.7670	1.4900e-003		0.0522	0.0522		0.0480	0.0480	0.0000	130.7623	130.7623	0.0423	0.0000	131.8196
Total	**0.1068**	**1.2047**	**0.7670**	**1.4900e-003**	**0.3500**	**0.0522**	**0.4022**	**0.1016**	**0.0480**	**0.1496**	**0.0000**	**130.7623**	**130.7623**	**0.0423**	**0.0000**	**131.8196**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7700e-003	1.3100e-003	0.0128	4.0000e-005	3.8500e-003	3.0000e-005	3.8800e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.4794	3.4794	1.0000e-004	0.0000	3.4820
Total	**1.7700e-003**	**1.3100e-003**	**0.0128**	**4.0000e-005**	**3.8500e-003**	**3.0000e-005**	**3.8800e-003**	**1.0200e-003**	**3.0000e-005**	**1.0500e-003**	**0.0000**	**3.4794**	**3.4794**	**1.0000e-004**	**0.0000**	**3.4820**

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					0.1365	0.0000	0.1365	0.0396	0.0000	0.0396	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1068	1.2047	0.7670	1.4900e-003		0.0522	0.0522		0.0480	0.0480	0.0000	130.7622	130.7622	0.0423	0.0000	131.8194
Total	**0.1068**	**1.2047**	**0.7670**	**1.4900e-003**	**0.1365**	**0.0522**	**0.1887**	**0.0396**	**0.0480**	**0.0876**	**0.0000**	**130.7622**	**130.7622**	**0.0423**	**0.0000**	**131.8194**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7700e-003	1.3100e-003	0.0128	4.0000e-005	3.8500e-003	3.0000e-005	3.8800e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.4794	3.4794	1.0000e-004	0.0000	3.4820
Total	**1.7700e-003**	**1.3100e-003**	**0.0128**	**4.0000e-005**	**3.8500e-003**	**3.0000e-005**	**3.8800e-003**	**1.0200e-003**	**3.0000e-005**	**1.0500e-003**	**0.0000**	**3.4794**	**3.4794**	**1.0000e-004**	**0.0000**	**3.4820**

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	0.0916	0.9494	0.9890	1.5400e-003		0.0508	0.0508		0.0468	0.0468	0.0000	135.1905	135.1905	0.0437	0.0000	136.2836
Paving	0.0579					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1495**	**0.9494**	**0.9890**	**1.5400e-003**		**0.0508**	**0.0508**		**0.0468**	**0.0468**	**0.0000**	**135.1905**	**135.1905**	**0.0437**	**0.0000**	**136.2836**

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	3.7300e-003	2.7600e-003	0.0271	8.0000e-005	8.1200e-003	6.0000e-005	8.1800e-003	2.1600e-003	5.0000e-005	2.2100e-003	0.0000	7.3394	7.3394	2.2000e-004	0.0000	7.3449
Total	**3.7300e-003**	**2.7600e-003**	**0.0271**	**8.0000e-005**	**8.1200e-003**	**6.0000e-005**	**8.1800e-003**	**2.1600e-003**	**5.0000e-005**	**2.2100e-003**	**0.0000**	**7.3394**	**7.3394**	**2.2000e-004**	**0.0000**	**7.3449**

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	0.0916	0.9494	0.9890	1.5400e-003		0.0508	0.0508		0.0468	0.0468	0.0000	135.1903	135.1903	0.0437	0.0000	136.2834
Paving	0.0579					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1495**	**0.9494**	**0.9890**	**1.5400e-003**		**0.0508**	**0.0508**		**0.0468**	**0.0468**	**0.0000**	**135.1903**	**135.1903**	**0.0437**	**0.0000**	**136.2834**

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	3.7300e-003	2.7600e-003	0.0271	8.0000e-005	8.1200e-003	6.0000e-005	8.1800e-003	2.1600e-003	5.0000e-005	2.2100e-003	0.0000	7.3394	7.3394	2.2000e-004	0.0000	7.3449
Total	**3.7300e-003**	**2.7600e-003**	**0.0271**	**8.0000e-005**	**8.1200e-003**	**6.0000e-005**	**8.1800e-003**	**2.1600e-003**	**5.0000e-005**	**2.2100e-003**	**0.0000**	**7.3394**	**7.3394**	**2.2000e-004**	**0.0000**	**7.3449**

3.6 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	0.1384	1.2526	1.0619	1.6500e-003		0.0764	0.0764		0.0715	0.0715	0.0000	142.3855	142.3855	0.0360	0.0000	143.2861
Total	**0.1384**	**1.2526**	**1.0619**	**1.6500e-003**		**0.0764**	**0.0764**		**0.0715**	**0.0715**	**0.0000**	**142.3855**	**142.3855**	**0.0360**	**0.0000**	**143.2861**

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	0.0380	1.1368	0.3020	2.7000e-003	0.1130	5.5500e-003	0.1186	0.0306	5.3100e-003	0.0359	0.0000	263.1622	263.1622	0.0202	0.0000	263.6665
Worker	0.0193	0.0143	0.1400	4.2000e-004	0.0783	3.0000e-004	0.0786	0.0201	2.8000e-004	0.0203	0.0000	37.9255	37.9255	1.1400e-003	0.0000	37.9540
Total	**0.0573**	**1.1511**	**0.4420**	**3.1200e-003**	**0.1913**	**5.8500e-003**	**0.1971**	**0.0507**	**5.5900e-003**	**0.0563**	**0.0000**	**301.0877**	**301.0877**	**0.0213**	**0.0000**	**301.6204**

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	0.1384	1.2526	1.0619	1.6500e-003		0.0764	0.0764		0.0715	0.0715	0.0000	142.3854	142.3854	0.0360	0.0000	143.2859
Total	**0.1384**	**1.2526**	**1.0619**	**1.6500e-003**		**0.0764**	**0.0764**		**0.0715**	**0.0715**	**0.0000**	**142.3854**	**142.3854**	**0.0360**	**0.0000**	**143.2859**

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	0.0380	1.1368	0.3020	2.7000e-003	0.1130	5.5500e-003	0.1186	0.0306	5.3100e-003	0.0359	0.0000	263.1622	263.1622	0.0202	0.0000	263.6665
Worker	0.0193	0.0143	0.1400	4.2000e-004	0.0783	3.0000e-004	0.0786	0.0201	2.8000e-004	0.0203	0.0000	37.9255	37.9255	1.1400e-003	0.0000	37.9540
Total	**0.0573**	**1.1511**	**0.4420**	**3.1200e-003**	**0.1913**	**5.8500e-003**	**0.1971**	**0.0507**	**5.5900e-003**	**0.0563**	**0.0000**	**301.0877**	**301.0877**	**0.0213**	**0.0000**	**301.6204**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2980	2.7332	2.5032	3.9500e-003		0.1584	0.1584		0.1482	0.1482	0.0000	340.9902	340.9902	0.0855	0.0000	343.1264
Total	**0.2980**	**2.7332**	**2.5032**	**3.9500e-003**		**0.1584**	**0.1584**		**0.1482**	**0.1482**	**0.0000**	**340.9902**	**340.9902**	**0.0855**	**0.0000**	**343.1264**

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	0.0738	2.4542	0.6545	6.4000e-003	0.2706	5.1900e-003	0.2758	0.0733	4.9700e-003	0.0782	0.0000	624.3580	624.3580	0.0463	0.0000	625.5165
Worker	0.0436	0.0311	0.3130	9.7000e-004	0.1875	7.1000e-004	0.1882	0.0481	6.5000e-004	0.0487	0.0000	87.7615	87.7615	2.5200e-003	0.0000	87.8244
Total	**0.1174**	**2.4853**	**0.9675**	**7.3700e-003**	**0.4581**	**5.9000e-003**	**0.4640**	**0.1213**	**5.6200e-003**	**0.1269**	**0.0000**	**712.1195**	**712.1195**	**0.0489**	**0.0000**	**713.3409**

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	0.2980	2.7332	2.5032	3.9500e-003		0.1584	0.1584		0.1482	0.1482	0.0000	340.9898	340.9898	0.0855	0.0000	343.1260
Total	**0.2980**	**2.7332**	**2.5032**	**3.9500e-003**		**0.1584**	**0.1584**		**0.1482**	**0.1482**	**0.0000**	**340.9898**	**340.9898**	**0.0855**	**0.0000**	**343.1260**

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	0.0738	2.4542	0.6545	6.4000e-003	0.2706	5.1900e-003	0.2758	0.0733	4.9700e-003	0.0782	0.0000	624.3580	624.3580	0.0463	0.0000	625.5165
Worker	0.0436	0.0311	0.3130	9.7000e-004	0.1875	7.1000e-004	0.1882	0.0481	6.5000e-004	0.0487	0.0000	87.7615	87.7615	2.5200e-003	0.0000	87.8244
Total	**0.1174**	**2.4853**	**0.9675**	**7.3700e-003**	**0.4581**	**5.9000e-003**	**0.4640**	**0.1213**	**5.6200e-003**	**0.1269**	**0.0000**	**712.1195**	**712.1195**	**0.0489**	**0.0000**	**713.3409**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2691	2.4694	2.4651	3.9400e-003		0.1363	0.1363		0.1276	0.1276	0.0000	339.8013	339.8013	0.0846	0.0000	341.9173
Total	**0.2691**	**2.4694**	**2.4651**	**3.9400e-003**		**0.1363**	**0.1363**		**0.1276**	**0.1276**	**0.0000**	**339.8013**	**339.8013**	**0.0846**	**0.0000**	**341.9173**

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	0.0684	2.3087	0.6173	6.3000e-003	0.2696	4.4500e-003	0.2740	0.0730	4.2600e-003	0.0773	0.0000	616.0758	616.0758	0.0447	0.0000	617.1937
Worker	0.0411	0.0282	0.2895	9.3000e-004	0.1867	6.9000e-004	0.1874	0.0479	6.4000e-004	0.0485	0.0000	84.2204	84.2204	2.3000e-003	0.0000	84.2778
Total	**0.1095**	**2.3369**	**0.9067**	**7.2300e-003**	**0.4563**	**5.1400e-003**	**0.4615**	**0.1209**	**4.9000e-003**	**0.1258**	**0.0000**	**700.2962**	**700.2962**	**0.0470**	**0.0000**	**701.4715**

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	0.2691	2.4694	2.4651	3.9400e-003		0.1363	0.1363		0.1276	0.1276	0.0000	339.8009	339.8009	0.0846	0.0000	341.9169
Total	**0.2691**	**2.4694**	**2.4651**	**3.9400e-003**		**0.1363**	**0.1363**		**0.1276**	**0.1276**	**0.0000**	**339.8009**	**339.8009**	**0.0846**	**0.0000**	**341.9169**

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	0.0684	2.3087	0.6173	6.3000e-003	0.2696	4.4500e-003	0.2740	0.0730	4.2600e-003	0.0773	0.0000	616.0758	616.0758	0.0447	0.0000	617.1937
Worker	0.0411	0.0282	0.2895	9.3000e-004	0.1867	6.9000e-004	0.1874	0.0479	6.4000e-004	0.0485	0.0000	84.2204	84.2204	2.3000e-003	0.0000	84.2778
Total	**0.1095**	**2.3369**	**0.9067**	**7.2300e-003**	**0.4563**	**5.1400e-003**	**0.4615**	**0.1209**	**4.9000e-003**	**0.1258**	**0.0000**	**700.2962**	**700.2962**	**0.0470**	**0.0000**	**701.4715**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2495	2.2904	2.4487	3.9400e-003		0.1201	0.1201		0.1124	0.1124	0.0000	339.9342	339.9342	0.0842	0.0000	342.0383
Total	**0.2495**	**2.2904**	**2.4487**	**3.9400e-003**		**0.1201**	**0.1201**		**0.1124**	**0.1124**	**0.0000**	**339.9342**	**339.9342**	**0.0842**	**0.0000**	**342.0383**

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	0.0528	1.8137	0.5621	6.1300e-003	0.2696	2.1700e-003	0.2717	0.0730	2.0800e-003	0.0751	0.0000	600.5668	600.5668	0.0408	0.0000	601.5877
Worker	0.0389	0.0258	0.2685	9.0000e-004	0.1867	6.8000e-004	0.1874	0.0479	6.3000e-004	0.0485	0.0000	81.0034	81.0034	2.1000e-003	0.0000	81.0558
Total	**0.0917**	**1.8395**	**0.8306**	**7.0300e-003**	**0.4563**	**2.8500e-003**	**0.4592**	**0.1209**	**2.7100e-003**	**0.1236**	**0.0000**	**681.5702**	**681.5702**	**0.0429**	**0.0000**	**682.6436**

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	0.2495	2.2903	2.4487	3.9400e-003		0.1201	0.1201		0.1124	0.1124	0.0000	339.9338	339.9338	0.0842	0.0000	342.0379
Total	**0.2495**	**2.2903**	**2.4487**	**3.9400e-003**		**0.1201**	**0.1201**		**0.1124**	**0.1124**	**0.0000**	**339.9338**	**339.9338**	**0.0842**	**0.0000**	**342.0379**

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	0.0528	1.8137	0.5621	6.1300e-003	0.2696	2.1700e-003	0.2717	0.0730	2.0800e-003	0.0751	0.0000	600.5668	600.5668	0.0408	0.0000	601.5877
Worker	0.0389	0.0258	0.2685	9.0000e-004	0.1867	6.8000e-004	0.1874	0.0479	6.3000e-004	0.0485	0.0000	81.0034	81.0034	2.1000e-003	0.0000	81.0558
Total	**0.0917**	**1.8395**	**0.8306**	**7.0300e-003**	**0.4563**	**2.8500e-003**	**0.4592**	**0.1209**	**2.7100e-003**	**0.1236**	**0.0000**	**681.5702**	**681.5702**	**0.0429**	**0.0000**	**682.6436**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1404	1.2868	1.4538	2.3500e-003		0.0645	0.0645		0.0603	0.0603	0.0000	202.6846	202.6846	0.0499	0.0000	203.9329
Total	**0.1404**	**1.2868**	**1.4538**	**2.3500e-003**		**0.0645**	**0.0645**		**0.0603**	**0.0603**	**0.0000**	**202.6846**	**202.6846**	**0.0499**	**0.0000**	**203.9329**

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	0.0304	1.0661	0.3245	3.6300e-003	0.1607	1.2600e-003	0.1620	0.0435	1.2100e-003	0.0447	0.0000	355.7546	355.7546	0.0241	0.0000	356.3558
Worker	0.0221	0.0141	0.1495	5.1000e-004	0.1113	4.0000e-004	0.1117	0.0285	3.7000e-004	0.0289	0.0000	46.3893	46.3893	1.1500e-003	0.0000	46.4181
Total	**0.0524**	**1.0801**	**0.4739**	**4.1400e-003**	**0.2720**	**1.6600e-003**	**0.2737**	**0.0721**	**1.5800e-003**	**0.0736**	**0.0000**	**402.1440**	**402.1440**	**0.0252**	**0.0000**	**402.7738**

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	0.1404	1.2867	1.4538	2.3500e-003		0.0645	0.0645		0.0603	0.0603	0.0000	202.6844	202.6844	0.0499	0.0000	203.9326
Total	**0.1404**	**1.2867**	**1.4538**	**2.3500e-003**		**0.0645**	**0.0645**		**0.0603**	**0.0603**	**0.0000**	**202.6844**	**202.6844**	**0.0499**	**0.0000**	**203.9326**

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	0.0304	1.0661	0.3245	3.6300e-003	0.1607	1.2600e-003	0.1620	0.0435	1.2100e-003	0.0447	0.0000	355.7546	355.7546	0.0241	0.0000	356.3558
Worker	0.0221	0.0141	0.1495	5.1000e-004	0.1113	4.0000e-004	0.1117	0.0285	3.7000e-004	0.0289	0.0000	46.3893	46.3893	1.1500e-003	0.0000	46.4181
Total	**0.0524**	**1.0801**	**0.4739**	**4.1400e-003**	**0.2720**	**1.6600e-003**	**0.2737**	**0.0721**	**1.5800e-003**	**0.0736**	**0.0000**	**402.1440**	**402.1440**	**0.0252**	**0.0000**	**402.7738**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.5147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.0775	0.0998	1.6000e-004		4.4900e-003	4.4900e-003		4.4900e-003	4.4900e-003	0.0000	14.0429	14.0429	9.1000e-004	0.0000	14.0658
Total	**2.5260**	**0.0775**	**0.0998**	**1.6000e-004**		**4.4900e-003**	**4.4900e-003**		**4.4900e-003**	**4.4900e-003**	**0.0000**	**14.0429**	**14.0429**	**9.1000e-004**	**0.0000**	**14.0658**

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	3.6200e-003	2.4900e-003	0.0255	8.0000e-005	8.8200e-003	6.0000e-005	8.8800e-003	2.3400e-003	6.0000e-005	2.4000e-003	0.0000	7.4233	7.4233	2.0000e-004	0.0000	7.4283
Total	**3.6200e-003**	**2.4900e-003**	**0.0255**	**8.0000e-005**	**8.8200e-003**	**6.0000e-005**	**8.8800e-003**	**2.3400e-003**	**6.0000e-005**	**2.4000e-003**	**0.0000**	**7.4233**	**7.4233**	**2.0000e-004**	**0.0000**	**7.4283**

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	2.5147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.0775	0.0998	1.6000e-004		4.4900e-003	4.4900e-003		4.4900e-003	4.4900e-003	0.0000	14.0429	14.0429	9.1000e-004	0.0000	14.0657
Total	**2.5260**	**0.0775**	**0.0998**	**1.6000e-004**		**4.4900e-003**	**4.4900e-003**		**4.4900e-003**	**4.4900e-003**	**0.0000**	**14.0429**	**14.0429**	**9.1000e-004**	**0.0000**	**14.0657**

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	3.6200e-003	2.4900e-003	0.0255	8.0000e-005	8.8200e-003	6.0000e-005	8.8800e-003	2.3400e-003	6.0000e-005	2.4000e-003	0.0000	7.4233	7.4233	2.0000e-004	0.0000	7.4283
Total	**3.6200e-003**	**2.4900e-003**	**0.0255**	**8.0000e-005**	**8.8200e-003**	**6.0000e-005**	**8.8800e-003**	**2.3400e-003**	**6.0000e-005**	**2.4000e-003**	**0.0000**	**7.4233**	**7.4233**	**2.0000e-004**	**0.0000**	**7.4283**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.9438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.1694	0.2355	3.9000e-004		9.2100e-003	9.2100e-003		9.2100e-003	9.2100e-003	0.0000	33.1923	33.1923	1.9900e-003	0.0000	33.2419
Total	**5.9688**	**0.1694**	**0.2355**	**3.9000e-004**		**9.2100e-003**	**9.2100e-003**		**9.2100e-003**	**9.2100e-003**	**0.0000**	**33.1923**	**33.1923**	**1.9900e-003**	**0.0000**	**33.2419**

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	8.1100e-003	5.3700e-003	0.0559	1.9000e-004	0.0209	1.4000e-004	0.0210	5.5400e-003	1.3000e-004	5.6700e-003	0.0000	16.8757	16.8757	4.4000e-004	0.0000	16.8866
Total	**8.1100e-003**	**5.3700e-003**	**0.0559**	**1.9000e-004**	**0.0209**	**1.4000e-004**	**0.0210**	**5.5400e-003**	**1.3000e-004**	**5.6700e-003**	**0.0000**	**16.8757**	**16.8757**	**4.4000e-004**	**0.0000**	**16.8866**

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	5.9438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.1694	0.2354	3.9000e-004		9.2100e-003	9.2100e-003		9.2100e-003	9.2100e-003	0.0000	33.1923	33.1923	1.9900e-003	0.0000	33.2419
Total	**5.9688**	**0.1694**	**0.2354**	**3.9000e-004**		**9.2100e-003**	**9.2100e-003**		**9.2100e-003**	**9.2100e-003**	**0.0000**	**33.1923**	**33.1923**	**1.9900e-003**	**0.0000**	**33.2419**

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	8.1100e-003	5.3700e-003	0.0559	1.9000e-004	0.0209	1.4000e-004	0.0210	5.5400e-003	1.3000e-004	5.6700e-003	0.0000	16.8757	16.8757	4.4000e-004	0.0000	16.8866
Total	**8.1100e-003**	**5.3700e-003**	**0.0559**	**1.9000e-004**	**0.0209**	**1.4000e-004**	**0.0210**	**5.5400e-003**	**1.3000e-004**	**5.6700e-003**	**0.0000**	**16.8757**	**16.8757**	**4.4000e-004**	**0.0000**	**16.8866**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.5434					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0140	0.0945	0.1403	2.3000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003	0.0000	19.7877	19.7877	1.1100e-003	0.0000	19.8156
Total	**3.5575**	**0.0945**	**0.1403**	**2.3000e-004**		**4.7200e-003**	**4.7200e-003**		**4.7200e-003**	**4.7200e-003**	**0.0000**	**19.7877**	**19.7877**	**1.1100e-003**	**0.0000**	**19.8156**

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	4.6000e-003	2.9400e-003	0.0311	1.1000e-004	0.0124	8.0000e-005	0.0125	3.3000e-003	8.0000e-005	3.3800e-003	0.0000	9.6645	9.6645	2.4000e-004	0.0000	9.6704
Total	**4.6000e-003**	**2.9400e-003**	**0.0311**	**1.1000e-004**	**0.0124**	**8.0000e-005**	**0.0125**	**3.3000e-003**	**8.0000e-005**	**3.3800e-003**	**0.0000**	**9.6645**	**9.6645**	**2.4000e-004**	**0.0000**	**9.6704**

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	3.5434					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0140	0.0945	0.1403	2.3000e-004		4.7200e-003	4.7200e-003		4.7200e-003	4.7200e-003	0.0000	19.7877	19.7877	1.1100e-003	0.0000	19.8156
Total	**3.5575**	**0.0945**	**0.1403**	**2.3000e-004**		**4.7200e-003**	**4.7200e-003**		**4.7200e-003**	**4.7200e-003**	**0.0000**	**19.7877**	**19.7877**	**1.1100e-003**	**0.0000**	**19.8156**

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	4.6000e-003	2.9400e-003	0.0311	1.1000e-004	0.0124	8.0000e-005	0.0125	3.3000e-003	8.0000e-005	3.3800e-003	0.0000	9.6645	9.6645	2.4000e-004	0.0000	9.6704
Total	**4.6000e-003**	**2.9400e-003**	**0.0311**	**1.1000e-004**	**0.0124**	**8.0000e-005**	**0.0125**	**3.3000e-003**	**8.0000e-005**	**3.3800e-003**	**0.0000**	**9.6645**	**9.6645**	**2.4000e-004**	**0.0000**	**9.6704**

CalEEMod Version: CalEEMod.2016.3.2

Date: 4/26/2018 11:20 AM

North River Farms - Buildout Operations

San Diego County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	40.40	Acre	40.40	1,759,824.00	0
Parking Lot	421.00	Space	3.79	168,400.00	0
City Park	12.96	Acre	12.96	564,537.60	0
Golf Course	30.00	Acre	30.00	1,306,800.00	0
Hotel	100.00	Room	3.33	60,000.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0
Apartments Low Rise	130.00	Dwelling Unit	8.13	130,000.00	372
Condo/Townhouse	250.00	Dwelling Unit	32.67	250,000.00	715
Single Family Housing	309.00	Dwelling Unit	40.38	556,200.00	884
Regional Shopping Center	25.00	1000sqft	6.57	25,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	468.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Operations run. Adjusted CO2 Intensity based on 41.5% RPS by 2025 (interpolation between RPS 2020 and 2030 goals).

Land Use - Project includes 689 du, 30 acres of agirculture (golf course), 12.96 acres in park/open space (2,000 sf), 25 ksf in retail, 5 ksf restaurant, 100 room hotel, 40.4 acres in roadway and 421 parking spaces.

Construction Phase - Modeling operations only.

Off-road Equipment - Default equipment. Added 1 trencher for utlity work.

Off-road Equipment - Modeling operations only.

Trips and VMT - Modeling operations only.

On-road Fugitive Dust - Modeling operations only.

Demolition - Modeling operations only.

Grading - Modeling operations only.

Architectural Coating - Modeling operations only.

Vehicle Trips - Adjusted trip generation rates and trip lengths to match the information provided by LLG. Saturday and Sunday adjusted per weekday rates.

Woodstoves - Fireplaces assumed to be gas fueled rather than wood fueled. Default quantities also assumed.

Area Coating -

Energy Use - Updated T24, NT24, and Lighting for condo/townhouse to match single-family. Updated T24, NT24, and Lighting for all land uses based on PV Loads Report by VCA Green.

Water And Wastewater - Adjusted indoor and outdoor water use to match the information provided by Dexter Wilson Engineering.

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Project is located in a suburban setting and would increase diversity which accounts for the 5% mixed used reduction (LLG 2018).

Energy Mitigation - residential and nonresidential energy consumption would be offset.

Water Mitigation - Use of low-flow water fixtures.

Waste Mitigation - 75% waste diversion consistent with AB 341.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	0.00
tblEnergyUse	LightingElect	810.36	635.80
tblEnergyUse	LightingElect	1,001.10	918.19
tblEnergyUse	LightingElect	4.50	5.92
tblEnergyUse	LightingElect	6.78	4.96
tblEnergyUse	LightingElect	6.22	38.43
tblEnergyUse	LightingElect	1,608.84	945.01
tblEnergyUse	NT24E	3,172.76	2,410.23
tblEnergyUse	NT24E	3,795.01	3,513.31
tblEnergyUse	NT24E	3.67	4.83
tblEnergyUse	NT24E	23.69	17.34
tblEnergyUse	NT24E	3.16	19.53
tblEnergyUse	NT24E	6,155.97	3,615.94
tblEnergyUse	NT24NG	4,180.00	0.00
tblEnergyUse	NT24NG	4,180.00	0.00
tblEnergyUse	NT24NG	11.10	0.00
tblEnergyUse	NT24NG	138.46	0.00
tblEnergyUse	NT24NG	1.09	0.00
tblEnergyUse	NT24NG	4,180.00	0.00
tblEnergyUse	T24E	260.86	144.31
tblEnergyUse	T24E	227.22	188.95
tblEnergyUse	T24E	4.78	6.29
tblEnergyUse	T24E	8.23	6.02
tblEnergyUse	T24E	3.18	19.65
tblEnergyUse	T24E	331.07	194.47
tblEnergyUse	T24NG	7,045.49	0.00
tblEnergyUse	T24NG	10,202.85	0.00

tblEnergyUse	T24NG	47.27	0.00
tblEnergyUse	T24NG	35.92	0.00
tblEnergyUse	T24NG	1.14	0.00
tblEnergyUse	T24NG	19,206.92	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	71.50	117.00
tblFireplaces	NumberGas	137.50	225.00
tblFireplaces	NumberGas	169.95	278.10
tblFireplaces	NumberWood	45.50	0.00
tblFireplaces	NumberWood	87.50	0.00
tblFireplaces	NumberWood	108.15	0.00
tblLandUse	LandUseSquareFeet	145,200.00	60,000.00
tblLandUse	LotAcreage	15.63	32.67
tblLandUse	LotAcreage	100.32	40.38
tblLandUse	LotAcreage	0.57	6.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	720.49	468.32
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30

tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	ST_TR	7.16	6.52
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	7.81

tblVehicleTrips	ST_TR	5.82	2.00
tblVehicleTrips	ST_TR	8.19	9.02
tblVehicleTrips	ST_TR	94.36	94.41
tblVehicleTrips	ST_TR	49.97	42.13
tblVehicleTrips	ST_TR	9.91	10.41
tblVehicleTrips	SU_TR	6.07	5.53
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	6.66
tblVehicleTrips	SU_TR	5.88	2.00
tblVehicleTrips	SU_TR	5.95	6.55
tblVehicleTrips	SU_TR	72.16	72.20
tblVehicleTrips	SU_TR	25.24	21.18
tblVehicleTrips	SU_TR	8.62	9.05
tblVehicleTrips	WD_TR	6.59	6.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	5.04	2.00
tblVehicleTrips	WD_TR	8.17	9.00
tblVehicleTrips	WD_TR	89.95	90.00
tblVehicleTrips	WD_TR	42.70	36.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWater	IndoorWaterUseRate	8,470,023.33	10,217,274.66
tblWater	IndoorWaterUseRate	16,288,506.41	10,297,866.67
tblWater	IndoorWaterUseRate	2,536,677.00	1,500,538.16
tblWater	IndoorWaterUseRate	1,517,668.56	897,757.02
tblWater	IndoorWaterUseRate	1,851,813.04	1,095,415.83
tblWater	IndoorWaterUseRate	20,132,593.92	37,448,415.99
tblWater	OutdoorWaterUseRate	5,339,797.32	6,441,325.34
tblWater	OutdoorWaterUseRate	15,441,598.29	12,583,375.00

tblWater	OutdoorWaterUseRate	10,268,840.99	6,492,133.33
tblWater	OutdoorWaterUseRate	35,744,440.49	20,951,000.00
tblWater	OutdoorWaterUseRate	281,853.00	166,726.46
tblWater	OutdoorWaterUseRate	96,872.46	57,303.64
tblWater	OutdoorWaterUseRate	1,134,982.18	671,383.89
tblWater	OutdoorWaterUseRate	12,692,287.47	23,608,784.01
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	6.1183	0.4807	5.2963	2.9600e-003		0.0625	0.0625		0.0625	0.0625	0.0000	496.7897	496.7897	0.0174	8.9500e-003	499.8930
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1,317.5686	1,317.5686	0.0816	0.0169	1,324.6386
Mobile	2.0399	8.5180	26.0251	0.1013	10.0709	0.0788	10.1497	2.6963	0.0733	2.7696	0.0000	9,378.0717	9,378.0717	0.4526	0.0000	9,389.3859
Waste						0.0000	0.0000		0.0000	0.0000	132.3115	0.0000	132.3115	7.8194	0.0000	327.7962
Water						0.0000	0.0000		0.0000	0.0000	19.4976	337.4891	356.9866	2.0235	0.0516	422.9533
Total	**8.1582**	**8.9987**	**31.3215**	**0.1043**	**10.0709**	**0.1413**	**10.2122**	**2.6963**	**0.1358**	**2.8321**	**151.8091**	**11,529.9191**	**11,681.7282**	**10.3944**	**0.0774**	**11,964.6670**

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	6.1183	0.4807	5.2963	2.9600e-003		0.0625	0.0625		0.0625	0.0625	0.0000	496.7897	496.7897	0.0174	8.9500e-003	499.8930
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.9917	8.2792	24.9746	0.0965	9.5674	0.0753	9.6427	2.5615	0.0700	2.6315	0.0000	8,933.8888	8,933.8888	0.4335	0.0000	8,944.7258
Waste						0.0000	0.0000		0.0000	0.0000	33.0779	0.0000	33.0779	1.9549	0.0000	81.9491
Water						0.0000	0.0000		0.0000	0.0000	15.5980	303.4909	319.0889	1.6209	0.0417	372.0420
Total	**8.1100**	**8.7598**	**30.2709**	**0.0995**	**9.5674**	**0.1378**	**9.7051**	**2.5615**	**0.1325**	**2.6940**	**48.6759**	**9,734.1694**	**9,782.8453**	**4.0266**	**0.0507**	**9,898.6099**

	ROG	NOx	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	**0.59**	**2.65**	**3.35**	**4.60**	**5.00**	**2.51**	**4.97**	**5.00**	**2.43**	**4.88**	**67.94**	**15.57**	**16.26**	**61.26**	**34.57**	**17.27**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

	ROG	NOx	CO	SO2	Fugitive 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	1.9917	8.2792	24.9746	0.0965	9.5674	0.0753	9.6427	2.5615	0.0700	2.6315	0.0000	8,933.8888	8,933.8888	0.4335	0.0000	8,944.7258
Unmitigated	2.0399	8.5180	26.0251	0.1013	10.0709	0.0788	10.1497	2.6963	0.0733	2.7696	0.0000	9,378.0717	9,378.0717	0.4526	0.0000	9,389.3859

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	780.00	847.60	718.90	2,851,605	2,709,025
City Park	0.00	0.00	0.00		
Condo/Townhouse	2,000.00	1,952.50	1665.00	7,103,582	6,748,403
Golf Course	60.00	60.00	60.00	152,591	144,961
Hotel	900.00	902.00	655.00	2,403,648	2,283,465
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Quality Restaurant	450.00	472.05	361.00	776,984	738,135
Regional Shopping Center	900.00	1,053.25	529.50	2,246,305	2,133,990
Single Family Housing	3,090.00	3,216.69	2796.45	11,196,268	10,636,455
Total	8,180.00	8,504.09	6,785.85	26,730,983	25,394,434

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	11.30	11.30	11.30	41.00	19.00	40.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	11.30	11.30	11.30	41.00	19.00	40.00	86	11	3
Golf Course	11.30	11.30	11.30	33.00	48.00	19.00	52	39	9
Hotel	11.30	11.30	11.30	19.40	61.60	19.00	58	38	4
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	11.30	11.30	11.30	12.00	69.00	19.00	38	18	44
Regional Shopping Center	11.30	11.30	11.30	16.30	64.70	19.00	54	35	11
Single Family Housing	11.30	11.30	11.30	41.00	19.00	40.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
City Park	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Condo/Townhouse	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Golf Course	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Hotel	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Parking Lot	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Quality Restaurant	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Regional Shopping Center	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Single Family Housing	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,317.5686	1,317.5686	0.0816	0.0169	1,324.6386
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	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
City Park	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
Condo/Townhouse	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
Golf Course	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
Hotel	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 Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	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
Regional Shopping Center	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
Single Family Housing	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	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
City Park	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
Condo/Townhouse	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
Golf Course	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
Hotel	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 Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	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
Regional Shopping Center	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
Single Family Housing	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	414744	88.1026	5.4600e-003	1.1300e-003	88.5754
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.15511e+006	245.3764	0.0152	3.1400e-003	246.6931
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Hotel	1.0224e+006	217.1847	0.0135	2.7800e-003	218.3501
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	58940	12.5204	7.8000e-004	1.6000e-004	12.5876
Quality Restaurant	141600	30.0796	1.8600e-003	3.9000e-004	30.2410
Regional Shopping Center	1.94025e+006	412.1603	0.0255	5.2800e-003	414.3719
Single Family Housing	1.46942e+006	312.1446	0.0193	4.0000e-003	313.8196
Total		**1,317.5686**	**0.0816**	**0.0169**	**1,324.6386**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.1183	0.4807	5.2963	2.9600e-003		0.0625	0.0625		0.0625	0.0625	0.0000	496.7897	496.7897	0.0174	8.9500e-003	499.8930
Unmitigated	6.1183	0.4807	5.2963	2.9600e-003		0.0625	0.0625		0.0625	0.0625	0.0000	496.7897	496.7897	0.0174	8.9500e-003	499.8930

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	1.7415					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.1734					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0494	0.4217	0.1795	2.6900e-003		0.0341	0.0341		0.0341	0.0341	0.0000	488.4217	488.4217	9.3600e-003	8.9500e-003	491.3241
Landscaping	0.1540	0.0589	5.1169	2.7000e-004		0.0284	0.0284		0.0284	0.0284	0.0000	8.3681	8.3681	8.0300e-003	0.0000	8.5689
Total	**6.1183**	**0.4807**	**5.2963**	**2.9600e-003**		**0.0625**	**0.0625**		**0.0625**	**0.0625**	**0.0000**	**496.7897**	**496.7897**	**0.0174**	**8.9500e-003**	**499.8930**

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	1.7415					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.1734					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0494	0.4217	0.1795	2.6900e-003		0.0341	0.0341		0.0341	0.0341	0.0000	488.4217	488.4217	9.3600e-003	8.9500e-003	491.3241
Landscaping	0.1540	0.0589	5.1169	2.7000e-004		0.0284	0.0284		0.0284	0.0284	0.0000	8.3681	8.3681	8.0300e-003	0.0000	8.5689
Total	**6.1183**	**0.4807**	**5.2963**	**2.9600e-003**		**0.0625**	**0.0625**		**0.0625**	**0.0625**	**0.0000**	**496.7897**	**496.7897**	**0.0174**	**8.9500e-003**	**499.8930**

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	319.0889	1.6209	0.0417	372.0420
Unmitigated	356.9866	2.0235	0.0516	422.9533

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	10.2173 / 6.44133	46.7044	0.3356	8.4200e-003	57.6035
City Park	0 / 12.5834	29.6975	1.8400e-003	3.8000e-004	29.8568
Condo/Townhouse	10.2979 / 6.49213	47.0728	0.3383	8.4800e-003	58.0579
Golf Course	0 / 20.951	49.4456	3.0600e-003	6.3000e-004	49.7109
Hotel	1.50054 / 0.166726	5.0200	0.0492	1.2100e-003	6.6108
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0.897757 / 0.0573036	2.9033	0.0294	7.2000e-004	3.8545
Regional Shopping Center	1.09542 / 0.671384	4.9620	0.0360	9.0000e-004	6.1302
Single Family Housing	37.4484 / 23.6088	171.1812	1.2301	0.0309	211.1287
Total		**356.9867**	**2.0235**	**0.0516**	**422.9533**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	8.17382 / 6.44133	40.4039	0.2687	6.7700e-003	49.1395
City Park	0 / 12.5834	29.6975	1.8400e-003	3.8000e-004	29.8568
Condo/Townhouse	8.23829 / 6.49213	40.7226	0.2708	6.8300e-003	49.5271
Golf Course	0 / 20.951	49.4456	3.0600e-003	6.3000e-004	49.7109
Hotel	1.20043 / 0.166726	4.0947	0.0394	9.7000e-004	5.3678
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0.718206 / 0.0573036	2.3497	0.0235	5.8000e-004	3.1108
Regional Shopping Center	0.876333 / 0.671384	4.2865	0.0288	7.3000e-004	5.2228
Single Family Housing	29.9587 / 23.6088	148.0886	0.9848	0.0248	180.1064
Total		**319.0889**	**1.6209**	**0.0417**	**372.0420**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	33.0779	1.9549	0.0000	81.9491
Unmitigated	132.3115	7.8194	0.0000	327.7962

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	59.8	12.1389	0.7174	0.0000	30.0735
City Park	1.11	0.2253	0.0133	0.0000	0.5582
Condo/Townhouse	115	23.3440	1.3796	0.0000	57.8337
Golf Course	27.9	5.6635	0.3347	0.0000	14.0310
Hotel	54.75	11.1138	0.6568	0.0000	27.5339
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	4.56	0.9256	0.0547	0.0000	2.2932
Regional Shopping Center	26.25	5.3285	0.3149	0.0000	13.2012
Single Family Housing	362.44	73.5720	4.3480	0.0000	182.2716
Total		**132.3115**	**7.8194**	**0.0000**	**327.7962**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	14.95	3.0347	0.1794	0.0000	7.5184
City Park	0.2775	0.0563	3.3300e-003	0.0000	0.1396
Condo/Townhouse	28.75	5.8360	0.3449	0.0000	14.4584
Golf Course	6.975	1.4159	0.0837	0.0000	3.5077
Hotel	13.6875	2.7784	0.1642	0.0000	6.8835
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.14	0.2314	0.0137	0.0000	0.5733
Regional Shopping Center	6.5625	1.3321	0.0787	0.0000	3.3003
Single Family Housing	90.61	18.3930	1.0870	0.0000	45.5679
Total		**33.0779**	**1.9549**	**0.0000**	**81.9491**

Pool Filter Energy Demand - NRF

Pollutant	Energy Demand from Filter		SDG&E CO_2E			GWP	CO_2E/year
	kwh annual	mWh annual	lb./MWh	lb./ year	MT /year		
CO2	21769.72	21.77	427.49	9306.34	4.22	1.00	4.22
CH4	21769.72	21.77	0.02	0.39	0.00	25.00	0.00
N20	21769.72	21.77	0.00	0.08	0.00	298.00	0.01
						Total	**4.24**

Source: SCE 2016

North River Farms

Vegetation

Land Use Change - Net Sequestered Carbon

The project's changes in land use results in changes in CO_2 sequestration from the atmosphere which would not have been captured had there been no land-type change.
Future planting of trees within the project site will sequester CO_2 and is considered to result in a one-time carbon-stock change. Trees sequester CO_2 while they are actively growing.

Summary:

Project Vegetation Land Use	Vegetation Land Use Category Subtype	Net Loss (acres)	Loss of Sequestered CO_2 (MT CO_2)
Forest Land	Trees	0.69	76.59
Scrub	Scrub	0.10	1.43
Cropland	Cropland	156.62	971.04
Grassland	Grassland	0.00	0.00
Wetlands	Wetlands	0.04	0.00
Others	Others	6.25	0.00
Total			**1,049.06**

Project Tree Category/Species	Tree Category	Number of Trees (trees)	Gain of Sequestered CO_2 (MT CO_2)
Unknown	Miscellaneous	1,472.00	1,042.18
Total			**1,042.18**

CalEEMod Version: CalEEMod.2016.3.2

Date: 4/26/2018 11:14 AM

North River Farms - Buildout Operations w/ NG

San Diego County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	40.40	Acre	40.40	1,759,824.00	0
Parking Lot	421.00	Space	3.79	168,400.00	0
City Park	12.96	Acre	12.96	564,537.60	0
Golf Course	30.00	Acre	30.00	1,306,800.00	0
Hotel	100.00	Room	3.33	60,000.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0
Apartments Low Rise	130.00	Dwelling Unit	8.13	130,000.00	372
Condo/Townhouse	250.00	Dwelling Unit	32.67	250,000.00	715
Single Family Housing	309.00	Dwelling Unit	40.38	556,200.00	884
Regional Shopping Center	25.00	1000sqft	6.57	25,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	468.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Operations run. Adjusted CO2 Intensity based on 41.5% RPS by 2025 (interpolation between RPS 2020 and 2030 goals).

Land Use - Project includes 689 du, 30 acres of agirculture (golf course), 12.96 acres in park/open space (2,000 sf), 25 ksf in retail, 5 ksf restaurant, 100 room hotel, 40.4 acres in roadway and 421 parking spaces.

Construction Phase - Modeling operations only.

Off-road Equipment - Default equipment. Added 1 trencher for utlity work.

Off-road Equipment - Modeling operations only.

Trips and VMT - Modeling operations only.

On-road Fugitive Dust - Modeling operations only.

Demolition - Modeling operations only.

Grading - Modeling operations only.

Architectural Coating - Modeling operations only.

Vehicle Trips - Adjusted trip generation rates and trip lengths to match the information provided by LLG. Saturday and Sunday adjusted per weekday rates.

Woodstoves - Fireplaces assumed to be gas fueled rather than wood fueled. Default quantities also assumed.

Area Coating -

Energy Use - Updated T24, NT24, and Lighting for condo/townhouse to match single-family. Updated T24, NT24, and Lighting for all land uses based on PV Loads Report by VCA Green.

Water And Wastewater - Adjusted indoor and outdoor water use to match the information provided by Dexter Wilson Engineering.

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Project is located in a suburban setting and would increase diversity which accounts for the 5% mixed used reduction (LLG 2018).

Energy Mitigation - residential and nonresidential energy consumption would be offset.

Water Mitigation - Use of low-flow water fixtures.

Waste Mitigation - 75% waste diversion consistent with AB 341.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	90600	88600
tblAreaCoating	Area_Nonresidential_Interior	271800	265800
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	0.00
tblEnergyUse	LightingElect	810.36	635.80
tblEnergyUse	LightingElect	1,001.10	918.19
tblEnergyUse	LightingElect	4.50	5.92
tblEnergyUse	LightingElect	6.78	4.96
tblEnergyUse	LightingElect	6.22	38.43
tblEnergyUse	LightingElect	1,608.84	945.01
tblEnergyUse	NT24E	3,172.76	2,410.23
tblEnergyUse	NT24E	3,795.01	3,513.31
tblEnergyUse	NT24E	3.67	4.83
tblEnergyUse	NT24E	23.69	17.34
tblEnergyUse	NT24E	3.16	19.53
tblEnergyUse	NT24E	6,155.97	3,615.94
tblEnergyUse	NT24NG	11.10	5.53
tblEnergyUse	NT24NG	138.46	38.38
tblEnergyUse	NT24NG	1.09	85.35
tblEnergyUse	T24E	260.86	144.31
tblEnergyUse	T24E	227.22	188.95
tblEnergyUse	T24E	4.78	6.29
tblEnergyUse	T24E	8.23	6.02
tblEnergyUse	T24E	3.18	19.65
tblEnergyUse	T24E	331.07	194.47
tblEnergyUse	T24NG	47.27	23.54
tblEnergyUse	T24NG	35.92	9.96
tblEnergyUse	T24NG	1.14	89.27

tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	71.50	117.00
tblFireplaces	NumberGas	137.50	225.00
tblFireplaces	NumberGas	169.95	278.10
tblFireplaces	NumberWood	45.50	0.00
tblFireplaces	NumberWood	87.50	0.00
tblFireplaces	NumberWood	108.15	0.00
tblLandUse	LandUseSquareFeet	145,200.00	60,000.00
tblLandUse	LotAcreage	15.63	32.67
tblLandUse	LotAcreage	100.32	40.38
tblLandUse	LotAcreage	0.57	6.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	720.49	468.32
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30

tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	ST_TR	7.16	6.52
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	7.81
tblVehicleTrips	ST_TR	5.82	2.00
tblVehicleTrips	ST_TR	8.19	9.02
tblVehicleTrips	ST_TR	94.36	94.41
tblVehicleTrips	ST_TR	49.97	42.13

tblVehicleTrips	ST_TR	9.91	10.41
tblVehicleTrips	SU_TR	6.07	5.53
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	6.66
tblVehicleTrips	SU_TR	5.88	2.00
tblVehicleTrips	SU_TR	5.95	6.55
tblVehicleTrips	SU_TR	72.16	72.20
tblVehicleTrips	SU_TR	25.24	21.18
tblVehicleTrips	SU_TR	8.62	9.05
tblVehicleTrips	WD_TR	6.59	6.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	5.04	2.00
tblVehicleTrips	WD_TR	8.17	9.00
tblVehicleTrips	WD_TR	89.95	90.00
tblVehicleTrips	WD_TR	42.70	36.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWater	IndoorWaterUseRate	8,470,023.33	10,217,274.66
tblWater	IndoorWaterUseRate	16,288,506.41	10,297,866.67
tblWater	IndoorWaterUseRate	2,536,677.00	1,500,538.16
tblWater	IndoorWaterUseRate	1,517,668.56	897,757.02
tblWater	IndoorWaterUseRate	1,851,813.04	1,095,415.83
tblWater	IndoorWaterUseRate	20,132,593.92	37,448,415.99
tblWater	OutdoorWaterUseRate	5,339,797.32	6,441,325.34
tblWater	OutdoorWaterUseRate	15,441,598.29	12,583,375.00
tblWater	OutdoorWaterUseRate	10,268,840.99	6,492,133.33
tblWater	OutdoorWaterUseRate	35,744,440.49	20,951,000.00
tblWater	OutdoorWaterUseRate	281,853.00	166,726.46
tblWater	OutdoorWaterUseRate	96,872.46	57,303.64

tblWater	OutdoorWaterUseRate	1,134,982.18	671,383.89
tblWater	OutdoorWaterUseRate	12,692,287.47	23,608,784.01
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	6.1137	0.4807	5.2963	2.9600e-003		0.0625	0.0625		0.0625	0.0625	0.0000	496.7897	496.7897	0.0174	8.9500e-003	499.8930
Energy	0.1005	0.8773	0.5023	5.4800e-003		0.0694	0.0694		0.0694	0.0694	0.0000	2,311.8840	2,311.8840	0.1007	0.0351	2,324.8628
Mobile	2.0399	8.5180	26.0251	0.1013	10.0709	0.0788	10.1497	2.6963	0.0733	2.7696	0.0000	9,378.0717	9,378.0717	0.4526	0.0000	9,389.3859
Waste						0.0000	0.0000		0.0000	0.0000	132.3115	0.0000	132.3115	7.8194	0.0000	327.7962
Water						0.0000	0.0000		0.0000	0.0000	19.4976	337.4891	356.9866	2.0235	0.0516	422.9533
Total	**8.2540**	**9.8759**	**31.8238**	**0.1098**	**10.0709**	**0.2107**	**10.2816**	**2.6963**	**0.2052**	**2.9015**	**151.8091**	**12,524.2345**	**12,676.0436**	**10.4135**	**0.0957**	**12,964.8913**

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	6.1137	0.4807	5.2963	2.9600e-003		0.0625	0.0625		0.0625	0.0625	0.0000	496.7897	496.7897	0.0174	8.9500e-003	499.8930
Energy	0.1005	0.8773	0.5023	5.4800e-003		0.0694	0.0694		0.0694	0.0694	0.0000	994.3155	994.3155	0.0191	0.0182	1,000.2242
Mobile	1.9917	8.2792	24.9746	0.0965	9.5674	0.0753	9.6427	2.5615	0.0700	2.6315	0.0000	8,933.8888	8,933.8888	0.4335	0.0000	8,944.7258
Waste						0.0000	0.0000		0.0000	0.0000	33.0779	0.0000	33.0779	1.9549	0.0000	81.9491
Water						0.0000	0.0000		0.0000	0.0000	15.5980	303.4909	319.0889	1.6209	0.0417	372.0420
Total	**8.2058**	**9.6371**	**30.7733**	**0.1050**	**9.5674**	**0.2072**	**9.7746**	**2.5615**	**0.2019**	**2.7634**	**48.6759**	**10,728.4848**	**10,777.1608**	**4.0456**	**0.0689**	**10,898.8341**

	ROG	NOx	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	**0.58**	**2.42**	**3.30**	**4.37**	**5.00**	**1.68**	**4.93**	**5.00**	**1.61**	**4.76**	**67.94**	**14.34**	**14.98**	**61.15**	**27.98**	**15.94**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
NaturalGas Mitigated	0.1005	0.8773	0.5023	5.4800e-003		0.0694	0.0694		0.0694	0.0694	0.0000	994.3155	994.3155	0.0191	0.0182	1,000.2242
NaturalGas Unmitigated	0.1005	0.8773	0.5023	5.4800e-003		0.0694	0.0694		0.0694	0.0694	0.0000	994.3155	994.3155	0.0191	0.0182	1,000.2242

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.45931e+006	7.8700e-003	0.0672	0.0286	4.3000e-004		5.4400e-003	5.4400e-003		5.4400e-003	5.4400e-003	0.0000	77.8745	77.8745	1.4900e-003	1.4300e-003	78.3373
City Park	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
Condo/Townhouse	3.59571e+006	0.0194	0.1657	0.0705	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	191.8809	191.8809	3.6800e-003	3.5200e-003	193.0212
Golf Course	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
Hotel	1.74398e+006	9.4000e-003	0.0855	0.0718	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0656	93.0656	1.7800e-003	1.7100e-003	93.6187
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
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	241700	1.3000e-003	0.0119	9.9500e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.8980	12.8980	2.5000e-004	2.4000e-004	12.9747
Regional Shopping Center	4.3655e+006	0.0235	0.2140	0.1798	1.2800e-003		0.0163	0.0163		0.0163	0.0163	0.0000	232.9597	232.9597	4.4700e-003	4.2700e-003	234.3441
Single Family Housing	7.22656e+006	0.0390	0.3330	0.1417	2.1300e-003		0.0269	0.0269		0.0269	0.0269	0.0000	385.6367	385.6367	7.3900e-003	7.0700e-003	387.9283
Total		**0.1005**	**0.8773**	**0.5023**	**5.4800e-003**		**0.0694**	**0.0694**		**0.0694**	**0.0694**	**0.0000**	**994.3155**	**994.3155**	**0.0191**	**0.0182**	**1,000.2242**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.45931e+006	7.8700e-003	0.0672	0.0286	4.3000e-004		5.4400e-003	5.4400e-003		5.4400e-003	5.4400e-003	0.0000	77.8745	77.8745	1.4900e-003	1.4300e-003	78.3373
City Park	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
Condo/Townhouse	3.59571e+006	0.0194	0.1657	0.0705	1.0600e-003		0.0134	0.0134		0.0134	0.0134	0.0000	191.8809	191.8809	3.6800e-003	3.5200e-003	193.0212
Golf Course	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
Hotel	1.74398e+006	9.4000e-003	0.0855	0.0718	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.0656	93.0656	1.7800e-003	1.7100e-003	93.6187
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
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	241700	1.3000e-003	0.0119	9.9500e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.8980	12.8980	2.5000e-004	2.4000e-004	12.9747
Regional Shopping Center	4.3655e+006	0.0235	0.2140	0.1798	1.2800e-003		0.0163	0.0163		0.0163	0.0163	0.0000	232.9597	232.9597	4.4700e-003	4.2700e-003	234.3441
Single Family Housing	7.22656e+006	0.0390	0.3330	0.1417	2.1300e-003		0.0269	0.0269		0.0269	0.0269	0.0000	385.6367	385.6367	7.3900e-003	7.0700e-003	387.9283
Total		**0.1005**	**0.8773**	**0.5023**	**5.4800e-003**		**0.0694**	**0.0694**		**0.0694**	**0.0694**	**0.0000**	**994.3155**	**994.3155**	**0.0191**	**0.0182**	**1,000.2242**

CalEEMod Version: CalEEMod.2016.3.2

Date: 4/25/2018 9:04 AM

North River Farms - Buildout Operations w/ NG

San Diego County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	40.40	Acre	40.40	1,759,824.00	0
Parking Lot	421.00	Space	3.79	168,400.00	0
City Park	12.96	Acre	12.96	564,537.60	0
Golf Course	30.00	Acre	30.00	1,306,800.00	0
Hotel	100.00	Room	3.33	145,200.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0
Apartments Low Rise	130.00	Dwelling Unit	8.13	130,000.00	372
Condo/Townhouse	250.00	Dwelling Unit	32.67	250,000.00	715
Single Family Housing	309.00	Dwelling Unit	40.38	556,200.00	884
Regional Shopping Center	25.00	1000sqft	6.57	25,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	468.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Operations run. Adjusted CO2 Intensity based on 41.5% RPS by 2025 (interpolation between RPS 2020 and 2030 goals).

Land Use - Project includes 689 du, 30 acres of agirculture (golf course), 12.96 acres in park/open space (2,000 sf), 25 ksf in retail, 5 ksf restaurant, 100 room hotel, 40.4 acres in roadway and 421 parking spaces.

Construction Phase - Modeling operations only.

Off-road Equipment - Default equipment. Added 1 trencher for utlity work.

Off-road Equipment - Modeling operations only.

Trips and VMT - Modeling operations only.

On-road Fugitive Dust - Modeling operations only.

Demolition - Modeling operations only.

Grading - Modeling operations only.

Architectural Coating - Modeling operations only.

Vehicle Trips - Adjusted trip generation rates and trip lengths to match the information provided by LLG. Saturday and Sunday adjusted per weekday rates.

Woodstoves - Fireplaces assumed to be gas fueled rather than wood fueled. Default quantities also assumed.

Area Coating -

Energy Use - Updated T24, NT24, and Lighting for condo/townhouse to match single-family. Updated T24, NT24, and Lighting for all land uses based on PV Loads Report by VCA Green.

Water And Wastewater - Adjusted indoor and outdoor water use to match the information provided by Dexter Wilson Engineering.

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Project is located in a suburban setting and would increase diversity which accounts for the 5% mixed used reduction (LLG 2018).

Energy Mitigation - residential and nonresidential energy consumption would be offset.

Water Mitigation - Use of low-flow water fixtures.

Waste Mitigation - 75% waste diversion consistent with AB 341.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	0.00
tblEnergyUse	LightingElect	810.36	635.80

tblEnergyUse	LightingElect	1,001.10	918.19
tblEnergyUse	LightingElect	4.50	5.92
tblEnergyUse	LightingElect	6.78	4.96
tblEnergyUse	LightingElect	6.22	38.43
tblEnergyUse	LightingElect	1,608.84	945.01
tblEnergyUse	NT24E	3,172.76	2,410.23
tblEnergyUse	NT24E	3,795.01	3,513.31
tblEnergyUse	NT24E	3.67	4.83
tblEnergyUse	NT24E	23.69	17.34
tblEnergyUse	NT24E	3.16	19.53
tblEnergyUse	NT24E	6,155.97	3,615.94
tblEnergyUse	NT24NG	11.10	5.53
tblEnergyUse	NT24NG	138.46	38.38
tblEnergyUse	NT24NG	1.09	85.35
tblEnergyUse	T24E	260.86	144.31
tblEnergyUse	T24E	227.22	188.95
tblEnergyUse	T24E	4.78	6.29
tblEnergyUse	T24E	8.23	6.02
tblEnergyUse	T24E	3.18	19.65
tblEnergyUse	T24E	331.07	194.47
tblEnergyUse	T24NG	47.27	23.54
tblEnergyUse	T24NG	35.92	9.96
tblEnergyUse	T24NG	1.14	89.27
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	71.50	117.00
tblFireplaces	NumberGas	137.50	225.00
tblFireplaces	NumberGas	169.95	278.10

tblFireplaces	NumberWood	45.50	0.00
tblFireplaces	NumberWood	87.50	0.00
tblFireplaces	NumberWood	108.15	0.00
tblLandUse	LotAcreage	15.63	32.67
tblLandUse	LotAcreage	100.32	40.38
tblLandUse	LotAcreage	0.57	6.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	720.49	468.32
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30

tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	ST_TR	7.16	6.52
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	7.81
tblVehicleTrips	ST_TR	5.82	2.00
tblVehicleTrips	ST_TR	8.19	9.02
tblVehicleTrips	ST_TR	94.36	94.41
tblVehicleTrips	ST_TR	49.97	42.13
tblVehicleTrips	ST_TR	9.91	10.41
tblVehicleTrips	SU_TR	6.07	5.53
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	6.66
tblVehicleTrips	SU_TR	5.88	2.00
tblVehicleTrips	SU_TR	5.95	6.55
tblVehicleTrips	SU_TR	72.16	72.20

tblVehicleTrips	SU_TR	25.24	21.18
tblVehicleTrips	SU_TR	8.62	9.05
tblVehicleTrips	WD_TR	6.59	6.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	5.04	2.00
tblVehicleTrips	WD_TR	8.17	9.00
tblVehicleTrips	WD_TR	89.95	90.00
tblVehicleTrips	WD_TR	42.70	36.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWater	IndoorWaterUseRate	8,470,023.33	10,217,274.66
tblWater	IndoorWaterUseRate	16,288,506.41	10,297,866.67
tblWater	IndoorWaterUseRate	2,536,677.00	1,500,538.16
tblWater	IndoorWaterUseRate	1,517,668.56	897,757.02
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tblWater	OutdoorWaterUseRate	5,339,797.32	6,441,325.34
tblWater	OutdoorWaterUseRate	15,441,598.29	12,583,375.00
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tblWater	OutdoorWaterUseRate	281,853.00	166,726.46
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tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	37.1233	10.9411	61.2313	0.0687		1.1470	1.1470		1.1470	1.1470	0.0000	13,234.0208	13,234.0208	0.3501	0.2407	13,314.5143
Energy	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425
Mobile	12.5883	48.2166	157.7724	0.6168	60.1133	0.4594	60.5728	16.0628	0.4273	16.4902		62,884.6927	62,884.6927	2.9351		62,958.0696
Total	**50.3353**	**64.6299**	**222.3151**	**0.7195**	**60.1133**	**2.0374**	**62.1507**	**16.0628**	**2.0053**	**18.0681**	**0.0000**	**82,922.8226**	**82,922.8226**	**3.4156**	**0.3655**	**83,117.1264**

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	37.1233	10.9411	61.2313	0.0687		1.1470	1.1470		1.1470	1.1470	0.0000	13,234.0208	13,234.0208	0.3501	0.2407	13,314.5143
Energy	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425
Mobile	12.3026	46.9050	151.1253	0.5876	57.1076	0.4388	57.5464	15.2597	0.4081	15.6678		59,906.3880	59,906.3880	2.8095		59,976.6250
Total	**50.0496**	**63.3183**	**215.6680**	**0.6903**	**57.1076**	**2.0167**	**59.1243**	**15.2597**	**1.9860**	**17.2457**	**0.0000**	**79,944.5179**	**79,944.5179**	**3.2900**	**0.3655**	**80,135.6818**

	ROG	NOx	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	**0.57**	**2.03**	**2.99**	**4.07**	**5.00**	**1.02**	**4.87**	**5.00**	**0.96**	**4.55**	**0.00**	**3.59**	**3.59**	**3.68**	**0.00**	**3.59**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425
NaturalGas Unmitigated	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3998.12	0.0431	0.3685	0.1568	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.3670	470.3670	9.0200e-003	8.6200e-003	473.1622
City Park	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
Condo/Townhouse	9851.27	0.1062	0.9079	0.3863	5.7900e-003		0.0734	0.0734		0.0734	0.0734		1,158.9726	1,158.9726	0.0222	0.0213	1,165.8598
Golf Course	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
Hotel	11564.3	0.1247	1.1338	0.9524	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.5041	1,360.5041	0.0261	0.0249	1,368.5889
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
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	662.192	7.1400e-003	0.0649	0.0545	3.9000e-004		4.9300e-003	4.9300e-003		4.9300e-003	4.9300e-003		77.9049	77.9049	1.4900e-003	1.4300e-003	78.3679
Regional Shopping Center	11960.3	0.1290	1.1726	0.9850	7.0400e-003		0.0891	0.0891		0.0891	0.0891		1,407.0911	1,407.0911	0.0270	0.0258	1,415.4527
Single Family Housing	19798.8	0.2135	1.8246	0.7764	0.0117		0.1475	0.1475		0.1475	0.1475		2,329.2694	2,329.2694	0.0446	0.0427	2,343.1111
Total		**0.6237**	**5.4722**	**3.3114**	**0.0340**		**0.4309**	**0.4309**		**0.4309**	**0.4309**		**6,804.1091**	**6,804.1091**	**0.1304**	**0.1247**	**6,844.5425**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.99812	0.0431	0.3685	0.1568	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.3670	470.3670	9.0200e-003	8.6200e-003	473.1622
City Park	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
Condo/Townhouse	9.85127	0.1062	0.9079	0.3863	5.7900e-003		0.0734	0.0734		0.0734	0.0734		1,158.9726	1,158.9726	0.0222	0.0213	1,165.8598
Golf Course	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
Hotel	11.5643	0.1247	1.1338	0.9524	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.5041	1,360.5041	0.0261	0.0249	1,368.5889
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
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0.662192	7.1400e-003	0.0649	0.0545	3.9000e-004		4.9300e-003	4.9300e-003		4.9300e-003	4.9300e-003		77.9049	77.9049	1.4900e-003	1.4300e-003	78.3679
Regional Shopping Center	11.9603	0.1290	1.1726	0.9850	7.0400e-003		0.0891	0.0891		0.0891	0.0891		1,407.0911	1,407.0911	0.0270	0.0258	1,415.4527
Single Family Housing	19.7988	0.2135	1.8246	0.7764	0.0117		0.1475	0.1475		0.1475	0.1475		2,329.2694	2,329.2694	0.0446	0.0427	2,343.1111
Total		**0.6237**	**5.4722**	**3.3114**	**0.0340**		**0.4309**	**0.4309**		**0.4309**	**0.4309**		**6,804.1091**	**6,804.1091**	**0.1304**	**0.1247**	**6,844.5425**

CalEEMod Version: CalEEMod.2016.3.2

Date: 4/25/2018 9:05 AM

North River Farms - Buildout Operations w/ NG

San Diego County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	40.40	Acre	40.40	1,759,824.00	0
Parking Lot	421.00	Space	3.79	168,400.00	0
City Park	12.96	Acre	12.96	564,537.60	0
Golf Course	30.00	Acre	30.00	1,306,800.00	0
Hotel	100.00	Room	3.33	145,200.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0
Apartments Low Rise	130.00	Dwelling Unit	8.13	130,000.00	372
Condo/Townhouse	250.00	Dwelling Unit	32.67	250,000.00	715
Single Family Housing	309.00	Dwelling Unit	40.38	556,200.00	884
Regional Shopping Center	25.00	1000sqft	6.57	25,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	468.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Buildout Operations run. Adjusted CO2 Intensity based on 41.5% RPS by 2025 (interpolation between RPS 2020 and 2030 goals).
Land Use - Project includes 689 du, 30 acres of agirculture (golf course), 12.96 acres in park/open space (2,000 sf), 25 ksf in retail, 5 ksf restaurant, 100 room hotel, 40.4 acres in roadway and 421 parking spaces.

Construction Phase - Modeling operations only.

Off-road Equipment - Default equipment. Added 1 trencher for utlity work.

Off-road Equipment - Modeling operations only.

Trips and VMT - Modeling operations only.

On-road Fugitive Dust - Modeling operations only.

Demolition - Modeling operations only.

Grading - Modeling operations only.

Architectural Coating - Modeling operations only.

Vehicle Trips - Adjusted trip generation rates and trip lengths to match the information provided by LLG. Saturday and Sunday adjusted per weekday rates.
Woodstoves - Fireplaces assumed to be gas fueled rather than wood fueled. Default quantities also assumed.

Area Coating -

Energy Use - Updated T24, NT24, and Lighting for condo/townhouse to match single-family. Updated T24, NT24, and Lighting for all land uses based on PV Loads Report by VCA Green.
Water And Wastewater - Adjusted indoor and outdoor water use to match the information provided by Dexter Wilson Engineering.

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Project is located in a suburban setting and would increase diversity which accounts for the 5% mixed used reduction (LLG 2018).
Energy Mitigation - residential and nonresidential energy consumption would be offset.

Water Mitigation - Use of low-flow water fixtures.

Waste Mitigation - 75% waste diversion consistent with AB 341.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	0.00
tblEnergyUse	LightingElect	810.36	635.80
tblEnergyUse	LightingElect	1,001.10	918.19
tblEnergyUse	LightingElect	4.50	5.92
tblEnergyUse	LightingElect	6.78	4.96
tblEnergyUse	LightingElect	6.22	38.43
tblEnergyUse	LightingElect	1,608.84	945.01
tblEnergyUse	NT24E	3,172.76	2,410.23
tblEnergyUse	NT24E	3,795.01	3,513.31
tblEnergyUse	NT24E	3.67	4.83
tblEnergyUse	NT24E	23.69	17.34
tblEnergyUse	NT24E	3.16	19.53
tblEnergyUse	NT24E	6,155.97	3,615.94
tblEnergyUse	NT24NG	11.10	5.53
tblEnergyUse	NT24NG	138.46	38.38
tblEnergyUse	NT24NG	1.09	85.35
tblEnergyUse	T24E	260.86	144.31
tblEnergyUse	T24E	227.22	188.95
tblEnergyUse	T24E	4.78	6.29
tblEnergyUse	T24E	8.23	6.02
tblEnergyUse	T24E	3.18	19.65
tblEnergyUse	T24E	331.07	194.47
tblEnergyUse	T24NG	47.27	23.54
tblEnergyUse	T24NG	35.92	9.96
tblEnergyUse	T24NG	1.14	89.27
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00

tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	71.50	117.00
tblFireplaces	NumberGas	137.50	225.00
tblFireplaces	NumberGas	169.95	278.10
tblFireplaces	NumberWood	45.50	0.00
tblFireplaces	NumberWood	87.50	0.00
tblFireplaces	NumberWood	108.15	0.00
tblLandUse	LotAcreage	15.63	32.67
tblLandUse	LotAcreage	100.32	40.38
tblLandUse	LotAcreage	0.57	6.57
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	720.49	468.32
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CC_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CNW_TL	7.30	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	CW_TL	9.50	11.30

tblVehicleTrips	CW_TL	9.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TL	7.50	11.30
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HO_TTP	39.60	40.00
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TL	7.30	11.30
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TL	10.80	11.30
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	HW_TTP	41.60	41.00
tblVehicleTrips	ST_TR	7.16	6.52
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	7.81
tblVehicleTrips	ST_TR	5.82	2.00
tblVehicleTrips	ST_TR	8.19	9.02
tblVehicleTrips	ST_TR	94.36	94.41
tblVehicleTrips	ST_TR	49.97	42.13
tblVehicleTrips	ST_TR	9.91	10.41
tblVehicleTrips	SU_TR	6.07	5.53
tblVehicleTrips	SU_TR	16.74	0.00

tblVehicleTrips	SU_TR	4.84	6.66
tblVehicleTrips	SU_TR	5.88	2.00
tblVehicleTrips	SU_TR	5.95	6.55
tblVehicleTrips	SU_TR	72.16	72.20
tblVehicleTrips	SU_TR	25.24	21.18
tblVehicleTrips	SU_TR	8.62	9.05
tblVehicleTrips	WD_TR	6.59	6.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	8.00
tblVehicleTrips	WD_TR	5.04	2.00
tblVehicleTrips	WD_TR	8.17	9.00
tblVehicleTrips	WD_TR	89.95	90.00
tblVehicleTrips	WD_TR	42.70	36.00
tblVehicleTrips	WD_TR	9.52	10.00
tblWater	IndoorWaterUseRate	8,470,023.33	10,217,274.66
tblWater	IndoorWaterUseRate	16,288,506.41	10,297,866.67
tblWater	IndoorWaterUseRate	2,536,677.00	1,500,538.16
tblWater	IndoorWaterUseRate	1,517,668.56	897,757.02
tblWater	IndoorWaterUseRate	1,851,813.04	1,095,415.83
tblWater	IndoorWaterUseRate	20,132,593.92	37,448,415.99
tblWater	OutdoorWaterUseRate	5,339,797.32	6,441,325.34
tblWater	OutdoorWaterUseRate	15,441,598.29	12,583,375.00
tblWater	OutdoorWaterUseRate	10,268,840.99	6,492,133.33
tblWater	OutdoorWaterUseRate	35,744,440.49	20,951,000.00
tblWater	OutdoorWaterUseRate	281,853.00	166,726.46
tblWater	OutdoorWaterUseRate	96,872.46	57,303.64
tblWater	OutdoorWaterUseRate	1,134,982.18	671,383.89
tblWater	OutdoorWaterUseRate	12,692,287.47	23,608,784.01
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

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	37.1233	10.9411	61.2313	0.0687		1.1470	1.1470		1.1470	1.1470	0.0000	13,234.0208	13,234.0208	0.3501	0.2407	13,314.5143
Energy	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425
Mobile	12.1785	49.6484	152.8877	0.5856	60.1133	0.4611	60.5744	16.0628	0.4289	16.4917		59,731.7755	59,731.7755	2.9335		59,805.1132
Total	**49.9254**	**66.0617**	**217.4304**	**0.6882**	**60.1133**	**2.0390**	**62.1523**	**16.0628**	**2.0068**	**18.0697**	**0.0000**	**79,769.9054**	**79,769.9054**	**3.4140**	**0.3655**	**79,964.1700**

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	37.1233	10.9411	61.2313	0.0687		1.1470	1.1470		1.1470	1.1470	0.0000	13,234.0208	13,234.0208	0.3501	0.2407	13,314.5143
Energy	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425
Mobile	11.8978	48.2500	146.8228	0.5577	57.1076	0.4404	57.5480	15.2597	0.4096	15.6693		56,896.2755	56,896.2755	2.8112		56,966.5545
Total	**49.6448**	**64.6633**	**211.3655**	**0.6604**	**57.1076**	**2.0183**	**59.1260**	**15.2597**	**1.9876**	**17.2473**	**0.0000**	**76,934.4054**	**76,934.4054**	**3.2916**	**0.3655**	**77,125.6113**

	ROG	NOx	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	**0.56**	**2.12**	**2.79**	**4.04**	**5.00**	**1.01**	**4.87**	**5.00**	**0.96**	**4.55**	**0.00**	**3.55**	**3.55**	**3.58**	**0.00**	**3.55**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425
NaturalGas Unmitigated	0.6237	5.4722	3.3114	0.0340		0.4309	0.4309		0.4309	0.4309		6,804.1091	6,804.1091	0.1304	0.1247	6,844.5425

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3998.12	0.0431	0.3685	0.1568	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.3670	470.3670	9.0200e-003	8.6200e-003	473.1622
City Park	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
Condo/Townhouse	9851.27	0.1062	0.9079	0.3863	5.7900e-003		0.0734	0.0734		0.0734	0.0734		1,158.9726	1,158.9726	0.0222	0.0213	1,165.8598
Golf Course	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
Hotel	11564.3	0.1247	1.1338	0.9524	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.5041	1,360.5041	0.0261	0.0249	1,368.5889
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
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	662.192	7.1400e-003	0.0649	0.0545	3.9000e-004		4.9300e-003	4.9300e-003		4.9300e-003	4.9300e-003		77.9049	77.9049	1.4900e-003	1.4300e-003	78.3679
Regional Shopping Center	11960.3	0.1290	1.1726	0.9850	7.0400e-003		0.0891	0.0891		0.0891	0.0891		1,407.0911	1,407.0911	0.0270	0.0258	1,415.4527
Single Family Housing	19798.8	0.2135	1.8246	0.7764	0.0117		0.1475	0.1475		0.1475	0.1475		2,329.2694	2,329.2694	0.0446	0.0427	2,343.1111
Total		**0.6237**	**5.4722**	**3.3114**	**0.0340**		**0.4309**	**0.4309**		**0.4309**	**0.4309**		**6,804.1091**	**6,804.1091**	**0.1304**	**0.1247**	**6,844.5425**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.99812	0.0431	0.3685	0.1568	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.3670	470.3670	9.0200e-003	8.6200e-003	473.1622
City Park	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
Condo/Townhouse	9.85127	0.1062	0.9079	0.3863	5.7900e-003		0.0734	0.0734		0.0734	0.0734		1,158.9726	1,158.9726	0.0222	0.0213	1,165.8598
Golf Course	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
Hotel	11.5643	0.1247	1.1338	0.9524	6.8000e-003		0.0862	0.0862		0.0862	0.0862		1,360.5041	1,360.5041	0.0261	0.0249	1,368.5889
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
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0.662192	7.1400e-003	0.0649	0.0545	3.9000e-004		4.9300e-003	4.9300e-003		4.9300e-003	4.9300e-003		77.9049	77.9049	1.4900e-003	1.4300e-003	78.3679
Regional Shopping Center	11.9603	0.1290	1.1726	0.9850	7.0400e-003		0.0891	0.0891		0.0891	0.0891		1,407.0911	1,407.0911	0.0270	0.0258	1,415.4527
Single Family Housing	19.7988	0.2135	1.8246	0.7764	0.0117		0.1475	0.1475		0.1475	0.1475		2,329.2694	2,329.2694	0.0446	0.0427	2,343.1111
Total		**0.6237**	**5.4722**	**3.3114**	**0.0340**		**0.4309**	**0.4309**		**0.4309**	**0.4309**		**6,804.1091**	**6,804.1091**	**0.1304**	**0.1247**	**6,844.5425**