



Roquet Ranch Specific Plan

GREENHOUSE GAS ANALYSIS

CITY OF COLTON

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LIST OF ABBREVIATED TERMS

(1)	Reference
APS	Alternative Planning Organizations
ARB	California Air Resources Board
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH4	Methane
CO	Carbon Monoxide
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
MMTCO2e	Million Metric Ton of Carbon Dioxide Equivalent
MPOs	Metropolitan Planning Organizations
MTCO2e	Metric Ton of Carbon Dioxide Equivalent
N2O	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NOx	Oxides of Nitrogen
PFC	Perfluorocarbons
PM10	Particulate Matter 10 microns in diameter or less

PM2.5	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Roquet Ranch Specific Plan
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategies
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

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EXECUTIVE SUMMARY

The City of Colton (City) adopted a Climate Action Plan (CAP) in November 2015. The purpose of the CAP is to provide guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the City of Colton (1). The CAP builds upon the San Bernardino Regional Greenhouse Gas (Reduction Plan) to address City-specific information and City-specific GHG reduction measures.

The City’s CAP identified screening tables where Projects that achieve at least 75 points are determined to be consistent with the reduction quantities anticipated in the City’s CAP. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

In order to enforce the requirements of the CAP Screening Tables, Mitigation Measure GHG-1 requires that the project implement at least 75 points from the City of Colton Greenhouse Gas Emissions Screening Tables. Therefore, since the project will incorporate at least 75 points from the screening tables, the project’s impact on greenhouse gas emissions is less than significant.

Additionally the City’s CAP also established a performance standard requiring a minimum 25% reduction below 2008 levels by 2020 for new developments.

As shown on Table ES-1, the Project’s 2020 greenhouse gas emissions levels will amount to a 25.96% reduction from the Project’s 2008 greenhouse gas emissions levels, which is greater than the minimum 25% performance standard for new developments as identified in City’s CAP. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change.

TABLE ES-1: 2008 VS 2020 TOTAL PROJECT GREENHOUSE GAS EMISSIONS REDUCTION LEVELS (ANNUAL)

Emission Source	CO2e Emissions Levels by Year (Metric Tons Per Year)	
	2008 Levels	2020 Project
Annual Construction-related emissions amortized over 30 years	252.51	252.51
Area	353.33	271.73
Energy Use	4,267.77	3,046.17
Mobile Sources	15,913.26	12,059.58
Waste	823.74	411.87
Water Usage	649.30	439.29
Total	22,259.91	16,481.15
Reduction over 2008 Levels	25.96%	
Project Minimum Improvement	25%	
Meets Requirement?	YES	

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1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Roquet Ranch Specific Plan (referred to as “Project”).

The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Roquet Ranch Specific Plan Project is located west of La Cadena Drive and north of the future Pellissier Road in the City of Colton, as shown on Exhibit 1-A. Interstate 215 (I-215) is located roughly 300 feet east of the Project site. The existing surrounding land uses include open space to the north; residential and commercial to the east; residential, commercial, and industrial to the south; and vacant land to the west. The nearest airport to the proposed Project site is Flabob Airport, located approximately four miles southwest of the site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of 754 single-family residential units, 244 condo/townhomes, 52 active adult attached units, 6,500 square feet of commercial retail use, a 1,500 square foot coffee shop with drive-thru window, a 4,000 square foot fast-food restaurant with drive-thru window, an 11.1-acre community park, and 8.4 acres of passive parks, as shown on Exhibit 1-B. Planning Area 12 and Planning Area 13 both include public/institution uses, however, alternatives for both planning areas include medium density residential land use. The anticipated Opening Year for the proposed Project is 2020.

1.3 PROJECT DESIGN FEATURES

Energy-saving and sustainable design features and operational programs would be incorporated into all facilities developed pursuant to the Project. Notably, the Project would comply with the California Green Building Standards Code (CALGreen; CCR, Title 24, Part 11) as implemented by the City of Colton. The Project also incorporates and expresses the following design features and attributes promoting energy efficiency and sustainability. Because these features/attributes are integral to the Project, and/or are regulatory requirements, they are not considered to be mitigation measures.

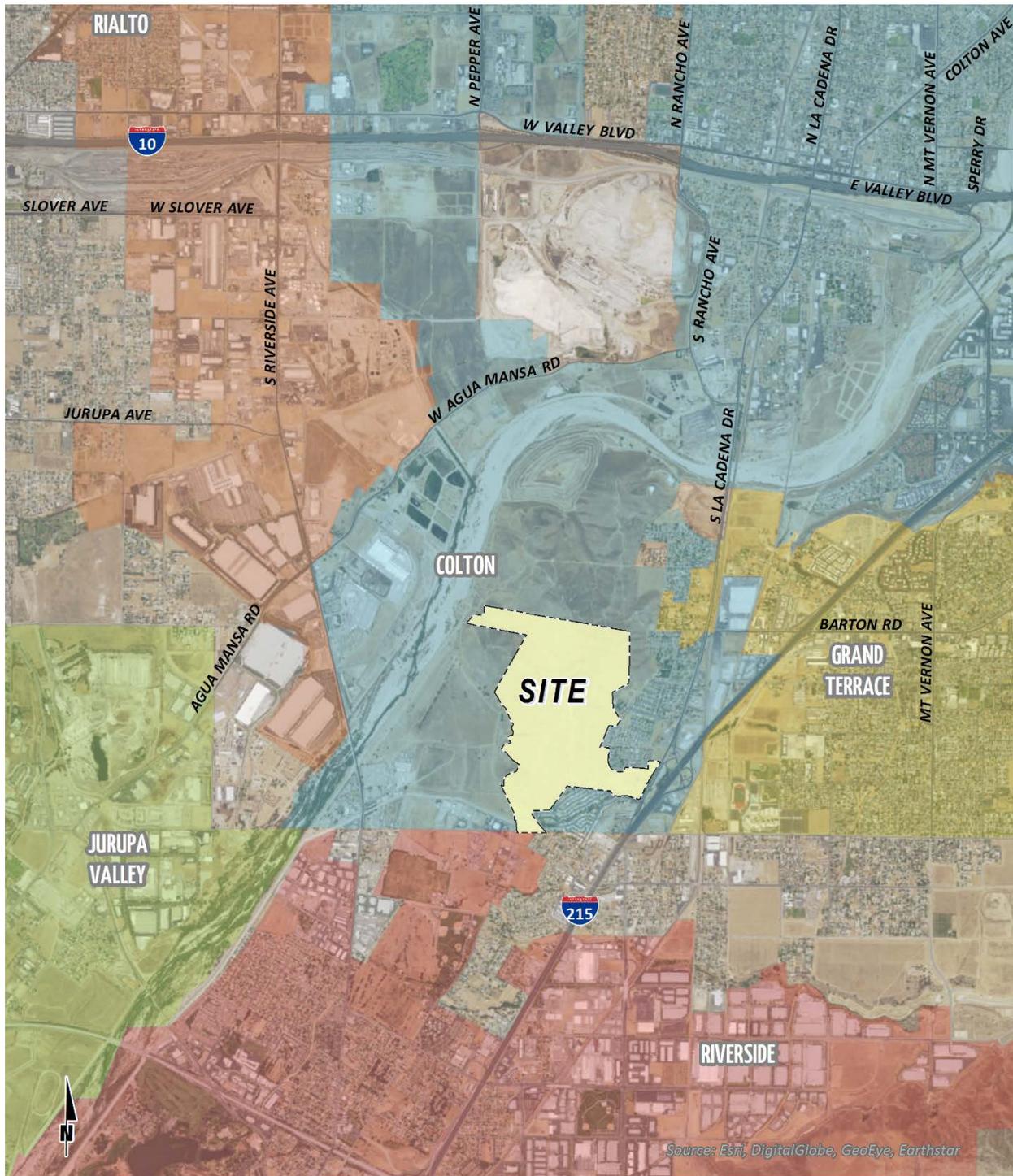
- Regional vehicle miles traveled (VMT) and associated vehicular-source emissions are reduced by the following Project design features/attributes:
 - Pedestrian connections would be constructed along the Project’s Pellissier Road, Roquet Ranch Road, and selected roads within the Project, providing pedestrian access between the various uses and activity centers within the Project. Facilitating pedestrian access encourages people to walk instead of drive. The Project would not impose barriers to pedestrian access and interconnectivity.

- Concentration of mixed uses within the Specific Plan as proposed by the Project acts to reduce travel distances and regional vehicle miles traveled (VMT) by consolidating trips and reducing requirements for multiple trips.
- To reduce water demands and associated energy use, development proposals within the Project site would be required to implement a Water Conservation Strategy and demonstrate a minimum 20% reduction in outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy). Development proposals within the Project site would also be required to implement the following:
 - Landscaping palette emphasizing drought-tolerant plants consistent with provisions of the City of Colton requirements;
 - Use of water-efficient irrigation techniques consistent with City of Colton requirements;
 - U.S. Environmental Protection Agency (EPA) Certified WaterSense labeled or equivalent faucets, high-efficiency toilets (HETs), and other plumbing fixtures.
- The Project in total would surpass by a minimum of 15%, 2013 Title 24 performance standards established under the Building Energy Efficiency Standards contained in the California Code of Regulations (CCR), Title 24, Part 6 (Title 24, Title 24 Energy Efficiency Standards).
- The Project shall install high efficiency lighting that results in a minimum of 15% lighting energy reduction compared to the 2013 Title 24 Energy Efficiency Standards.
- Consistent to Section 15.58 of the City's Municipal Code, the Project shall incorporate recycling services to meet the City's minimum 50% waste diversion goal.

1.4 CONSTRUCTION AND OPERATIONAL MITIGATION MEASURES

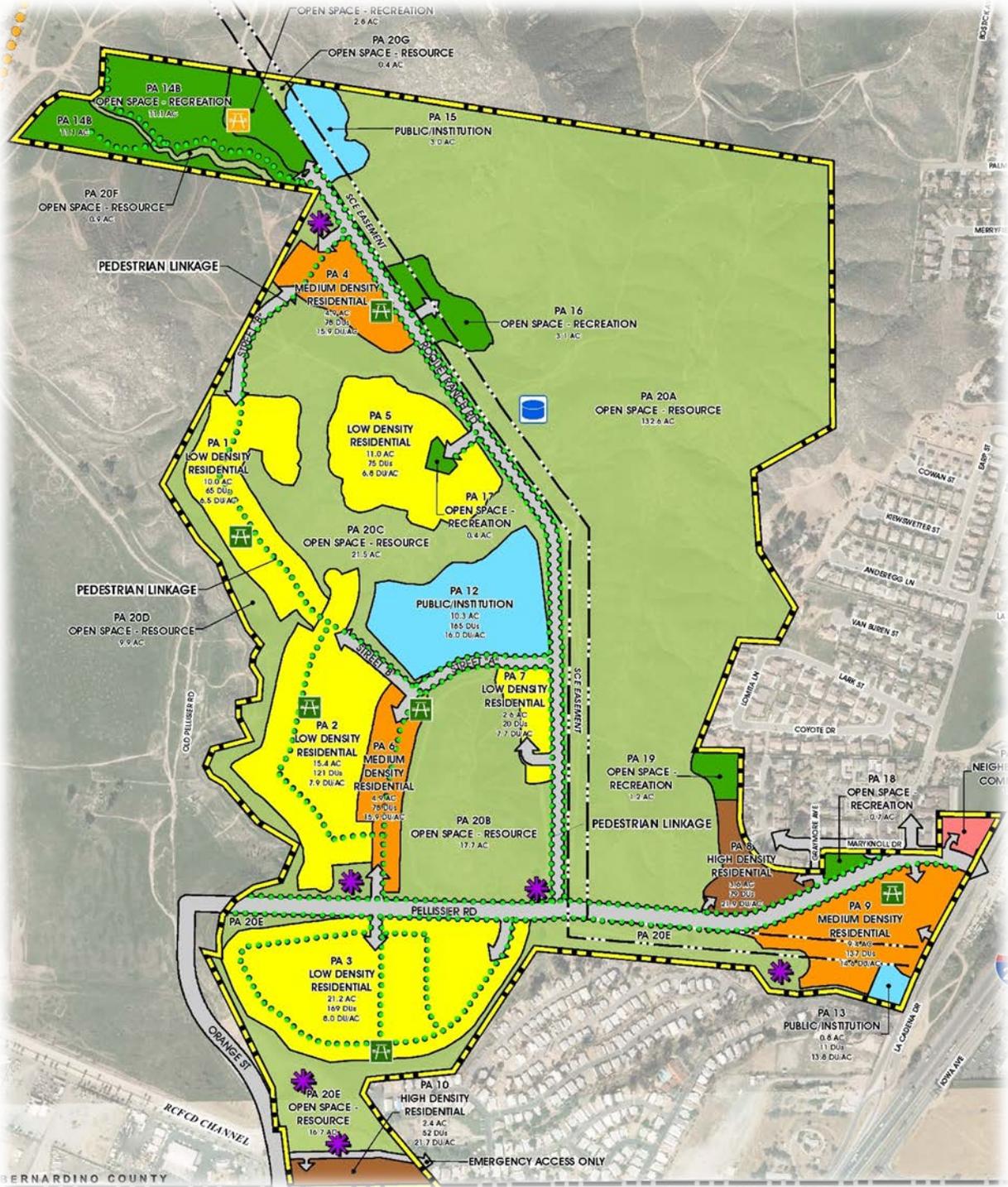
No significant impacts are identified, thus no mitigation measures are required.

EXHIBIT 1-A: LOCATION MAP



LEGEND:

EXHIBIT 1-B: SITE PLAN



2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the Earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of greenhouse gasses combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (man-made) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions data for Annex I nations are available through 2011. For the Year 2011 the sum of these emissions totaled approximately 28,865,994 Gg CO₂e¹ (2) (3). The GHG emissions in more recent years may differ from the inventories presented in Table 2-1; however, the data is representative of currently available inventory data.

¹ The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF,"

United States

As noted in Table 2-1, the United States, as a single country, was the number two producer of GHG emissions in 2012. The primary greenhouse gas emitted by human activities in the United States was CO₂, representing approximately 83 percent of total greenhouse gas emissions (4). Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 78 percent of the GHG emissions.

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION²

Emitting Countries	GHG Emissions (Gg CO₂e)
China	10,975,500
United States	6,665,700
European Union (27 member countries)	4,544,224
India	3,013,770
Russian Federation	2,322,220
Japan	1,344,580
Total	28,865,994

State of California

CARB compiles GHG inventories for the State of California. CARB GHG inventory data indicates that in 2013 (the most recent inventory of record) California GHG emissions totaled approximately 459.3 Million Metric Tons of Carbon Dioxide Equivalent (MMTCO₂e).³ “In 2010, California accounted for 6.8 percent of all emissions in the country [United States], and ranked second highest among the states with total emissions of 453 MMTCO₂e, only behind Texas with 763 MMTCO₂e. From a per capita standpoint, California has the 45th lowest emissions with 12.1 MMTCO₂e /person in 2010.”⁴

2.3 GLOBAL CLIMATE CHANGE DEFINED

Global Climate Change (GCC) refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO₂ (Carbon Dioxide), N₂O (Nitrous Oxide), CH₄ (Methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the Earth’s atmosphere, but prevent radioactive heat from escaping, thus warming the Earth’s atmosphere. GCC can occur naturally as it has in the past with the previous

2 Used <http://unfccc.int> data for Annex I countries. Consulted the CAIT Climate Data Explorer <http://www.wri.org> site to reference Non-Annex I countries such as China and India.

3 Cal EPA. “California Greenhouse Gas Emission Inventory - 2015 Edition.” California’s Greenhouse Gas Emission Inventory. Cal EPA, n.d. Web. 29 Oct. 2015.

4 California Environmental Protection Agency. Air Resources Board. California’s Greenhouse Gas Emission Inventory - 2014 Edition (May 2014), p. 28.

ice ages. According to the California Air Resources Board (CARB), the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude (5).

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the Earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of carbon dioxide equivalent (CO₂e) greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls (6).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated (see Table 3-1 later in this report) because these gasses are the primary contributors to GCC from development projects. Although other substances such as fluorinated gases also contribute to GCC, sources of fluorinated gases are not well-defined and no accepted emissions factors or methodology exist to accurately calculate these gases.

Greenhouse gases have varying global warming potential (GWP) values; GWP values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized at Table 2-2. As shown in the table below, GWP for the SAR range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride and GWP for the AR4 range from 1 for carbon dioxide to 22,800 for sulfur hexafluoride.

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)	
		Second Assessment Report (SAR)	4 th Assessment Report (AR4)
Carbon Dioxide	50-200	1	1
Methane	12 ± 3	21	25
Nitrous Oxide	120	310	298
HFC-23	264	11,700	14,800
HFC-134a	14.6	1,300	1,430
HFC-152a	1.5	140	124
Sulfur Hexafluoride (SF6)	3,200	23,900	22,800

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

Water Vapor: Water vapor (H₂O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to ‘hold’ more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a “positive feedback loop.” The extent to which this positive feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth’s surface and heat it up).

There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO₂) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (7).

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO₂ concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (8).

Methane: Methane (CH₄) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N₂O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (9).

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the Earth's surface, and be converted to other compounds by chemical reaction

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C₂H₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other

CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF₃), HFC-134a (CF₃CH₂F), and HFC-152a (CH₃CHF₂). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt (10). No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above Earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF₄) and hexafluoroethane (C₂F₆). The U.S. EPA estimates that concentrations of CF₄ in the atmosphere are over 70 ppt.

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF₆) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

2.5 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO₂ levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate O₃ pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and

inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.6 HUMAN HEALTH EFFECTS

The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (11). Exhibit 2-A presents the potential impacts of global warming.

Specific health effects associated with directly emitted GHG emissions are as follows:

Water Vapor: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth's atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (12).

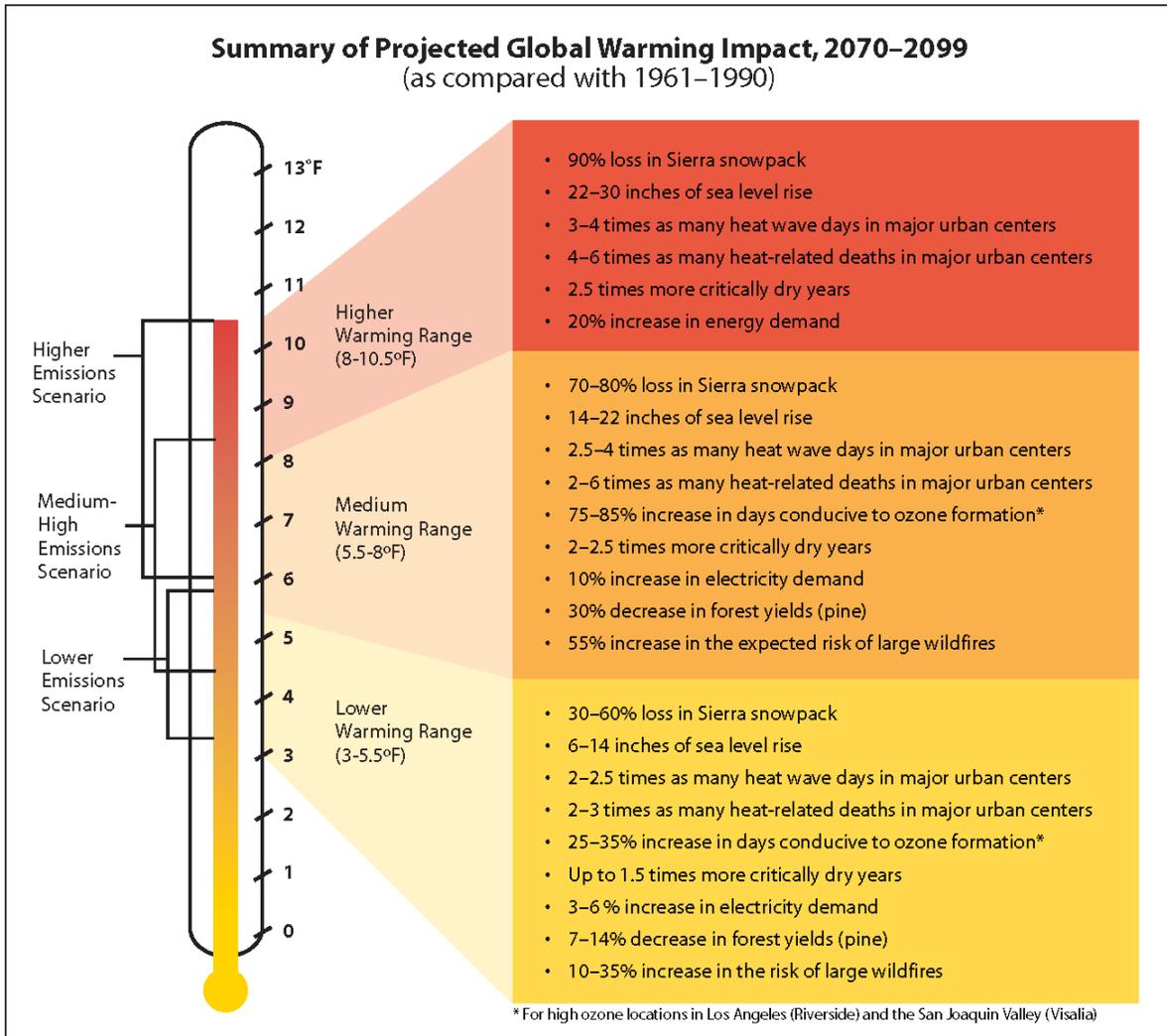
Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (13).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (13).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (12).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus aerosols can cause elevated respiratory and cardiovascular diseases as well as increased mortality (14).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT



2.7 REGULATORY SETTING

INTERNATIONAL

Climate change is a global issue involving greenhouse gas emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce greenhouse gases.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the United States joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five per cent against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.”

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make “nationally determined contributions” (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and “progress made in implementing and achieving” their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will “represent a progression” beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing \$100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address “loss and damage” resulting from climate change, which explicitly will not “involve or provide a basis for any liability or compensation;”
- Require parties engaging in international emissions trading to avoid “double counting;” and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country’s NDC (C2ES 2015a) (15).

NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

Greenhouse Gas Endangerment. *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007) decided on April 2, 2007, the Supreme Court found that four GHGs, including carbon dioxide, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section “Clean Vehicles” below. After a lengthy legal challenge, the United States Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator findings (EPA 2009b).

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

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012c). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of carbon dioxide (CO₂) in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20-percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and carbon dioxide emissions from the 2014 to 2018 model years.

Mandatory Reporting of Greenhouse Gases. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of

GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010 that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule “tailors” the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation’s largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Successful examples in the United States include the Acid Rain Program and the NO_x Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional Greenhouse Gas Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode

Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers' money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap and trade system January 1, 2014 and joint offset auctions have taken place in 2015 (C2ES 2015).

SmartWay Program. The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both greenhouse gas emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (EPA 2014):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all heavy-duty trucks will have to comply with the ARB Greenhouse Gas Regulation that is designed with the SmartWay Program in mind, to reduce greenhouse gas emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10 percent or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the

tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.

- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

CALIFORNIA

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. “Greenhouse gases” as defined under AB 32 include carbon dioxide, methane, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The California Air Resources Board (ARB) is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB approved the 1990 GHG emissions level of 427 MMTCO₂e on December 6, 2007 (ARB 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO₂e. Emissions in 2020 in a “business as usual” (BAU) scenario were estimated to be 596 MMTCO₂e, which do not account for reductions from AB 32 regulations (ARB 2008). At that level, a 28.4 percent reduction was required to achieve the 427 million MTCO₂e 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 million MTCO₂e. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010).

PROGRESS IN ACHIEVING AB 32 TARGETS AND REMAINING REDUCTIONS REQUIRED

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 (ARB 2014a). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 million MTCO₂e (AB 32 2020 target)
- 2000: 463 million MTCO₂e (an average 8-percent reduction needed to achieve 1990 base)
- 2010: 450 million MTCO₂e (an average 5-percent reduction needed to achieve 1990 base)

The ARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, ARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4 percent and the latest reduction from 2020 BAU is 21.7 percent.

- 2020: 545 million MTCO₂e BAU (an average 21.7-percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

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

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward

long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities Climate for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050 (ARB 2014).

The ARB has no legislative mandate to set a target beyond the 2020 target from AB 32 or to adopt additional regulations to achieve a post-2020 target. The Update estimates that reductions averaging 5.2 percent per year would be required after 2020 to achieve the 2050 goal. The State Legislature is currently considering legislation (SB 32) that would set a target of a 40 percent reduction below 1990 levels by 2030. Until the legislation is enacted, no post-2020 mandate currently exists. With no estimate of future reduction commitments from the State, identifying a feasible strategy including plans and measures to be adopted by local agencies is not currently possible. The ARB has initiated preparation of a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 that should provide more details of the State's post-2020 reduction strategy, but would still require legislation to require actions beyond those by State agencies subject to the Executive Order.

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-usual" or BAU. The ARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, ARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. ARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. The new BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 (Pavley I) motor vehicle GHG emission standards, and the Low Carbon Fuels Standard. In addition, ARB factored into the 2020 BAU inventory emissions reductions associated with 33-percent Renewable Energy Portfolio Standard (RPS) for electricity generation. The updated BAU estimate of 507 MMTCO_{2e} by 2020 requires a reduction of 80 MMTCO_{2e}, or a 16-percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 MMTCO_{2e}) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many climate action plans, the updated inventory without regulations was also included in the Supplemental FED. The ARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 MMTCO_{2e}. The updated ARB 2020 BAU projection in the Supplemental FED is 545 MMTCO_{2e}. Considering the updated BAU estimate of 545 MMTCO_{2e}

by 2020, ARB estimates a 21.7-percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 MMTCO_{2e}) by 2020, instead of the approximate 28.4-percent BAU reduction previously reported under the original Climate Change Scoping Plan (2008).

Cap and Trade Program. The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to ARB, a cap-and-trade program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020 and ultimately achieving an 80-percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

ARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. See 17 California Code of Regulations (CCR) §§ 95800 to 96023. The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed “covered entities”) by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25,000 MTCO_{2e} per year must comply with the Cap-and-Trade Program. Triggering of the 25,000 MTCO_{2e} per year “inclusion threshold” is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule or “MRR”).

Under the Cap-and-Trade Program, ARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender “compliance instruments” (30) for each MTCO_{2e} of GHG they emit. There also are requirements to surrender compliance instruments covering 30 percent of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30 percent of its 2013 GHG emissions.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by ARB in the First Update:

The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn

in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the “capped sectors.” Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85 percent of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation (i.e., they were not fully regulated) until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels

in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are “supplied” (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with vehicle-miles traveled (VMT) are covered by the Cap-and-Trade Program (ARB 2015) (16).

In addition, the Scoping Plan differentiates between “capped” and “uncapped” strategies. “Capped” strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and-trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. “Uncapped” strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.⁵

SB 375 - the Sustainable Communities and Climate Protection Act of 2008. Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, “Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.” SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28 states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by

⁵ On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irrigated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the ARB Scoping Plan for the implementation of AB 32, the Court enjoined ARB from further rulemaking under AB 32 until ARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, ARB filed an appeal. On June 24, 2011, the Court of Appeal granted ARB’s petition staying the trial court’s order pending consideration of the appeal. In the interest of informed decision-making, on June 13, 2011, ARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. The ARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 1368 – Emission Performance Standards. In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower GHG emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for GHG emissions required by SB 1368. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs CO₂ per megawatt-hour (MWh).

SB 1078 – Renewable Electricity Standards. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by

2017. SB 1078 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

SBX 7-7 – The Water Conservation Act of 2009. The legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020 and related reduction in energy use for transporting and treating water.

SB 350— Clean Energy and Pollution Reduction Act of 2015. The legislature recently approved and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S 3-05, the following reduction targets for GHG emissions:

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

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is

an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 – Low Carbon Fuel Standard. The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the “life-cycle carbon intensity” of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an “early action” item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was challenged in the United States District Court in Fresno in 2011. The court’s ruling issued on December 29, 2011 included a preliminary injunction against ARB’s implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012 pending final ruling on appeal, allowing the ARB to continue to implement and enforce the regulation. The Ninth Circuit Court’s decision filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that Low Carbon Fuel Standards adopted by ARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal reversed the trial court’s judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of ARB approving Low Carbon Fuel Standards (LCFS) regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-CI fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing was held on September 24, 2015 and September 25, 2015 where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with Office of Administrative Law (OAL) on October 2, 2015. OAL has until November 16, 2015 to make a determination (ARB 2015d).

Executive Order S-13-08. Executive Order S-13-08 states that “climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California’s economy, to the health and welfare of its population and to its natural resources.” Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency

2009) was adopted, which is the “. . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States.” Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030. The Governor’s executive order aligns California’s greenhouse gas reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The executive order sets a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050 and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO₂ equivalent (MMCO₂e). The executive order also requires the state’s climate adaptation plan to be updated every three years and for the state to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this executive order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California’s energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Standards. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards and California Green Building Standards. California Code of Regulations Title 24 Part 6: California’s Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest version of Title 24 was adopted by the California Energy Commission (CEC) on May 31, 2012 and became effective on July 1, 2014.

The California Energy Commission (CEC) indicates that the 2013 Title 24 standards will reduce energy consumption by 30 percent above that achieved by 2008 Title 24 (CEC 2012). More

specifically, based on a comparison of 2008 to 2013 Title 24 reductions required, newly constructed non-residential buildings result in an overall reduction of approximately 22 percent energy demand, while non-residential redevelopment (which would apply to existing buildings) results in an overall reduction of only approximately 10 percent energy demand. Additionally, the 2013 Title 24 standards currently in effect yield an approximately 68 percent energy savings when compared with the 2005 Title 24 standards (in place pre-AB 32)⁶.

At this time, the 2013 Title 24 standards are currently in effect; notwithstanding, it is likely that by the time the building permits are processed for this Project, the 2016 Title 24 standards will be in effect (the 2016 Title 24 standards take effect on January 1, 2017). The analysis did not take any credit for implementation of the more restrictive 2016 Title 24 standards for which the CEC estimates will provide 5 percent electric energy savings from non-residential buildings compared to 2013 Title 24.⁷

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011 administered by the California Building Standards Commission. The code is updated on a regular basis, with the most recent update consisting of the 2013 California Green Building Code Standards that became effective January 1, 2014. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they establish a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. The California Green Building Standards Code requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).

⁶ See Table 2: Summary of First-Year-Electricity Savings in the Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings, November 2007. See Table 2: Summary of First-Year-Electricity Savings in the California Energy Commission's Consultant Report: Impact Analysis California's 2013 Building Energy Efficiency Standards, July 2013.

⁷ See CEC 2015. 2016 Building Energy Efficiency Standards Adoption Hearing Presentation. Website: http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf. Accessed May 11, 2016.

- Construction waste. A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and 80 percent for new homes and 80-percent for commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
 - The installation of water-conserving fixtures or
 - Using nonpotable water systems (5.303.4).
 - Water use savings. 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35 and 40-percent reductions (5.303.2, A5303.2.3 [nonresidential]).
 - Water meters. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
 - Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
 - Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).
 - Building commissioning. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown’s Drought Executive Order of April 1, 2015 (EO B-29-15) directed DWR to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

ARB Refrigerant Management Program. The ARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, California Code of Regulations. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is

designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer Greenhouse Gas Regulation. The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers, or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states “(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a).” Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of GHG emissions. The new section allows agencies the discretion to determine

whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project’s estimated GHG emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project’s incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project’s cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

REGIONAL

The project is within the Southern California Air Basin (SoCAB), which is under the jurisdiction of the SCAQMD.

South Coast Air Quality Management District

The SCAQMD is the agency responsible for air quality planning and regulation in the SoCAB. For greenhouse gases, the agency addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

The SCAQMD formed a working group to identify greenhouse gas emissions thresholds for land use projects that could be used by local lead agencies in the air basin in 2008. The working group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold, that could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that

can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

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

The SCAQMD's draft threshold uses the Executive Order S-3-05 year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate.

The SCAQMD only has authority over GHG emissions from development projects that include air quality permits. The project does not include stationary sources of emissions subject to SCAQMD permit; however, the SCAQMD has adopted a regulation that includes voluntary programs that are available for use in CEQA compliance.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

LOCAL

The City of Colton adopted a Climate Action Plan (CAP) on November 3, 2015. The CAP contains further guidance on the City of Colton’s GHG Inventory reduction goals, policies, guidelines, and implementation programs. The purpose of the CAP is to provide guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the City of Colton (1). The CAP builds upon the Reduction Plan to address City-specific information and City-specific GHG reduction measures. To address the state’s requirement to reduce GHG emissions, the City prepared its CAP with the goal of reducing GHG emissions within the City by 15% below 2008 levels by the year 2020. The City’s target is consistent with the AB 32 target and ensures that the City of Colton will be providing GHG reductions locally that will complement state efforts to reduce GHG emissions.

As part of the CAP, the City of Colton published a guidance document titled “Greenhouse Gas Emissions, Screening Tables” (April 2015). As part of this guidance, the City determined the size of development that is too small to be able to provide the level of GHG emission reductions expected from the Screening Tables or alternate emissions analysis method. The City’s analysis determined that the 3,000 MTCO_{2e} per year value be used in defining small projects that are considered less than significant and do not need to use the Screening Tables or alternative calculations.

If the project exceeds the 3,000 MTCO_{2e} per year threshold, then project emissions would need to be reduced by 25 percent from year 2008 emissions levels or alternatively the Project would need to achieve a minimum of 75 points pursuant to the CAP Screening Tables. The screening tables also allow developers to tailor their mitigation measures to the project’s needs, rather than have them be subject to one-size fits all mitigation measures that may be too stringent for them.

2.9 THRESHOLDS OF SIGNIFICANCE

According to the City of Colton CEQA thresholds, to determine whether impacts from greenhouse gas emissions are significant. Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The evaluation of an impact under CEQA requires measuring data from a project against both existing conditions and a “threshold of significance.” With regard to establishing a significance threshold, the Office of Planning and Research’s amendments to the CEQA Guidelines Section 15064.7(c) state that “[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.”

CEQA Guidelines Section 15064.4(a) further states, "...A lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use ...; or (2) Rely on a qualitative analysis or performance based standards."

CEQA Guidelines Section 15064.4 provides that a lead agency may take into account the following three considerations in assessing the significance of impacts from greenhouse gas emissions:

- **Consideration #1:** The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration #2:** Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration #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. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Biological Diversity v. California Department of Fish and Wildlife ("Newhall Ranch")

On November 30, 2015, the California Supreme Court in *Center for Biological Diversity v. California Department of Fish and Wildlife ("Newhall Ranch")* invalidated the GHG analysis for a large master planned residential development in Los Angeles County consisting of over 20,000 residential dwelling units and other uses, determining that the GHG significance finding was "not supported by a reasoned explanation based on substantial evidence." In particular, the Court upheld: (1) use of the statewide emissions reduction goal in AB 32 as a significance criterion (pp. 15-19), (2) use of the Scoping Plan's BAU model "as a comparative tool for evaluating efficiency and conservation efforts" of the Project (pp. 18-19), and (3) a comparison of the project's expected emissions to a BAU model rather than a baseline of pre-project conditions (pp.15-19).

Notwithstanding, however, the Court invalidated the GHG analysis on the grounds that the "administrative record discloses no substantial evidence that the Newhall Ranch's project-level reduction of 31 percent in comparison to [BAU] is consistent with achieving AB 32's statewide goal of a 29 percent reduction from [BAU]..." (p.19, original italics; see also p. 23 ("Nor is Justice Corrigan correct that our analysis 'assumes project-level reduction in greenhouse gas emissions must be greater than the reduction California is seeking to achieve statewide.' [internal citations omitted] ...[W]e only hold that DFW erred in failing to substantiate its assumption that the Scoping Plan's statewide measure of emissions reduction can also serve as the criterion for an individual land use project."))

In so doing, the Court in *Newhall Ranch* questioned whether "a greater degree of reduction may be needed" from new versus existing development to achieve the statewide goal set forth in AB 32. (p. 20.) The Court also stated that the EIR failed to contain sufficient evidence to conclude that the "land use density" assumptions used in the EIR's GHG emissions model relate to the land

use density assumptions used in the Scoping Plan’s BAU model. (p. 21-22.) Because this information was not contained in the *Newhall Ranch* EIR, the Court determined that the record in *Newhall Ranch* did not contain substantial evidence supporting the BAU threshold.

The Court in *Newhall Ranch* outlined “potential pathways to compliance” that future EIRs could use to determine if GHG emissions from a given project are significant. Specifically, the Court advised that:

- **Substantiation of Project Reductions from BAU.** A lead agency may use a BAU comparison based on the Scoping Plan’s methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the “data behind the Scoping Plan’s business-as-usual model” to determine the necessary project-level reductions from new land use development at the proposed location. (p. 25.)
- **Compliance with Regulatory Programs or Performance Based Standards.** A lead agency “might assess consistency with AB 32’s goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities. (See Final Statement of Reasons, supra, at p. 64 [greenhouse gas emissions ‘may be best analyzed and mitigated at a programmatic level.’].) To the extent a project’s design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Resources Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with ‘performance based standards’ adopted to fulfill ‘a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions.’ (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including ‘plans or regulations for the reduction of greenhouse gas emissions’].) (p. 25.)
- **Compliance with GHG Reduction Plans or Climate Action Plans (CAPs).** A lead agency may utilize “geographically specific GHG emission reduction plans” such as climate action plans or greenhouse gas emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis. (p. 26.)
- **Compliance with Local Air District Thresholds.** A lead agency may rely on “existing numerical thresholds of significance for greenhouse gas emissions” adopted by, for example, local air districts. (p. 27.)

Therefore, consistent with CEQA Guidelines Appendix G, the three factors identified in CEQA Guidelines Section 15064.4 and the *Newhall Ranch* opinion, the following thresholds are considered in determining the significance of impacts from GHG.

- **Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs (see Impact GHG-1)?**

Analysis under Impact GHG-1 involves a quantitative analysis of the Project’s compliance with the City of Colton’s Climate Action Plan (“CAP”). The CAP is a geographically specific plan that was adopted by the City of Colton for the purpose of reducing GHG emissions under the control or influence of the City consistent with AB 32 and subsequent state legislation and state agency action to address climate change. This threshold is also consistent with the SCAQMD’s draft interim threshold Tier 2, which consists of determining whether a project is consistent with a qualified greenhouse gas reduction plan.

- **Would the project conflict with the ARB Scoping Plan and regulations adopted for the purpose of reducing emissions of greenhouse gases (See Impact GHG-2)?**

Analysis under Impact GHG-2 involves a qualitative analysis of the Project's consistency with the ARB's Scoping Plan and with GHG emission reducing regulations. The Scoping Plan (and its adopted regulations) are considered a statewide plan, policy, or regulation adopted by a public agency to reduce GHG emissions that may be used to assess consistency with AB 32.

The City has further determined that each one of the above-two thresholds are considered to be a separate and independent basis upon which to substantiate the significance of the project's GHG impact.

3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant greenhouse gas impact. The significance of these potential impacts is described in the following section.

3.2 PROJECT RELATED GREENHOUSE GAS EMISSIONS

CEQA Guidelines 15064.4 (b) (1) states that a lead agency may use a model or methodology to quantify greenhouse gas emissions associated with a project (17).

On October 2, 2013, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2013.2.2. The purpose of this model is to more accurately calculate construction-source and operational-source criteria pollutant (NO_x, VOC, PM₁₀, PM_{2.5}, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (18). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality impacts. Output from the model runs for both construction and operational activity are provided in Appendix 3.1

3.3 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time. Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time a LCA would be extremely speculative and thus has not been prepared.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the proposed Project will result in emissions of CO₂ and CH₄ from construction activities.

The report [Roquet Ranch Specific Plan Air Quality Impact Analysis Report](#), Urban Crossroads, Inc. (2016) contains detailed information regarding construction activity (19).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30-year project life then adding that number to the annual operational phase GHG emissions (20). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of CO₂, CH₄, and N₂O from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Solid Waste
- Water Supply, Treatment and Distribution

3.5.1 AREA SOURCE EMISSIONS

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO₂ and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod™ default parameters were used.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

GHG emissions will also result from mobile sources associated with the Project. These mobile source emissions will result from the typical daily operation of motor vehicles by visitors, employees, and residents.

Project mobile source emissions are dependent on both overall daily vehicle trip generation. Trip characteristics available from the report, Roquet Ranch Specific Plan Traffic Impact Analysis Urban Crossroads (2016) were utilized in this analysis (21).

3.5.4 SOLID WASTE

Project land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of

waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the proposed Project were calculated by the CalEEMod™ model using default parameters.

3.5.5 WATER SUPPLY, TREATMENT AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod™ default parameters were used.

3.6 EMISSIONS SUMMARY

The total project greenhouse gas emissions for years 2008 and 2020 are shown on Table 3-1 and Table 3-2, respectively. In year 2008, total CO₂E emissions produced would be 22,259.91 MMTCO₂e. In year 2020, total CO₂E emissions produced would be 16,481.15 MMTCO₂e. As shown on Table 3-3, the Project’s 2020 GHG emissions levels results in an 25.96% reduction from the Project’s 2008 GHG emissions levels.

TABLE 3-1: 2008 TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	Total CO ₂ E
Annual construction-related emissions amortized over 30 years	251.98	0.03	--	252.51
Area	343.54	0.35	7.57E-03	353.33
Energy	4,247.98	0.14	0.05	4,267.77
Mobile Sources	15,892.26	1	--	15,913.26
Waste	367.57	21.72	--	823.74
Water Usage	575.54	2.56	0.06	649.3
Total CO₂E (All Sources)	22,259.91			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.
 Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
 Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x 10^{*e*}) and is followed by the value of the exponent
^a Includes emissions of landscape maintenance equipment and architectural coatings emissions
^b Includes emissions of natural gas consumption
^c Includes emissions of vehicle emissions and fugitive dust related to vehicular travel

TABLE 3-2: 2020 TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO2	CH4	N2O	Total CO2E
Annual construction-related emissions amortized over 30 years	251.98	0.03	--	252.51
Area	269.84	2.00E-02	4.62E-03	271.73
Energy	3,028.99	0.13	0.05	3,046.17
Mobile Sources	12,050.94	0.41	--	12,059.58
Waste	183.78	10.86	--	411.87
Water Usage	365.71	2.56	0.06	439.29
Total CO₂E (All Sources)	16,481.15			

TABLE 3-3: 2008 VS 2020 TOTAL PROJECT GREENHOUSE GAS EMISSIONS REDUCTION LEVELS (ANNUAL)

Emission Source	CO ₂ e Emissions Levels by Year (Metric Tons Per Year)	
	2008 Levels	2020 Project
Annual Construction-related emissions amortized over 30 years	252.51	252.51
Area	353.33	271.73
Energy Use	4,267.77	3,046.17
Mobile Sources	15,913.26	12,059.58
Waste	823.74	411.87
Water Usage	649.30	439.29
Total	22,259.91	16,481.15
Reduction over 2008 Levels	25.96%	

4 PROJECT IMPACT ANALYSIS AND MITIGATION MEASURES

Impact GHG-1: The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purposes of reducing the emissions of greenhouse gases.

IMPACT ANALYSIS

As discussed in the Newall Ranch decision, a lead agency may assess the significance of GHG emissions by determining a project's consistency with a local GHG reduction plan or CAP that qualifies under Section 15183.5 of the CEQA Guidelines. The City of Colton's CAP serves to fulfill this role.

The CAP is designed to ensure that the development accommodated by the buildout of the General Plan supports the goals of Assembly Bill (AB) 32—the Global Warming Solutions Act of 2006. The California Air Resources Board (ARB) adopted the State's strategy for achieving AB 32 targets in its Climate Change Scoping Plan (Scoping Plan) in 2008. The Scoping Plan greenhouse gas reduction goal is to reduce statewide emissions to 1990 levels by 2020. The City of Colton CAP includes strategies that will achieve this target. The CAP target is to reduce City emissions by the amount recommended in the Scoping Plan for local government of 15 percent below 2008 levels by 2020. This was roughly equivalent to the 28.4 percent overall reduction in statewide emissions from business as usual in 2020. The strategy will continue to provide reductions past 2020 and includes a commitment to update the CAP beginning in 2017. The new plan will include a specific target for GHG reductions for 2035 and 2050. The targets will be consistent with broader state and federal reduction targets and with the scientific understanding of the needed reductions by 2050. The CAP includes analysis that includes the conceptual reductions required to achieve the percent reductions that would be required to achieve the levels needed to achieve the 2050 target outlined in Executive Order S-3-05, but the CAP does not include a comprehensive strategy to achieve the later targets pending adoption of a statewide strategy for those later years.

In determining whether the project conflicts with any applicable plan, policy, or regulation, the California Resources Agency has stated that in order to be used for the purpose of determining significance, a plan must contain specific requirements that result in reductions of greenhouse gas emissions to a less than significant level. The following from CEQA Guidelines Section 15083.5(b) lists the requirements for greenhouse gas reduction plans used for this purpose:

- 1) Plan Elements. A plan for the reduction of greenhouse gas emissions should:
 - a) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
 - b) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

- c) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;
 - d) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
 - e) Establish a mechanism to monitor the plan’s progress toward achieving the level and to require amendment if the plan is not achieving specified levels;
 - f) Be adopted in a public process following environmental review.
- 2) Use with Later Activities. A plan for the reduction of greenhouse gas emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project. If there is substantial evidence that the effects of a particular project may be cumulatively considerable notwithstanding the project’s compliance with the specified requirements in the plan for the reduction of greenhouse gas emissions, an EIR must be prepared for the project.

The CAP meets these requirements as shown below:

- The CAP quantifies emissions for a 2008 base year and future inventories for 2020, 2030, and 2050 for the City.
- The CAP has adopted a target of reducing GHG emissions down to 15 percent below 2008 levels within the City of Colton by 2020. This reduction target is compliant with AB 32; the AB 32 Climate Change Scoping Plan states: “In recognition of the critical role local governments will play in the successful implementation of AB 32, ARB recommended a greenhouse gas reduction goal for local governments of 15 percent below today’s levels by 2020 to ensure that their municipal and community-wide emissions match the State’s reduction target” (Scoping Plan page ES-5, ARB December 2008). As such, the City is consistent with the State’s efforts to reduce GHG emissions globally and substantially lessen the cumulative contribution.
- The CAP analyzed the GHG emissions resulting from specific sources under the jurisdiction of the City or within the City’s ability to influence including source categories common to most climate action plans in California.
- The CAP identified specific measures that would reduce GHG emissions by the required amount from regulations that apply to existing and new development and local measures that apply to the sources of emissions including:
 - Land Use and Transportation
 - Transportation Facilities Strategies
 - Transportation Demand Strategies
 - Energy Conservation Strategies for New and Existing Buildings
 - Waste Diversion and Recycling and Energy Recovery

- Strategies for Existing Development
- Municipal Strategies
- The CAP includes procedures for tracking and monitoring plan performance measures including annual and triennial data collection and reporting to identify trends and potential shortfalls requiring corrective actions.
- The CAP was included as part of a public review process and was adopted and certified in a public hearing on November 03, 2015.
- The CAP includes binding and enforceable requirements that apply to development projects to ensure plan consistency. All emission reductions required to reach the plan 2020 targets are achieved through compliance with adopted regulations, ordinances, and code enforced by the State and the City. Reductions from mobile sources anticipated through implementation of the City's land use plan are enforced through the development review process. Conditions of approval may be applied for measures requiring project specific actions not specifically addressed by the regulation or code.

The point values in the Screening Tables were derived from the projected emissions reductions that would be achieved by each of the reduction measures associated with new development within the City of Colton CAP. The points within the Screening Tables were proportioned by residential unit or square feet of commercial/industrial uses. This was accomplished by taking the predicted growth in households and commercial uses in 2020 and proportioning the appropriate reduction quantities for new development to the residential, commercial, and industrial land use sectors within the Screening Table. The result is point values that are proportioned by residential unit or commercial/industrial square feet. Because of this, the size of the project is not relevant to the Screening Table. Regardless of size, each project needs to garnish 75 points to demonstrate consistency with the CAP. Efficiency, not size of the project, is critical.

Within the City measures 3,618 MT CO₂e will be reduced using the Performance Standard for new development. The Performance Standard is implemented through Screening Tables and the point allocation within the Screening Tables are tied to 3,618 MT CO₂e of reductions.

The first step in allocating point values is to determine the number of new homes and commercial buildings that are anticipated by year 2020. The City predicts that 2,887 new residential units will be needed by 2020 to accommodate the population growth by 2020 and a total of approximately 1,506,000 square feet of new commercial and industrial buildings within the City is needed to accommodate anticipated job growth.

Approximately 2,887 new residential units and 1,506,000 square feet of new commercial and industrial buildings within the City are anticipated to either use the screening tables or provide an independent analysis demonstrating reductions. Evaluating the growth in residential and commercial/industrial land uses, approximately 78% is attributable to residential and 22% attributable to commercial/industrial land uses. Using those ratios, the Performance Standard will reduce 2,822 MT CO₂e from residential development and 796 MT CO₂e from commercial/industrial development by 2020.

Dividing the 2822 MT CO₂e reductions of emissions afforded the Screening Table implementation of the Performance Standard for new residential development by the anticipated 2,887 new residential units that will be built yields 0.97 MT CO₂e per residential unit that needs to be reduced to fulfill the anticipated reductions of the CAP. A similar process was done for commercial/industrial uses resulting in 0.54 MT CO₂e per 1,000 gross square feet of commercial/industrial building area.

Levels of reduction efficiency for typical residential units in this climate zone yields:

0.012 MT CO₂e per Point per Residential Unit

The levels of reduction efficiency for the mix of commercial/industrial uses in this climate zone yields:

0.007 MTCO₂e per Point per 1,000 Sq. Ft. of gross Commercial/Industrial building area

Since each residential unit needs to reduce 0.97 MT CO₂e and each 1,000 square feet of commercial/industrial building area needs to reduce 0.54 MT CO₂e, each project needs to gain 75 points to provide the expected reductions from the Performance standard.

Pursuant to the CAP, Projects that achieve at least 75 points based on the City’s screening tables are determined to be consistent with the reduction quantities anticipated in the City’s CAP. As such, further project-specific GHG quantification would not be required. Consistent with CEQA guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

In order to enforce the requirements of the CAP Screening Tables, Mitigation Measure GHG-1 requires that the project implement at least 75 points from the City of Colton Greenhouse Gas Emissions Screening Tables. Therefore, since the project will incorporate at least 75 points from the screening tables, the project’s impact on greenhouse gas emissions is less than significant.

Additionally, as shown on Table 3-3, the Project’s 2020 greenhouse gas emissions levels will amount to a 25.96% reduction from the Project’s 2008 greenhouse gas emissions levels, which is greater than the minimum 25% performance standard for new developments as identified in City’s CAP. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially significant impact.

MITIGATION MEASURES

MM GHG-1 Prior to issuance of building permits for each planning area, the applicant shall provide documentation to the City of Colton Planning Department demonstrating that each planning area will implement project features that will achieve at least 75 points from the City of Colton’s Greenhouse Gas Emissions Screening Tables or achieve equivalent emission reductions from other measures approved by the City of Colton.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant impact.

Impact GHG-2: The proposed project is consistent with the ARB Scoping Plan and regulations adopted for the purpose of reducing the emissions of greenhouse gases.

SUBSTANTIAL EVIDENCE SUPPORTING SCOPING PLAN REGULATORY PROGRAM CONSISTENCY THRESHOLD

Impact GHG-2 assesses the project’s consistency with the overarching goals of AB 32 and the strategies of ARB’s Scoping Plan as well as the regulatory measures adopted to further AB 32’s goals.

CEQA allows lead agencies to consider whether regulatory programs are adequate to reduce a project’s potentially significant environmental effects. Under AB 32, the State’s emission inventory must be reduced to 1990 levels by 2020. One of the questions in the CEQA Guidelines checklist regarding GHG asks whether a project conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The ARB Scoping Plan and its implementing regulations provide the regulatory framework for the State to achieve its target and to track its progress. Moreover, *Newhall Ranch* describes that a lead agency may assess consistency with AB 32’s goal in whole or in part by looking to compliance with regulatory programs designed to reduce GHG emissions from particular activities ... [Newhall, p. 25.] *Newhall Ranch* further describes that “[t]o the extent a project’s design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with ‘performance based standards’ adopted to fulfill ‘a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions.’ (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively considerable may rest on compliance with previously adopted plans or regulations, including ‘plans or regulations for the reduction of greenhouse gas emissions’].)”

An important underlying assumption when making a significance determination based on compliance with regulations is that the regulations are adequate to address the impact to a less than significant level. If compliance with regulations is sufficient to mitigate the impact to a less than significant level, then a project is not required to provide any additional mitigation to further reduce the impact. If, however, regulations are only partially effective in mitigating the impacts, or if the regulatory program is not fully implemented, there may be a gap between the amount that can be reasonably claimed from regulation and the amount needed to achieve the less than significant target.

The CARB 2008 Scoping Plan includes a regulatory strategy that will result in the State achieving the AB 32 target by 2020, accounting for growth projected by 2020. The measures in the 2008 Scoping Plan have all been in place since 2012. In the 2014 Scoping Plan Update was adopted in May 2014, however, ARB confirmed that the State had now adopted sufficient laws and

regulations to achieve the AB 32 target and no new measures or targets were identified.

MEASURES OF PLAN CONSISTENCY OR CONFLICT

Determining project consistency with greenhouse gas plans presents unique challenges because the impact is global and inherently cumulative in nature and the solutions require global and local action. A single state or nation or project cannot solve the problem and there are no binding international agreements in place that will achieve the amount of reductions scientists estimate will be required to prevent catastrophic climate change. California recognized this and decided to identify reduction targets for itself in AB 32 that would lead to California providing its fair share of reductions regardless of what other states or the federal government or other countries do to reduce their fair share. This leadership by example is hoped to spur other governments to take action to reduce their greenhouse gas impacts. California through AB 32 set its fair share reduction at the amount required to reduce emissions to 1990 levels by 2020.

The analysis below qualitatively examines the measures contained in the applicable plans and subsequent adopted regulations and how they interrelate with the project to achieve the State's goals.

APPLICABLE PLANS

The Scoping Plan provides the State's overall strategy in the form of measures that apply to emission sectors that comprise the State's greenhouse gas emission inventory. The Scoping Plan is the State's view from 30,000 feet for achieving the AB 32 mandates. The State's on-the-ground implementation strategy primarily takes the form of source specific regulations adopted by State agencies such as ARB, and the CEC. The State has adopted regulations described earlier in this section to implement the Scoping Plan measures and achieve the emission reductions required. The Scoping Plan envisions a limited role for local government in implementing the State's GHG reduction strategy focusing on local government's authority over land use and some transportation projects.

RELATING PLANS TO PROJECTS

The ARB Scoping Plan examines California's greenhouse gas profile in two ways – emissions-based and end use (demand side)-based. While it is possible to illustrate the inventory many different ways, no chart or graph can fully display how diverse economic sectors fit together. California's economy is a web of activity where seemingly independent sectors and subsectors operate interdependently and often synergistically. For example, reductions in water use reduce the need to pump water, directly lowering electricity use and associated greenhouse gas emissions. Similarly, reducing the generation of waste reduces the need to transport the waste to landfills – lowering transportation emissions and, possibly, landfill methane emissions. Increased recycling or re-use reduces the carbon emissions embedded in products – it takes less energy to make a soda can from recycled aluminum than from virgin feedstock.

Development projects are assessed for direct emissions from combustion of fuels for heating buildings and indirect emissions for fuel use from transportation activities associated with the project. Development projects are also end users of electricity that is often generated by power

plants that are located far from the project site. Project emissions from electricity consumption are based on the projected use and the average emission rate for the electric utility serving the project.

The regulations implementing the Scoping Plan apply directly to the project in regards to energy efficiency of the buildings, water conservation, and refrigerant usage. Scoping Plan measures regarding motor vehicle fuel efficiency apply to vehicle manufacturers, but result in lower emissions from vehicles accessing the project site. The Renewable Portfolio Standard applies to electric utilities, but reduce emissions related to electricity used by the project. Transportation sector measures from the Scoping Plan are also implemented through SB 375 - The Sustainable Communities and Climate Protection Act of 2008 which targets emissions from the transportation system through actions that make transportation more efficient at the regional level. Individual development projects have no direct requirements from SB 375 but may benefit from being located in areas designated as Transit Priority Areas and from system-wide infrastructure improvements that reduce congestion and improve traffic flow for all system users.

Development projects are constructed to accommodate California's population and economic growth accounted for by the Scoping Plan. As described above, the regulations implementing the Scoping Plan touch many of the operations of the buildings and the day to day activities of people that will work and shop at the project. Most of the greenhouse gas regulations apply behind the scenes so that they are not noticed by end users of the project except to the extent that the types of cars available for purchase are more fuel efficient. The developer is directly impacted by building energy efficiency and conservation regulations that must be followed during building construction. The cost of the efficiency measures is built into the construction cost of the building and rents but the owners and tenants benefit from lower energy bills and water bills resulting from the increased energy efficiency.

The Scoping Plan includes measures that reduce emissions from the following sectors:

- Transportation
- Electricity and Natural Gas
- Water
- Green Building
- Industry
- Recycling and Waste Management
- Forests
- High Global Warming Potential
- Agriculture

The 2008 Scoping Plan included 18 measures to reduce emissions from the various sectors. The measures often overlap and have interdependent relationships with other measures as described earlier. The measures are implemented with regulations and programs applicable to specific sources of emissions. More detailed descriptions of the measures are provided in Scoping Plan Appendix C, Sector Overview and Emission Reduction Strategies. The State has been very

aggressive in adopting regulations to implement the Scoping Plan and as a result, the state is on track to achieve the 2020 target as discussed above.

Most of the reductions required to reach AB 32's 2020 reduction target will be achieved by regulations that apply to both existing and new development, including the RPS, Pavley standards, LCFS, landfill regulations, regulations and programs on high global warming potential (GWP) gases, initiatives on water conservation (such as SB X7-7), and the indirect influence of the Cap and Trade system on electricity and transportation fuel prices.

The Project's significance with respect to consistency with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emission have been evaluated below and addressed for each sector.

Transportation

Approximately 70 percent of the Project's opening year GHG emissions as summarized in Table 3-2 are from transportation (mobile sources). Transportation emissions are heavily regulated at the source, including, but not limited to engine emissions standards and fuel requirements. Because these regulations and policies reduce GHG emissions at the source, the Project will be subject to and therefore not conflict with these transportation measures.

State Regulations/Scoping Plan Measures

Adopted regulations that will reduce the Project's GHG emissions through engine emission standards and fuel requirements are described in detail in Section 2.7 above. These regulations include:

California Light-Duty Vehicle Greenhouse Gas Standards

AB 1493/Pavley I and II required CARB to adopt regulations to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 through 2016.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025.

This measure applies to all new passenger vehicles starting with model year 2009. The project is consistent with this measure and its implementation as it would apply to all new passenger vehicles purchased in California. As such, any passenger vehicles associated with construction and operation of the project would be required to comply with the Pavley emissions standards.

Executive Order S-01-07 – Low Carbon Fuel Standard (LCFS)

The LCFS regulation became fully effective in 2010 and will reduce GHG emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020. The proposed Project will utilize these emissions reductions as they are implemented into 2020 from all operational mobile emissions sources.

This measure applies to transportation fuels utilized by vehicles in California. The project is consistent with this measure and its implementation as motor vehicles associated with construction and operation of the project would utilize low carbon transportation fuels as required under this measure.

Medium/Heavy-Duty Vehicles

As part of the Heavy-duty Vehicle Greenhouse Gas Regulation, CARB also implemented the Drayage Truck Regulation and Truck and Bus Regulation. These three regulations were collectively adopted to address and reduce emissions from trucks. Since the proposed Project has a large truck component, these regulations will aid in reducing GHG emissions from the Project.

This measure applies to medium and heavy-duty vehicles that operate in the state, and thus would apply to medium and heavy-duty vehicles that serve the project. The project is consistent with this measure and its implementation as medium and heavy-duty vehicles associated with construction and operation of the project would be required to comply with the requirements of this regulation.

Tractor-Trailer Greenhouse Gas Regulation

The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers, or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways.

Cap-and-Trade Program

Notably, the Cap-and-Trade Program covers transportation fuel suppliers to address emissions from fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are supplied, or delivered into commerce. Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all of GHG emissions from CEQA projects associated with VMT are covered by the Cap-and-Trade Program.

In September 2013, the SCAQMD adopted two Negative Declarations stating that GHG emissions subject to the CARB Cap-and-Trade Program do not count against the 10,000 MT CO₂e

significance threshold the SCAQMD applies when acting as a lead agency. In addition, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has recently taken this one issue step further and adopted a policy: “CEQA Determinations of Significance for Projects Subject to CARB’s GHG Cap-and-Trade Regulation.” This policy applies when the SJVAPCD is the lead agency and when it is a responsible agency. In short, the SJVAPCD “has determined that GHG emissions increases that are covered under CARB’s Cap-and-Trade regulation cannot constitute significant increases under CEQA....” The SJVAPCD classifies CARB’s Cap-and-Trade Program as an approved GHG emission reduction plan or GHG mitigation program under CEQA Guidelines Section 15064(h) (3). The policy acknowledges that “combustion of fossil fuels including transportation fuels used in California (on and off road including locomotives), not directly covered at large sources, are subject to Cap-and-Trade requirements, with compliance obligations starting in 2015.” As such, the SJVAPCD concludes that GHG emissions associated with vehicle miles traveled (VMT) cannot constitute significant increases under CEQA. This regulatory conclusion is therefore directly applicable to the proposed Project because VMT is by far the largest source of project GHG emissions.

Since the proposed Project has a large mobile source component and Cap-and-Trade emission reductions are difficult to calculate on a project-level, the proposed Project’s mobile source emissions are very conservative, making the total emission calculations conservative. The phase-in of the Cap-and-Trade Program compliance obligations for transportation fuel providers further reduces GHG emissions attributable to mobile sources, beyond the GHG emissions reductions achieved and modeled by the Pavley Standard and LCFS.

Energy

The second largest source, almost 20 percent, of GHG emissions shown in Table 3-2 from the Project is energy consumption from electricity and natural gas.

State Regulations/Scoping Plan Measures

Energy-related emissions are also heavily regulated at the source, including, but not limited to energy efficiency standards and renewable energy requirements. Because these regulations and polices reduce GHG emissions at the source, the Project will be subject to and therefore implement these energy measures.

Energy Efficiency – Title 24/CalGreen

As previously discussed in Section 2.7, the CEC indicates that the 2013 Title 24 standards will reduce energy consumption by 30 percent above that achieved by 2008 Title 24 (CEC 2012). More specifically, based on a comparison of 2008 to 2013 Title 24 reductions required, newly constructed non-residential buildings result in an overall reduction of approximately 22 percent energy demand. Additionally, the 2013 Title 24 standards currently in effect yield an

approximately 68 percent energy savings when compared with the 2005 Title 24 standards (in place pre-AB 32)⁸.

At this time, the 2013 Title 24 standards are currently in effect; notwithstanding, by the time the building permits are processed for this Project, the 2016 Title 24 standards will be in effect (the 2016 Title 24 standards take effect on January 1, 2017). The analysis did not take any credit for implementation of the more restrictive 2016 Title 24 standards for which the CEC estimates will provide 5 percent electric energy savings from non-residential buildings compared to 2013 Title 24.⁹

The proposed Project is also subject to the CalGreen Code Title 24 building energy efficiency requirements that offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

Renewable Portfolio Standard

As previously described above in Section 3.7.2, California's Renewable Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy sources to 33 percent of total retail sales by 2020 as established under SB 1078 and accelerated under SB 107 and SBX1-2. Additionally, SB 1368 prohibits any retail seller of electricity in California from entering into a long-term financial commitment for baseload generation if the GHG emissions are higher than those from a combined-cycle natural gas power plant. As a customer of Southern California Edison, the proposed Project will purchase from an increasing supply of renewable energy sources and more efficient baseload generations and thereby reduce GHG emissions.

Million Solar Roofs Program

The Million Solar Roofs Program set a goal to install 3,000 megawatts (MW) of new solar capacity by 2017 – moving the state toward a cleaner energy future and helping lower the cost of solar systems for consumers. The Million Solar Roofs Initiative is a ratepayer-financed incentive program aimed at transforming the market for rooftop solar systems by driving down costs over time.

The project is consistent with this scoping plan measure as the project will provide solar ready roofs.

⁸ See Table 2: Summary of First-Year-Electricity Savings in the Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings, November 2007. See Table 2: Summary of First-Year-Electricity Savings in the California Energy Commission's Consultant Report: Impact Analysis California's 2013 Building Energy Efficiency Standards, July 2013.

⁹ See CEC 2015. 2016 Building Energy Efficiency Standards Adoption Hearing Presentation. Website: http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf. Accessed May 11, 2016.

Water

GHG emissions also result from electricity consumption related to water supply, treatment, and distribution, as well as wastewater treatment. As shown in Table 3-2, the Project's GHG emissions related to water consumption are less than three percent of total GHG emissions.

State Regulations/Scoping Plan Measures**Renewable Portfolio Standard Related to Water Supply and Conveyance**

This measure would increase electricity production from eligible renewable power sources to 33% by 2020. A reduction in GHG emissions results from replacing natural gas-fired electricity production with zero GHG emitting renewable sources of power. By 2020, this requirement will reduce emissions from electricity used for water supply and conveyance in California by approximately 21.3 MMT CO₂e, representing 15.2% of emissions from electricity generation (in-state and imports).

As previously discussed, as a customer of Southern California Edison, the proposed Project will purchase from an increasing supply of renewable energy sources and more efficient baseload generations consistent with RPS and thereby reduce GHG emissions.

Model Water Efficient Landscape Ordinance (MWELo)

The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed DWR to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance.

The project is required to comply with the MWELo as required by City of Colton which will result in a minimum of 20 percent reduced water use for outdoor irrigation. The project is consistent with this measure as it will result in a minimum 20 percent reduced water use pursuant to the Project Design Features identified herein.

Waste Diversion

Disposal of solid waste in landfills contributes less than three percent of GHG emissions from the project as shown on Table 3-2.

State Regulations/Scoping Plan

The CARB Scoping Plan recommends three measures for reducing emissions from Municipal Solid Waste at the state level, including: 1) landfill methane control; 2) increase the efficiency of landfill

methane capture; and 3) high recycling/zero waste. CARB is in the process of developing a discrete early action program for methane recovery (1), which was adopted in early 2010. This measure is expected to result in a 1.0 MMT CO₂e reduction by 2020. Other measures proposed by CARB include increasing efficiency of landfill methane capture (2) and instituting high recycling/zero waste policies (3). Potential reductions associated with these measures are still to be determined.

Implementation of the CalGreen code and state measures reduce the amount of solid waste disposed of in landfills. The CalGreen code requires jurisdictions to divert a minimum of 50% of their nonhazardous construction and demolition waste from landfills. In addition, SB 341 amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and annually thereafter. The proposed Project is subject to these regulations as well as SB 341's policy goal and thereby reduce GHG emissions.

Consistency with Executive Orders S-3-05 and B-30-15

At the state level, Executive Orders S-3-05 and B-30-15 are orders from the State's Executive Branch for the purpose of reducing GHG emissions. The goal of Executive Order S-3-05 is to reduce GHG emissions to 1990 levels by 2020 was codified by the Legislature as the 2006 Global Warming Solutions Act (AB 32). The Project, as analyzed above, is consistent with AB 32. Therefore, the Project does not conflict with this component of Executive Order S-3-05. The Executive Orders also establish goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. These goals have not been codified. However, studies have shown that, in order to meet the 2030 and 2050 targets, aggressive technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. In its Climate Change Scoping Plan, ARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update, however, ARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; largescale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately." Due to the technological shifts required and the unknown parameters of the regulatory framework in 2030 and 2050, quantitatively analyzing the Project's impacts further relative to the 2030 and 2050 goals is speculative for purposes of CEQA.

Although the proposed Project's emissions levels in 2030 and 2050 cannot be reliably quantified, statewide efforts are underway to facilitate the State's achievement of that goal and it is reasonable to expect the proposed Project's emissions level (16,481.15 metric tons of CO₂e per year) to decline as the regulatory initiatives identified by ARB in the First Scoping Plan Update are implemented, and other technological innovations occur. Stated differently, the proposed Project's emissions total presented in Table 3-2, represents the maximum emissions inventory for the Project as California's emissions sources are being regulated (and foreseeably expected

to continue to be regulated in the future) in furtherance of the State’s environmental policy objectives. As such, given the reasonably anticipated decline in proposed project emissions once fully constructed and operational, the proposed project is consistent with the Executive Orders’ goals.

The Scoping Plan recognizes that AB 32 establishes an emissions reduction trajectory that will allow California to achieve the more stringent 2050 target: “These [greenhouse gas emission reduction] measures also put the state on a path to meet the long-term 2050 goal of reducing California’s greenhouse gas emissions to 80 percent below 1990 levels. This trajectory is consistent with the reductions that are needed globally to stabilize the climate.” Also, ARB’s First Update “lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050,” and many of the emission reduction strategies recommended by ARB would serve to reduce the proposed Project’s post-2020 emissions level to the extent applicable by law:

1. Energy Sector: Continued improvements in California’s appliance and building energy efficiency programs and initiatives, such as the State’s zero net energy building goals, would serve to reduce the proposed Project’s emissions level. Additionally, further additions to California’s renewable resource portfolio would favorably influence the proposed Project’s emissions level.
2. Transportation Sector: Anticipated deployment of improved vehicle efficiency, zero emission technologies, lower carbon fuels, and improvement of existing transportation systems all will serve to reduce the proposed Project’s emissions level.
3. Water Sector: The proposed Project’s emissions level will be reduced as a result of further desired enhancements to water conservation technologies.
4. Waste Management Sector: Plans to further improve recycling, reuse and reduction of solid waste will beneficially reduce the proposed Project’s emissions level.

While the 2020 cap would remain in effect post-2020, the Cap-and-Trade Program is not currently scheduled to extend beyond 2020 in terms of additional GHG emissions reductions. However, ARB has expressed its intention to extend the Cap-and-Trade Program beyond 2020 in conjunction with setting a mid-term target. The “recommended action” in the First Update for the Cap-and-Trade Program is: “Develop a plan for a post-2020 Cap-and-Trade Program, including cost containment, to provide market certainty and address a mid-term emissions target.” The “expected completion date” for this recommended action is 2017. In addition to CARB’s First Update, in January 2015, during his inaugural address, Governor Jerry Brown expressed a commitment to achieve “three ambitious goals” that he would like to see accomplished by 2030 to reduce the State’s GHG emissions:

(1) increasing the State’s Renewable Portfolio Standard from 33 percent in 2020 to 50 percent in 2030; (2) cutting the petroleum use in cars and trucks in half; and (3) doubling the efficiency of existing buildings and making heating fuels cleaner. These expressions of Executive Branch policy may be manifested in adopted legislative or regulatory action through the state agencies and departments responsible for achieving the State’s environmental policy objectives, particularly those relating to global climate change (Brown 2015) (22). Further, recent studies show that the State’s existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by

2050. Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the State to meet the 2050 target (Energy and Economics (2015) (23).

Given the proportional contribution of mobile source-related GHG emissions to the State's inventory, recent studies also show that relatively new trends, such as the increasing importance of web-based shopping, the emergence of different driving patterns by the "millennial" generation and the increasing effect of Web-based applications on transportation choices, are beginning to substantially influence transportation choices and the energy used by transportation modes. These factors have changed the direction of transportation trends in recent years, and will require the creation of new models to effectively analyze future transportation patterns and the corresponding effect on GHG emissions. For the reasons described above, the proposed Project's post-2020 emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets.

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been adopted; nevertheless, it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80-percent reduction below 1990 levels by 2050. Note again that the project already includes several project design features that exceed regulatory requirements and reduce vehicle miles traveled.

Accordingly, taking into account the proposed project's emissions, project design features, standard measures and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the project furthers the State's goals of reducing greenhouse gas emissions to 1990 levels by 2020 and an 80-percent reduction below 1990 levels by 2050, and does not obstruct their attainment.

Summary

The project is consistent with all applicable Scoping Plan goals and policies as evaluated herein. Additionally, the project incorporates a number of project design features and mitigation measures that go beyond the Scoping Plan requirements that would further minimize GHG emissions. The project promotes the goals of the Scoping Plan through implementation of the design measures that reduce energy consumption, and water consumption, and reduction in vehicle miles traveled. In addition, the project is required to comply with the regulations described in this section that have been adopted to implement the Scoping Plan and to achieve the AB 32 2020 target. Therefore, the project does not conflict with any plans to reduce GHG emissions and furthers the State's goals relative to this impact. The impact is less than significant.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Less than significant impact.

MITIGATION MEASURES

No mitigation is necessary.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant impact.

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6 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Roquet Ranch Specific Plan. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 3.1:
CALEEMOD EMISSIONS MODEL OUTPUTS

Construction (Phase 1 & Phase 2) Mitigated San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	16.50	Acre	16.50	718,740.00	0
City Park	19.50	Acre	19.50	849,420.00	0
Fast Food Restaurant with Drive Thru	4.00	1000sqft	0.40	4,000.00	0
Recreational Swimming Pool	121.97	1000sqft	2.80	121,968.00	0
Condo/Townhouse	244.00	Dwelling Unit	13.90	372,832.00	698
Congregate Care (Assisted Living)	52.00	Dwelling Unit	2.40	52,000.00	149
Single Family Housing	754.00	Dwelling Unit	80.20	1,458,236.00	2156
Strip Mall	6.50	1000sqft	0.60	6,500.00	0
User Defined Retail	1.50	User Defined Unit	0.20	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	466.91	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Source: CPUC GHG Calculator version 3c, worksheet tab "CO2 Allocations," cells AH/AQ 35-44.

Land Use - Total Lot Acreage: 336.2; includes 199.7 acres of open space; User defined Retail = Coffee Shop w/ Drive-Thru, City Park= community+passive parks; Swimming pool=PA 14A (private use)

Construction Phase - Based on past project experience and consultation with the applicant

Off-road Equipment - based on past project experience and consultation with the applicant

Off-road Equipment - 8 hour workday

Off-road Equipment - 8 hour workday

Off-road Equipment - 8 hour workday; Building Construction Equipment doubled to account for decreased construction duration

Off-road Equipment - 8 hour workday

Off-road Equipment - Based on previously modeled assumptions; Off-highway trucks= Water trucks

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Based on previously modeled assumptions; Off-highway trucks= Water trucks

Off-road Equipment - Based on previously modeled assumptions

Off-road Equipment - Based on previously modeled assumptions

Trips and VMT -

Grading -

Architectural Coating - CalEEMod is unable to distinguish between construction phasing and will doublecount the amount of surface area to be painted. As such, default surface areas have been halved; Based on Rule 1113-50 g/L low VOC paint

Vehicle Trips - Construction only

Road Dust - Construction only

Woodstoves - Construction only

Consumer Products - Construction only

Area Coating - Construction only

Landscape Equipment - Construction only

Energy Use - Construction only

Water And Wastewater - Construction only

Solid Waste - Construction only

Construction Off-road Equipment Mitigation - Tier 3 for all construction equipment greater or equal to 150 HP

Mobile Land Use Mitigation -

Area Mitigation - \

tblConstructionPhase	NumDays	220.00	140.00
tblConstructionPhase	NumDays	220.00	200.00
tblConstructionPhase	NumDays	3,100.00	175.00
tblConstructionPhase	NumDays	3,100.00	400.00
tblConstructionPhase	NumDays	310.00	100.00
tblConstructionPhase	NumDays	310.00	50.00
tblConstructionPhase	NumDays	220.00	15.00
tblConstructionPhase	NumDays	220.00	15.00
tblConstructionPhase	PhaseEndDate	6/21/2019	12/7/2018
tblConstructionPhase	PhaseEndDate	8/27/2021	11/20/2020
tblConstructionPhase	PhaseStartDate	12/8/2018	5/26/2018
tblConstructionPhase	PhaseStartDate	11/21/2020	2/15/2020
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tblFireplaces	NumberGas	207.40	0.00
tblFireplaces	NumberGas	44.20	0.00
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tblFireplaces	NumberNoFireplace	5.20	0.00
tblFireplaces	NumberNoFireplace	75.40	0.00
tblFireplaces	NumberWood	12.20	0.00
tblFireplaces	NumberWood	2.60	0.00
tblFireplaces	NumberWood	37.70	0.00
tblLandscapeEquipment	NumberSummerDays	250	1
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tblLandUse	LandUseSquareFeet	244,000.00	372,832.00
tblLandUse	LandUseSquareFeet	1,357,200.00	1,458,236.00
tblLandUse	LandUseSquareFeet	0.00	1,500.00
tblLandUse	LotAcreage	0.09	0.40
tblLandUse	LotAcreage	15.25	13.90
tblLandUse	LotAcreage	3.25	2.40
tblLandUse	LotAcreage	244.81	80.20

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tblLandUse	LotAcreage	0.00	0.20
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tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
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tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	10.08	0.00
tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	1.59	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	2.44	0.00
tblVehicleTrips	SU_TR	542.72	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	8.77	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	1.59	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	2.74	0.00
tblVehicleTrips	WD_TR	496.12	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	9.57	0.00
tblVehicleTrips	WD_TR	44.32	0.00

tblWater	IndoorWaterUseRate	15,897,582.25	0.00
tblWater	IndoorWaterUseRate	3,388,009.33	0.00
tblWater	IndoorWaterUseRate	1,214,134.85	0.00
tblWater	IndoorWaterUseRate	7,213,689.28	0.00
tblWater	IndoorWaterUseRate	49,126,135.32	0.00
tblWater	IndoorWaterUseRate	481,471.39	0.00
tblWater	OutdoorWaterUseRate	23,233,886.32	0.00
tblWater	OutdoorWaterUseRate	10,022,388.81	0.00
tblWater	OutdoorWaterUseRate	2,135,918.93	0.00
tblWater	OutdoorWaterUseRate	77,497.97	0.00
tblWater	OutdoorWaterUseRate	4,421,293.43	0.00
tblWater	OutdoorWaterUseRate	30,970,824.44	0.00
tblWater	OutdoorWaterUseRate	295,095.37	0.00
tblWoodstoves	NumberCatalytic	12.20	0.00
tblWoodstoves	NumberCatalytic	2.60	0.00
tblWoodstoves	NumberCatalytic	37.70	0.00
tblWoodstoves	NumberNoncatalytic	12.20	0.00
tblWoodstoves	NumberNoncatalytic	2.60	0.00
tblWoodstoves	NumberNoncatalytic	37.70	0.00

2.0 Emissions Summary

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.4715	5.4903	3.5562	4.9200e-003	1.2605	0.2395	1.4999	0.5371	0.2203	0.7574	0.0000	453.4503	453.4503	0.1362	0.0000	456.3106
2018	5.5507	10.7481	15.1563	0.0318	3.4281	0.4781	3.9062	1.2183	0.4463	1.6646	0.0000	2,519.0391	2,519.0391	0.2621	0.0000	2,524.5438
2019	1.0375	8.1351	11.8619	0.0265	1.9354	0.3145	2.2499	0.6193	0.2915	0.9109	0.0000	2,058.7566	2,058.7566	0.2129	0.0000	2,063.2280
2020	5.1643	6.1345	13.7559	0.0348	2.0775	0.2200	2.2975	0.5575	0.2063	0.7639	0.0000	2,528.1732	2,528.1732	0.1485	0.0000	2,531.2908
Total	12.2239	30.5079	44.3303	0.0980	8.7014	1.2521	9.9535	2.9322	1.1645	4.0966	0.0000	7,559.4192	7,559.4192	0.7597	0.0000	7,575.3732

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	12.9564	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	12.9564	5.0000e-004	0.0435	0.0000	0.0000	2.4000e-004	2.4000e-004	0.0000	2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	12.9564	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	12.9564	5.0000e-004	0.0435	0.0000	0.0000	2.4000e-004	2.4000e-004	0.0000	2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Rough Grading (Phase 1 & Phase 2)	Grading	10/1/2017	2/16/2018	5	100	
2	Underground Infrastructure (Phase 1)	Trenching	2/17/2018	4/6/2018	5	35	
3	Building Construction (Phase 1)	Building Construction	4/7/2018	12/7/2018	5	175	
4	Architectural Coating (Phase 1)	Architectural Coating	5/26/2018	12/7/2018	5	140	
5	Paving (Phase 1)	Paving	12/8/2018	12/28/2018	5	15	
6	Fine Grading (Phase 2)	Grading	12/29/2018	3/8/2019	5	50	
7	Underground Infrastructure (Phase 2)	Trenching	3/9/2019	5/10/2019	5	45	
8	Building Construction (Phase 2)	Building Construction	5/11/2019	11/20/2020	5	400	
9	Architectural Coating (Phase 2)	Architectural Coating	2/15/2020	11/20/2020	5	200	
10	Paving (Phase 2)	Paving	11/21/2020	12/11/2020	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 1,906,607; Residential Outdoor: 635,536; Non-Residential Indoor: 753,713; Non-Residential Outdoor: 251,238 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Rough Grading (Phase 1 & Phase 2)	Excavators	1	8.00	162	0.38
Rough Grading (Phase 1 & Phase 2)	Graders	1	8.00	174	0.41
Rough Grading (Phase 1 & Phase 2)	Off-Highway Trucks	2	8.00	189	0.50
Rough Grading (Phase 1 & Phase 2)	Rubber Tired Dozers	3	8.00	255	0.40
Rough Grading (Phase 1 & Phase 2)	Scrapers	6	8.00	361	0.48
Rough Grading (Phase 1 & Phase 2)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Underground Infrastructure (Phase 1)	Excavators	2	8.00	162	0.38

Underground Infrastructure (Phase 1)	Other Construction Equipment	1	8.00	171	0.42
Underground Infrastructure (Phase 1)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction (Phase 1)	Cranes	2	8.00	226	0.29
Building Construction (Phase 1)	Forklifts	6	8.00	89	0.20
Building Construction (Phase 1)	Generator Sets	2	8.00	84	0.74
Building Construction (Phase 1)	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction (Phase 1)	Welders	2	8.00	46	0.45
Architectural Coating (Phase 1)	Air Compressors	1	8.00	78	0.48
Paving (Phase 1)	Pavers	2	8.00	125	0.42
Paving (Phase 1)	Paving Equipment	2	8.00	130	0.36
Paving (Phase 1)	Rollers	2	8.00	80	0.38
Fine Grading (Phase 2)	Excavators	1	8.00	162	0.38
Fine Grading (Phase 2)	Graders	1	8.00	174	0.41
Fine Grading (Phase 2)	Off-Highway Trucks	2	8.00	189	0.50
Fine Grading (Phase 2)	Rubber Tired Dozers	3	8.00	255	0.40
Fine Grading (Phase 2)	Scrapers	6	8.00	361	0.48
Fine Grading (Phase 2)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Underground Infrastructure (Phase 2)	Excavators	2	8.00	162	0.38
Underground Infrastructure (Phase 2)	Other Construction Equipment	1	8.00	171	0.42
Underground Infrastructure (Phase 2)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction (Phase 2)	Cranes	1	8.00	226	0.29
Building Construction (Phase 2)	Forklifts	3	8.00	89	0.20
Building Construction (Phase 2)	Generator Sets	1	8.00	84	0.74
Building Construction (Phase 2)	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction (Phase 2)	Welders	1	8.00	46	0.45
Architectural Coating (Phase 2)	Air Compressors	1	8.00	78	0.48
Paving (Phase 2)	Pavers	2	8.00	125	0.42
Paving (Phase 2)	Paving Equipment	2	8.00	130	0.36

Paving (Phase 2)	Rollers	2	8.00	80	0.38
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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
Rough Grading /Phase 1 & Phase 2)	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Underground Infrastructure /Phase 1)	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction /Phase 1)	18	1,199.00	391.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating /Phase 1)	1	240.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Phase 1)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading (Phase 2)	14	35.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Underground Infrastructure /Phase 2)	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction /Phase 2)	9	1,199.00	391.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating /Phase 2)	1	240.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Phase 2)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Rough Grading (Phase 1 & Phase 2) - 2017

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					1.2480	0.0000	1.2480	0.5338	0.0000	0.5338	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4676	5.4844	3.4940	4.7700e-003		0.2394	0.2394		0.2202	0.2202	0.0000	442.7423	442.7423	0.1357	0.0000	445.5911
Total	0.4676	5.4844	3.4940	4.7700e-003	1.2480	0.2394	1.4873	0.5338	0.2202	0.7540	0.0000	442.7423	442.7423	0.1357	0.0000	445.5911

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	3.8700e-003	5.9200e-003	0.0623	1.5000e-004	0.0125	9.0000e-005	0.0126	3.3100e-003	8.0000e-005	3.4000e-003	0.0000	10.7080	10.7080	5.5000e-004	0.0000	10.7195
Total	3.8700e-003	5.9200e-003	0.0623	1.5000e-004	0.0125	9.0000e-005	0.0126	3.3100e-003	8.0000e-005	3.4000e-003	0.0000	10.7080	10.7080	5.5000e-004	0.0000	10.7195

3.2 Rough Grading (Phase 1 & Phase 2) - 2017

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					0.4867	0.0000	0.4867	0.2082	0.0000	0.2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1511	2.5350	2.6528	4.7700e-003		0.1064	0.1064		0.1044	0.1044	0.0000	442.7418	442.7418	0.1357	0.0000	445.5905
Total	0.1511	2.5350	2.6528	4.7700e-003	0.4867	0.1064	0.5931	0.2082	0.1044	0.3126	0.0000	442.7418	442.7418	0.1357	0.0000	445.5905

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	3.8700e-003	5.9200e-003	0.0623	1.5000e-004	0.0125	9.0000e-005	0.0126	3.3100e-003	8.0000e-005	3.4000e-003	0.0000	10.7080	10.7080	5.5000e-004	0.0000	10.7195
Total	3.8700e-003	5.9200e-003	0.0623	1.5000e-004	0.0125	9.0000e-005	0.0126	3.3100e-003	8.0000e-005	3.4000e-003	0.0000	10.7080	10.7080	5.5000e-004	0.0000	10.7195

3.2 Rough Grading (Phase 1 & Phase 2) - 2018

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					1.2480	0.0000	1.2480	0.5338	0.0000	0.5338	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2192	2.5281	1.6494	2.5700e-003		0.1085	0.1085		0.0998	0.0998	0.0000	234.7179	234.7179	0.0731	0.0000	236.2524
Total	0.2192	2.5281	1.6494	2.5700e-003	1.2480	0.1085	1.3565	0.5338	0.0998	0.6336	0.0000	234.7179	234.7179	0.0731	0.0000	236.2524

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	1.8500e-003	2.8700e-003	0.0302	8.0000e-005	6.7200e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	5.5475	5.5475	2.7000e-004	0.0000	5.5532
Total	1.8500e-003	2.8700e-003	0.0302	8.0000e-005	6.7200e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	5.5475	5.5475	2.7000e-004	0.0000	5.5532

3.2 Rough Grading (Phase 1 & Phase 2) - 2018

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					0.4867	0.0000	0.4867	0.2082	0.0000	0.2082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0783	1.3345	1.4244	2.5700e-003		0.0553	0.0553		0.0543	0.0543	0.0000	234.7176	234.7176	0.0731	0.0000	236.2521
Total	0.0783	1.3345	1.4244	2.5700e-003	0.4867	0.0553	0.5420	0.2082	0.0543	0.2625	0.0000	234.7176	234.7176	0.0731	0.0000	236.2521

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	1.8500e-003	2.8700e-003	0.0302	8.0000e-005	6.7200e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	5.5475	5.5475	2.7000e-004	0.0000	5.5532
Total	1.8500e-003	2.8700e-003	0.0302	8.0000e-005	6.7200e-003	5.0000e-005	6.7600e-003	1.7800e-003	4.0000e-005	1.8300e-003	0.0000	5.5475	5.5475	2.7000e-004	0.0000	5.5532

3.3 Underground Infrastructure (Phase 1) - 2018

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	0.0247	0.2625	0.2308	3.5000e-004		0.0142	0.0142		0.0131	0.0131	0.0000	31.6940	31.6940	9.8700e-003	0.0000	31.9012
Total	0.0247	0.2625	0.2308	3.5000e-004		0.0142	0.0142		0.0131	0.0131	0.0000	31.6940	31.6940	9.8700e-003	0.0000	31.9012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	8.2000e-004	8.6300e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5850	1.5850	8.0000e-005	0.0000	1.5866
Total	5.3000e-004	8.2000e-004	8.6300e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5850	1.5850	8.0000e-005	0.0000	1.5866

3.3 Underground Infrastructure (Phase 1) - 2018

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	0.0119	0.1856	0.2635	3.5000e-004		0.0100	0.0100		9.7400e-003	9.7400e-003	0.0000	31.6940	31.6940	9.8700e-003	0.0000	31.9012
Total	0.0119	0.1856	0.2635	3.5000e-004		0.0100	0.0100		9.7400e-003	9.7400e-003	0.0000	31.6940	31.6940	9.8700e-003	0.0000	31.9012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	8.2000e-004	8.6300e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5850	1.5850	8.0000e-005	0.0000	1.5866
Total	5.3000e-004	8.2000e-004	8.6300e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9300e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5850	1.5850	8.0000e-005	0.0000	1.5866

3.4 Building Construction (Phase 1) - 2018

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	0.4967	4.3892	3.2755	5.0200e-003		0.2800	0.2800		0.2629	0.2629	0.0000	444.2401	444.2401	0.1107	0.0000	446.5649
Total	0.4967	4.3892	3.2755	5.0200e-003		0.2800	0.2800		0.2629	0.2629	0.0000	444.2401	444.2401	0.1107	0.0000	446.5649

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	0.2614	2.6046	3.6262	7.4000e-003	0.2115	0.0417	0.2532	0.0605	0.0383	0.0989	0.0000	651.8946	651.8946	4.7400e-003	0.0000	651.9941
Worker	0.3171	0.4924	5.1720	0.0136	1.1503	8.1800e-003	1.1585	0.3055	7.5700e-003	0.3131	0.0000	950.2091	950.2091	0.0468	0.0000	951.1908
Total	0.5785	3.0969	8.7982	0.0210	1.3618	0.0499	1.4117	0.3660	0.0459	0.4119	0.0000	1,602.1037	1,602.1037	0.0515	0.0000	1,603.1849

3.4 Building Construction (Phase 1) - 2018

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	0.4233	3.6907	3.3697	5.0200e-003		0.2473	0.2473		0.2342	0.2342	0.0000	444.2396	444.2396	0.1107	0.0000	446.5644
Total	0.4233	3.6907	3.3697	5.0200e-003		0.2473	0.2473		0.2342	0.2342	0.0000	444.2396	444.2396	0.1107	0.0000	446.5644

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	0.2614	2.6046	3.6262	7.4000e-003	0.2115	0.0417	0.2532	0.0605	0.0383	0.0989	0.0000	651.8946	651.8946	4.7400e-003	0.0000	651.9941
Worker	0.3171	0.4924	5.1720	0.0136	1.1503	8.1800e-003	1.1585	0.3055	7.5700e-003	0.3131	0.0000	950.2091	950.2091	0.0468	0.0000	951.1908
Total	0.5785	3.0969	8.7982	0.0210	1.3618	0.0499	1.4117	0.3660	0.0459	0.4119	0.0000	1,602.1037	1,602.1037	0.0515	0.0000	1,603.1849

3.5 Architectural Coating (Phase 1) - 2018

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	4.1102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0279	0.1872	0.1731	2.8000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	23.8304	23.8304	2.2600e-003	0.0000	23.8780
Total	4.1381	0.1872	0.1731	2.8000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	23.8304	23.8304	2.2600e-003	0.0000	23.8780

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	0.0508	0.0789	0.8282	2.1800e-003	0.1842	1.3100e-003	0.1855	0.0489	1.2100e-003	0.0501	0.0000	152.1603	152.1603	7.4900e-003	0.0000	152.3175
Total	0.0508	0.0789	0.8282	2.1800e-003	0.1842	1.3100e-003	0.1855	0.0489	1.2100e-003	0.0501	0.0000	152.1603	152.1603	7.4900e-003	0.0000	152.3175

3.5 Architectural Coating (Phase 1) - 2018

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	4.1102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0279	0.1872	0.1731	2.8000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	23.8304	23.8304	2.2600e-003	0.0000	23.8779
Total	4.1381	0.1872	0.1731	2.8000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	23.8304	23.8304	2.2600e-003	0.0000	23.8779

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	0.0508	0.0789	0.8282	2.1800e-003	0.1842	1.3100e-003	0.1855	0.0489	1.2100e-003	0.0501	0.0000	152.1603	152.1603	7.4900e-003	0.0000	152.3175
Total	0.0508	0.0789	0.8282	2.1800e-003	0.1842	1.3100e-003	0.1855	0.0489	1.2100e-003	0.0501	0.0000	152.1603	152.1603	7.4900e-003	0.0000	152.3175

3.6 Paving (Phase 1) - 2018

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	0.0121	0.1287	0.1087	1.7000e-004		7.0400e-003	7.0400e-003		6.4800e-003	6.4800e-003	0.0000	15.2766	15.2766	4.7600e-003	0.0000	15.3764
Paving	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0337	0.1287	0.1087	1.7000e-004		7.0400e-003	7.0400e-003		6.4800e-003	6.4800e-003	0.0000	15.2766	15.2766	4.7600e-003	0.0000	15.3764

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	3.4000e-004	5.3000e-004	5.5500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0189	1.0189	5.0000e-005	0.0000	1.0200
Total	3.4000e-004	5.3000e-004	5.5500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0189	1.0189	5.0000e-005	0.0000	1.0200

3.6 Paving (Phase 1) - 2018**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	0.0121	0.1287	0.1087	1.7000e-004		7.0400e-003	7.0400e-003		6.4800e-003	6.4800e-003	0.0000	15.2765	15.2765	4.7600e-003	0.0000	15.3764
Paving	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0337	0.1287	0.1087	1.7000e-004		7.0400e-003	7.0400e-003		6.4800e-003	6.4800e-003	0.0000	15.2765	15.2765	4.7600e-003	0.0000	15.3764

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	3.4000e-004	5.3000e-004	5.5500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0189	1.0189	5.0000e-005	0.0000	1.0200
Total	3.4000e-004	5.3000e-004	5.5500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0189	1.0189	5.0000e-005	0.0000	1.0200

3.7 Fine Grading (Phase 2) - 2018

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					0.6240	0.0000	0.6240	0.2669	0.0000	0.2669	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2600e-003	0.0722	0.0471	7.0000e-005		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	6.7062	6.7062	2.0900e-003	0.0000	6.7501
Total	6.2600e-003	0.0722	0.0471	7.0000e-005	0.6240	3.1000e-003	0.6271	0.2669	2.8500e-003	0.2697	0.0000	6.7062	6.7062	2.0900e-003	0.0000	6.7501

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	8.0000e-005	8.6000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1585	0.1585	1.0000e-005	0.0000	0.1587
Total	5.0000e-005	8.0000e-005	8.6000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1585	0.1585	1.0000e-005	0.0000	0.1587

3.7 Fine Grading (Phase 2) - 2018

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					0.2434	0.0000	0.2434	0.1041	0.0000	0.1041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2400e-003	0.0381	0.0407	7.0000e-005		1.5800e-003	1.5800e-003		1.5500e-003	1.5500e-003	0.0000	6.7062	6.7062	2.0900e-003	0.0000	6.7501
Total	2.2400e-003	0.0381	0.0407	7.0000e-005	0.2434	1.5800e-003	0.2449	0.1041	1.5500e-003	0.1056	0.0000	6.7062	6.7062	2.0900e-003	0.0000	6.7501

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	8.0000e-005	8.6000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1585	0.1585	1.0000e-005	0.0000	0.1587
Total	5.0000e-005	8.0000e-005	8.6000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1585	0.1585	1.0000e-005	0.0000	0.1587

3.7 Fine Grading (Phase 2) - 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					0.6240	0.0000	0.6240	0.2669	0.0000	0.2669	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2858	3.2334	2.1632	3.6000e-003		0.1377	0.1377		0.1267	0.1267	0.0000	323.2964	323.2964	0.1023	0.0000	325.4444
Total	0.2858	3.2334	2.1632	3.6000e-003	0.6240	0.1377	0.7617	0.2669	0.1267	0.3936	0.0000	323.2964	323.2964	0.1023	0.0000	325.4444

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3500e-003	3.6700e-003	0.0383	1.1000e-004	9.4000e-003	7.0000e-005	9.4700e-003	2.5000e-003	6.0000e-005	2.5600e-003	0.0000	7.4396	7.4396	3.5000e-004	0.0000	7.4470
Total	2.3500e-003	3.6700e-003	0.0383	1.1000e-004	9.4000e-003	7.0000e-005	9.4700e-003	2.5000e-003	6.0000e-005	2.5600e-003	0.0000	7.4396	7.4396	3.5000e-004	0.0000	7.4470

3.7 Fine Grading (Phase 2) - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2434	0.0000	0.2434	0.1041	0.0000	0.1041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1072	1.8429	1.9917	3.6000e-003		0.0755	0.0755		0.0744	0.0744	0.0000	323.2960	323.2960	0.1023	0.0000	325.4440
Total	0.1072	1.8429	1.9917	3.6000e-003	0.2434	0.0755	0.3189	0.1041	0.0744	0.1785	0.0000	323.2960	323.2960	0.1023	0.0000	325.4440

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3500e-003	3.6700e-003	0.0383	1.1000e-004	9.4000e-003	7.0000e-005	9.4700e-003	2.5000e-003	6.0000e-005	2.5600e-003	0.0000	7.4396	7.4396	3.5000e-004	0.0000	7.4470
Total	2.3500e-003	3.6700e-003	0.0383	1.1000e-004	9.4000e-003	7.0000e-005	9.4700e-003	2.5000e-003	6.0000e-005	2.5600e-003	0.0000	7.4396	7.4396	3.5000e-004	0.0000	7.4470

3.8 Underground Infrastructure (Phase 2) - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0290	0.3027	0.2952	4.5000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	40.0937	40.0937	0.0127	0.0000	40.3601
Total	0.0290	0.3027	0.2952	4.5000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	40.0937	40.0937	0.0127	0.0000	40.3601

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	9.6000e-004	0.0100	3.0000e-005	2.4700e-003	2.0000e-005	2.4800e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	1.9521	1.9521	9.0000e-005	0.0000	1.9540
Total	6.2000e-004	9.6000e-004	0.0100	3.0000e-005	2.4700e-003	2.0000e-005	2.4800e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	1.9521	1.9521	9.0000e-005	0.0000	1.9540

3.8 Underground Infrastructure (Phase 2) - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.2321	0.3380	4.5000e-004		0.0122	0.0122		0.0119	0.0119	0.0000	40.0937	40.0937	0.0127	0.0000	40.3601
Total	0.0145	0.2321	0.3380	4.5000e-004		0.0122	0.0122		0.0119	0.0119	0.0000	40.0937	40.0937	0.0127	0.0000	40.3601

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	9.6000e-004	0.0100	3.0000e-005	2.4700e-003	2.0000e-005	2.4800e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	1.9521	1.9521	9.0000e-005	0.0000	1.9540
Total	6.2000e-004	9.6000e-004	0.0100	3.0000e-005	2.4700e-003	2.0000e-005	2.4800e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	1.9521	1.9521	9.0000e-005	0.0000	1.9540

3.9 Building Construction (Phase 2) - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2088	1.8851	1.5251	2.3900e-003		0.1148	0.1148		0.1078	0.1078	0.0000	209.5202	209.5202	0.0520	0.0000	210.6122
Total	0.2088	1.8851	1.5251	2.3900e-003		0.1148	0.1148		0.1078	0.1078	0.0000	209.5202	209.5202	0.0520	0.0000	210.6122

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	0.2363	2.2813	3.3617	7.0100e-003	0.2018	0.0381	0.2399	0.0577	0.0351	0.0928	0.0000	607.8507	607.8507	4.3700e-003	0.0000	607.9426
Worker	0.2746	0.4280	4.4685	0.0129	1.0977	7.6200e-003	1.1054	0.2916	7.0600e-003	0.2986	0.0000	868.6039	868.6039	0.0411	0.0000	869.4676
Total	0.5110	2.7093	7.8301	0.0199	1.2996	0.0458	1.3453	0.3493	0.0421	0.3914	0.0000	1,476.4546	1,476.4546	0.0455	0.0000	1,477.4102

3.9 Building Construction (Phase 2) - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1792	1.6183	1.5887	2.3900e-003		0.1025	0.1025		0.0971	0.0971	0.0000	209.5199	209.5199	0.0520	0.0000	210.6120
Total	0.1792	1.6183	1.5887	2.3900e-003		0.1025	0.1025		0.0971	0.0971	0.0000	209.5199	209.5199	0.0520	0.0000	210.6120

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	0.2363	2.2813	3.3617	7.0100e-003	0.2018	0.0381	0.2399	0.0577	0.0351	0.0928	0.0000	607.8507	607.8507	4.3700e-003	0.0000	607.9426
Worker	0.2746	0.4280	4.4685	0.0129	1.0977	7.6200e-003	1.1054	0.2916	7.0600e-003	0.2986	0.0000	868.6039	868.6039	0.0411	0.0000	869.4676
Total	0.5110	2.7093	7.8301	0.0199	1.2996	0.0458	1.3453	0.3493	0.0421	0.3914	0.0000	1,476.4546	1,476.4546	0.0455	0.0000	1,477.4102

3.9 Building Construction (Phase 2) - 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	0.2616	2.3921	2.0879	3.3400e-003		0.1386	0.1386		0.1302	0.1302	0.0000	287.8497	287.8497	0.0717	0.0000	289.3545
Total	0.2616	2.3921	2.0879	3.3400e-003		0.1386	0.1386		0.1302	0.1302	0.0000	287.8497	287.8497	0.0717	0.0000	289.3545

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	0.3112	2.7684	4.5431	9.7600e-003	0.2815	0.0486	0.3302	0.0806	0.0447	0.1253	0.0000	828.6559	828.6559	5.9700e-003	0.0000	828.7813
Worker	0.3560	0.5510	5.7760	0.0180	1.5316	0.0106	1.5422	0.4068	9.8300e-003	0.4166	0.0000	1,162.2861	1,162.2861	0.0541	0.0000	1,163.4221
Total	0.6672	3.3194	10.3191	0.0278	1.8131	0.0592	1.8723	0.4873	0.0546	0.5419	0.0000	1,990.9420	1,990.9420	0.0601	0.0000	1,992.2034

3.9 Building Construction (Phase 2) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2261	2.0900	2.1969	3.3400e-003		0.1251	0.1251		0.1187	0.1187	0.0000	287.8494	287.8494	0.0717	0.0000	289.3542
Total	0.2261	2.0900	2.1969	3.3400e-003		0.1251	0.1251		0.1187	0.1187	0.0000	287.8494	287.8494	0.0717	0.0000	289.3542

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	0.3112	2.7684	4.5431	9.7600e-003	0.2815	0.0486	0.3302	0.0806	0.0447	0.1253	0.0000	828.6559	828.6559	5.9700e-003	0.0000	828.7813
Worker	0.3560	0.5510	5.7760	0.0180	1.5316	0.0106	1.5422	0.4068	9.8300e-003	0.4166	0.0000	1,162.2861	1,162.2861	0.0541	0.0000	1,163.4221
Total	0.6672	3.3194	10.3191	0.0278	1.8131	0.0592	1.8723	0.4873	0.0546	0.5419	0.0000	1,990.9420	1,990.9420	0.0601	0.0000	1,992.2034

3.10 Architectural Coating (Phase 2) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0323	0.2245	0.2442	4.0000e-004		0.0148	0.0148		0.0148	0.0148	0.0000	34.0434	34.0434	2.6400e-003	0.0000	34.0987
Total	4.1425	0.2245	0.2442	4.0000e-004		0.0148	0.0148		0.0148	0.0148	0.0000	34.0434	34.0434	2.6400e-003	0.0000	34.0987

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	0.0612	0.0947	0.9924	3.1000e-003	0.2632	1.8200e-003	0.2650	0.0699	1.6900e-003	0.0716	0.0000	199.7005	199.7005	9.3000e-003	0.0000	199.8957
Total	0.0612	0.0947	0.9924	3.1000e-003	0.2632	1.8200e-003	0.2650	0.0699	1.6900e-003	0.0716	0.0000	199.7005	199.7005	9.3000e-003	0.0000	199.8957

3.10 Architectural Coating (Phase 2) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0323	0.2245	0.2442	4.0000e-004		0.0148	0.0148		0.0148	0.0148	0.0000	34.0433	34.0433	2.6400e-003	0.0000	34.0987
Total	4.1425	0.2245	0.2442	4.0000e-004		0.0148	0.0148		0.0148	0.0148	0.0000	34.0433	34.0433	2.6400e-003	0.0000	34.0987

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	0.0612	0.0947	0.9924	3.1000e-003	0.2632	1.8200e-003	0.2650	0.0699	1.6900e-003	0.0716	0.0000	199.7005	199.7005	9.3000e-003	0.0000	199.8957
Total	0.0612	0.0947	0.9924	3.1000e-003	0.2632	1.8200e-003	0.2650	0.0699	1.6900e-003	0.0716	0.0000	199.7005	199.7005	9.3000e-003	0.0000	199.8957

3.11 Paving (Phase 2) - 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	9.9800e-003	0.1034	0.1076	1.7000e-004		5.5400e-003	5.5400e-003		5.1000e-003	5.1000e-003	0.0000	14.7015	14.7015	4.7500e-003	0.0000	14.8014
Paving	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0316	0.1034	0.1076	1.7000e-004		5.5400e-003	5.5400e-003		5.1000e-003	5.1000e-003	0.0000	14.7015	14.7015	4.7500e-003	0.0000	14.8014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9000e-004	4.4000e-004	4.6500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	0.9361	0.9361	4.0000e-005	0.0000	0.9370
Total	2.9000e-004	4.4000e-004	4.6500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	0.9361	0.9361	4.0000e-005	0.0000	0.9370

3.11 Paving (Phase 2) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.9800e-003	0.1034	0.1076	1.7000e-004		5.5400e-003	5.5400e-003		5.1000e-003	5.1000e-003	0.0000	14.7015	14.7015	4.7500e-003	0.0000	14.8014
Paving	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0316	0.1034	0.1076	1.7000e-004		5.5400e-003	5.5400e-003		5.1000e-003	5.1000e-003	0.0000	14.7015	14.7015	4.7500e-003	0.0000	14.8014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9000e-004	4.4000e-004	4.6500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	0.9361	0.9361	4.0000e-005	0.0000	0.9370
Total	2.9000e-004	4.4000e-004	4.6500e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	0.9361	0.9361	4.0000e-005	0.0000	0.9370

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Condo/Townhouse	0.00	0.00	0.00		
Congregate Care (Assisted Living)	0.00	0.00	0.00		
Fast Food Restaurant with Drive Thru	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
User Defined Retail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15
User Defined Retail	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.468914	0.065172	0.173428	0.156844	0.056897	0.009079	0.016419	0.042157	0.001108	0.001337	0.005012	0.000672	0.002962

5.0 Energy Detail

5.1 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	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	12.9564	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722
Unmitigated	12.9564	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.9551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3200e-003	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722
Total	12.9564	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.9551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3200e-003	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722
Total	12.9564	5.0000e-004	0.0435	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.0708	0.0708	7.0000e-005	0.0000	0.0722

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive Thru	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

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

2008 BAU
San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	16.50	Acre	16.50	718,740.00	0
City Park	19.50	Acre	19.50	849,420.00	0
Fast Food Restaurant with Drive Thru	4.00	1000sqft	0.40	4,000.00	0
Recreational Swimming Pool	121.97	1000sqft	2.80	121,968.00	0
Condo/Townhouse	244.00	Dwelling Unit	13.90	372,832.00	698
Congregate Care (Assisted Living)	52.00	Dwelling Unit	2.40	52,000.00	149
Single Family Housing	754.00	Dwelling Unit	80.20	1,458,236.00	2156
Strip Mall	6.50	1000sqft	0.60	6,500.00	0
User Defined Retail	1.50	User Defined Unit	0.20	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2010
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	673.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Source: CPUC GHG Calculator version 3c, worksheet tab "CO2 Allocations," cells AH/AQ 35-44. Operational Year 2010 utilized in absence of Year 2008

Land Use - Total Lot Acreage: 336.2; includes 199.7 acres of open space; User defined Retail = Coffee Shop w/ Drive-Thru, City Park= community+passive parks; Swimming pool=PA 14A (private use)

Construction Phase - Operations only

Off-road Equipment - based on past project experience and consultation with the applicant

Off-road Equipment -

Trips and VMT -

Grading -

Architectural Coating -

Vehicle Trips - TR and Pass by reduction consistent with the Project TIA. User defined retail = coffee shop with drive thru

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves -

Consumer Products -

Area Coating -

Energy Use - user defined retail = coffee shop with drive thru.

Water And Wastewater - user defined retail = coffee shop with drive thru. Ratio water demand of Coffee Shop to Fast Food Restaurant based on the SF ratio

Solid Waste - user defined retail = coffee shop with drive thru. Ratio solid waste of Coffee Shop to Fast Food Restaurant based on the SF ratio

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.00	8.79
tblEnergyUse	NT24E	0.00	28.48
tblEnergyUse	NT24NG	0.00	195.77
tblEnergyUse	T24E	0.00	15.13

tblEnergyUse	T24NG	0.00	81.74
tblLandUse	LandUseSquareFeet	121,970.00	121,968.00
tblLandUse	LandUseSquareFeet	244,000.00	372,832.00
tblLandUse	LandUseSquareFeet	1,357,200.00	1,458,236.00
tblLandUse	LandUseSquareFeet	0.00	1,500.00
tblLandUse	LotAcreage	0.09	0.40
tblLandUse	LotAcreage	15.25	13.90
tblLandUse	LotAcreage	3.25	2.40
tblLandUse	LotAcreage	244.81	80.20
tblLandUse	LotAcreage	0.15	0.60
tblLandUse	LotAcreage	0.00	0.20
tblProjectCharacteristics	CO2IntensityFactor	630.89	673.35
tblProjectCharacteristics	OperationalYear	2014	2010
tblSolidWaste	SolidWasteGenerationRate	0.00	17.28
tblVehicleTrips	CC_TTP	0.00	78.80
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	2.20
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	DV_TP	0.00	21.00
tblVehicleTrips	PB_TP	15.00	34.00
tblVehicleTrips	PB_TP	0.00	50.00
tblVehicleTrips	PR_TP	45.00	66.00
tblVehicleTrips	PR_TP	0.00	29.00
tblVehicleTrips	ST_TR	1.59	29.13
tblVehicleTrips	ST_TR	7.16	5.38
tblVehicleTrips	ST_TR	2.20	2.48
tblVehicleTrips	ST_TR	722.03	542.25
tblVehicleTrips	ST_TR	20.87	0.00

tblVehicleTrips	ST_TR	10.08	9.40
tblVehicleTrips	ST_TR	42.04	21.01
tblVehicleTrips	ST_TR	0.00	404.00
tblVehicleTrips	SU_TR	1.59	29.13
tblVehicleTrips	SU_TR	6.07	4.59
tblVehicleTrips	SU_TR	2.44	2.70
tblVehicleTrips	SU_TR	542.72	407.59
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	8.77	8.18
tblVehicleTrips	SU_TR	20.43	10.61
tblVehicleTrips	SU_TR	0.00	404.00
tblVehicleTrips	WD_TR	1.59	29.13
tblVehicleTrips	WD_TR	6.59	5.51
tblVehicleTrips	WD_TR	2.74	3.27
tblVehicleTrips	WD_TR	496.12	372.50
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	9.57	9.03
tblVehicleTrips	WD_TR	44.32	65.08
tblVehicleTrips	WD_TR	0.00	404.00
tblWater	IndoorWaterUseRate	0.00	455,300.57
tblWater	OutdoorWaterUseRate	0.00	29,061.74

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											111.5300	232.0144	343.5445	0.3542	7.5700e-003	353.3287
Energy											0.0000	4,247.9805	4,247.9805	0.1413	0.0543	4,267.7720
Mobile											0.0000	15,892.2620	15,892.2620	0.9997	0.0000	15,913.2551
Waste											367.5659	0.0000	367.5659	21.7225	0.0000	823.7388
Water											24.6748	550.8676	575.5424	2.5581	0.0648	649.3343
Total											503.7708	20,923.1245	21,426.8953	25.7757	0.1266	22,007.4290

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											111.5300	232.0144	343.5445	0.3542	7.5700e-003	353.3287
Energy											0.0000	4,247.9805	4,247.9805	0.1413	0.0543	4,267.7720
Mobile											0.0000	15,892.2620	15,892.2620	0.9997	0.0000	15,913.2551
Waste											367.5659	0.0000	367.5659	21.7225	0.0000	823.7388
Water											24.6748	550.8676	575.5424	2.5576	0.0647	649.2950
Total											503.7708	20,923.1245	21,426.8953	25.7753	0.1265	22,007.3897

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	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	Underground Infrastructure (Phase 2)	Trenching	1/11/2019	1/11/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Underground Infrastructure (Phase 2)	Excavators	0		162	0.38
Underground Infrastructure (Phase 2)	Other Construction Equipment	0		171	0.42
Underground Infrastructure (Phase 2)	Tractors/Loaders/Backhoes	0		97	0.37

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
Underground Infrastructure (Phase 2)	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Underground Infrastructure (Phase 2) - 2019

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	15,892.26 20	15,892.26 20	0.9997	0.0000	15,913.25 51
Unmitigated											0.0000	15,892.26 20	15,892.26 20	0.9997	0.0000	15,913.25 51

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	568.04	568.04	568.04	1,634,544	1,634,544
Condo/Townhouse	1,344.44	1,312.72	1119.96	4,469,088	4,469,088
Congregate Care (Assisted Living)	170.04	128.96	140.40	546,530	546,530
Fast Food Restaurant with Drive Thru	1,490.00	2,169.00	1630.36	1,691,241	1,691,241
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Single Family Housing	6,808.62	7,087.60	6167.72	23,089,412	23,089,412
Strip Mall	423.02	136.57	68.97	758,826	758,826
User Defined Retail	606.00	606.00	606.00	637,747	637,747
Total	11,410.16	12,008.88	10,301.44	32,827,387	32,827,387

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	66	0	34
User Defined Retail	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.486544	0.064021	0.169147	0.160108	0.054635	0.009206	0.014429	0.031168	0.001207	0.001399	0.004490	0.000757	0.002888

5.0 Energy Detail

5.1 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	2,505.4885	2,505.4885	0.1079	0.0223	2,514.6755
Electricity Unmitigated											0.0000	2,505.4885	2,505.4885	0.1079	0.0223	2,514.6755
NaturalGas Mitigated											0.0000	1,742.4920	1,742.4920	0.0334	0.0320	1,753.0965
NaturalGas Unmitigated											0.0000	1,742.4920	1,742.4920	0.0334	0.0320	1,753.0965

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					
City Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	5.02775e+006											0.0000	268.2999	268.2999	5.1400e-003	4.9200e-003	269.9327
Congregate Care (Assisted Living)	623675											0.0000	33.2817	33.2817	6.4000e-004	6.1000e-004	33.4842
Fast Food Restaurant with Drive Thru Parking Lot	1.11004e+006											0.0000	59.2360	59.2360	1.1400e-003	1.0900e-003	59.5965
Recreational Swimming Pool	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.54603e+007											0.0000	1,358.6563	1,358.6563	0.0260	0.0249	1,366.9249
Strip Mall	15080											0.0000	0.8047	0.8047	2.0000e-005	1.0000e-005	0.8096
User Defined Retail	416265											0.0000	22.2135	22.2135	4.3000e-004	4.1000e-004	22.3487
Total												0.0000	1,742.4920	1,742.4920	0.0334	0.0320	1,753.0965

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	5.02775e+006											0.0000	268.2999	268.2999	5.1400e-003	4.9200e-003	269.9327
Congregate Care (Assisted Living)	623675											0.0000	33.2817	33.2817	6.4000e-004	6.1000e-004	33.4842
Fast Food Restaurant with Drive Thru Parking Lot	1.11004e+006											0.0000	59.2360	59.2360	1.1400e-003	1.0900e-003	59.5965
Recreational Swimming Pool	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.54603e+007											0.0000	1,358.6563	1,358.6563	0.0260	0.0249	1,366.9249
Strip Mall	15080											0.0000	0.8047	0.8047	2.0000e-005	1.0000e-005	0.8096
User Defined Retail	416265											0.0000	22.2135	22.2135	4.3000e-004	4.1000e-004	22.3487
Total												0.0000	1,742.4920	1,742.4920	0.0334	0.0320	1,753.0965

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.18987e+006	363.4165	0.0157	3.2400e-003	364.7491
Congregate Care (Assisted Living)	200452	61.2232	2.6400e-003	5.5000e-004	61.4477
Fast Food Restaurant with Drive Thru	209600	64.0174	2.7600e-003	5.7000e-004	64.2521
Parking Lot	632491	193.1795	8.3200e-003	1.7200e-003	193.8879
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.79045e+006	1,768.5560	0.0762	0.0158	1,775.0408
Strip Mall	101790	31.0894	1.3400e-003	2.8000e-004	31.2034
User Defined Retail	78600	24.0065	1.0300e-003	2.1000e-004	24.0945
Total		2,505.4885	0.1079	0.0223	2,514.6755

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.18987e+006	363.4165	0.0157	3.2400e-003	364.7491
Congregate Care (Assisted Living)	200452	61.2232	2.6400e-003	5.5000e-004	61.4477
Fast Food Restaurant with Drive Thru	209600	64.0174	2.7600e-003	5.7000e-004	64.2521
Parking Lot	632491	193.1795	8.3200e-003	1.7200e-003	193.8879
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.79045e+006	1,768.5560	0.0762	0.0158	1,775.0408
Strip Mall	101790	31.0894	1.3400e-003	2.8000e-004	31.2034
User Defined Retail	78600	24.0065	1.0300e-003	2.1000e-004	24.0945
Total		2,505.4885	0.1079	0.0223	2,514.6755

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											111.5300	232.0144	343.5445	0.3542	7.5700e-003	353.3287
Unmitigated											111.5300	232.0144	343.5445	0.3542	7.5700e-003	353.3287

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											111.5300	214.3224	325.8524	0.3326	7.5700e-003	335.1838
Landscaping											0.0000	17.6920	17.6920	0.0216	0.0000	18.1450
Total											111.5300	232.0144	343.5445	0.3542	7.5700e-003	353.3287

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											111.5300	214.3224	325.8524	0.3326	7.5700e-003	335.1838
Landscaping											0.0000	17.6920	17.6920	0.0216	0.0000	18.1450
Total											111.5300	232.0144	343.5445	0.3542	7.5700e-003	353.3287

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	575.5424	2.5576	0.0647	649.2950
Unmitigated	575.5424	2.5581	0.0648	649.3343

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 23.2339	78.8393	3.4000e-003	7.0000e-004	79.1283
Condo/Townhouse	15.8976 / 10.0224	102.2764	0.5222	0.0131	117.3032
Congregate Care (Assisted Living)	3.38801 / 2.13592	21.7966	0.1113	2.7900e-003	24.9991
Fast Food Restaurant with Drive Thru	1.21413 / 0.077498	5.4767	0.0398	9.8000e-004	6.6158
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	7.21369 / 4.42129	45.9798	0.2369	5.9400e-003	52.7968
Single Family Housing	49.1261 / 30.9708	316.0509	1.6137	0.0405	362.4863
Strip Mall	0.481471 / 0.295095	3.0689	0.0158	4.0000e-004	3.5239
User Defined Retail	0.455301 / 0.0290617	2.0538	0.0149	3.7000e-004	2.4809
Total		575.5424	2.5581	0.0648	649.3343

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 23.2339	78.8393	3.4000e-003	7.0000e-004	79.1283
Condo/Townhouse	15.8976 / 10.0224	102.2764	0.5221	0.0131	117.2952
Congregate Care (Assisted Living)	3.38801 / 2.13592	21.7966	0.1113	2.7900e-003	24.9973
Fast Food Restaurant with Drive Thru	1.21413 / 0.077498	5.4767	0.0398	9.8000e-004	6.6152
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	7.21369 / 4.42129	45.9798	0.2369	5.9300e-003	52.7932
Single Family Housing	49.1261 / 30.9708	316.0509	1.6134	0.0404	362.4614
Strip Mall	0.481471 / 0.295095	3.0689	0.0158	4.0000e-004	3.5236
User Defined Retail	0.455301 / 0.0290617	2.0538	0.0149	3.7000e-004	2.4807
Total		575.5424	2.5576	0.0647	649.2949

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	367.5659	21.7225	0.0000	823.7388
Mitigated	367.5659	21.7225	0.0000	823.7388

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.68	0.3410	0.0202	0.0000	0.7643
Condo/Townhouse	112.24	22.7837	1.3465	0.0000	51.0598
Congregate Care (Assisted Living)	47.45	9.6319	0.5692	0.0000	21.5858
Fast Food Restaurant with Drive Thru	46.08	9.3538	0.5528	0.0000	20.9625
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	695.23	141.1254	8.3403	0.0000	316.2711
Single Family Housing	883.96	179.4359	10.6044	0.0000	402.1274
Strip Mall	6.83	1.3864	0.0819	0.0000	3.1071
User Defined Retail	17.28	3.5077	0.2073	0.0000	7.8610
Total		367.5659	21.7225	0.0000	823.7389

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.68	0.3410	0.0202	0.0000	0.7643
Condo/Townhouse	112.24	22.7837	1.3465	0.0000	51.0598
Congregate Care (Assisted Living)	47.45	9.6319	0.5692	0.0000	21.5858
Fast Food Restaurant with Drive Thru	46.08	9.3538	0.5528	0.0000	20.9625
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	695.23	141.1254	8.3403	0.0000	316.2711
Single Family Housing	883.96	179.4359	10.6044	0.0000	402.1274
Strip Mall	6.83	1.3864	0.0819	0.0000	3.1071
User Defined Retail	17.28	3.5077	0.2073	0.0000	7.8610
Total		367.5659	21.7225	0.0000	823.7389

9.0 Operational Offroad

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

Operations (Phase 1 & 2)
San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	16.50	Acre	16.50	718,740.00	0
City Park	19.50	Acre	19.50	849,420.00	0
Fast Food Restaurant with Drive Thru	4.00	1000sqft	0.40	4,000.00	0
Recreational Swimming Pool	121.97	1000sqft	2.80	121,968.00	0
Condo/Townhouse	244.00	Dwelling Unit	13.90	372,832.00	698
Congregate Care (Assisted Living)	52.00	Dwelling Unit	2.40	52,000.00	149
Single Family Housing	754.00	Dwelling Unit	80.20	1,458,236.00	2156
Strip Mall	6.50	1000sqft	0.60	6,500.00	0
User Defined Retail	1.50	User Defined Unit	0.20	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	466.91	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Source: CPUC GHG Calculator version 3c, worksheet tab "CO2 Allocations," cells AH/AQ 35-44.

Land Use - Total Lot Acreage: 336.2; includes 199.7 acres of open space; User defined Retail = Coffee Shop w/ Drive-Thru, City Park= community+passive parks; Swimming pool=PA 14A (private use)

Construction Phase - Operations only

Off-road Equipment - based on past project experience and consultation with the applicant

Off-road Equipment -

Trips and VMT -

Grading -

Architectural Coating -

Vehicle Trips - TR and Pass by reduction consistent with the Project TIA. User defined retail = coffee shop with drive thru

Woodstoves - Based on Rule 445

Consumer Products - Consumer products calculated separately

Area Coating -

Energy Use - Title-24 Electricity Energy Intensity and Title-24 Natural Gas Energy Intensity were adjusted to reflect 2013 Title 24 requirements. Source: Impact Analysis California's 2013 Building Energy Efficiency Standards (CEC 2013)

Water And Wastewater - user defined retail = coffee shop with drive thru. Ratio water demand of Coffee Shop to Fast Food Restaurant based on the SF ratio

Solid Waste - user defined retail = coffee shop with drive thru. Ratio solid waste of Coffee Shop to Fast Food Restaurant based on the SF ratio

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation - Based on Rule 1113

Energy Mitigation -

Waste Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	50
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValue	100	50
tblConsumerProducts	ROG_EF	1.98E-05	1E-10

tblEnergyUse	LightingElect	0.00	8.79
tblEnergyUse	NT24E	0.00	28.48
tblEnergyUse	NT24NG	0.00	195.77
tblEnergyUse	T24E	749.55	574.90
tblEnergyUse	T24E	559.54	429.17
tblEnergyUse	T24E	15.13	11.83
tblEnergyUse	T24E	980.99	623.91
tblEnergyUse	T24E	5.60	4.38
tblEnergyUse	T24E	0.00	11.83
tblEnergyUse	T24NG	17,654.53	16,983.66
tblEnergyUse	T24NG	10,214.61	9,826.45
tblEnergyUse	T24NG	81.74	68.01
tblEnergyUse	T24NG	27,816.78	26,008.69
tblEnergyUse	T24NG	2.02	1.68
tblEnergyUse	T24NG	0.00	68.01
tblFireplaces	NumberGas	207.40	244.00
tblFireplaces	NumberGas	44.20	52.00
tblFireplaces	NumberGas	640.90	754.00
tblFireplaces	NumberNoFireplace	24.40	0.00
tblFireplaces	NumberNoFireplace	5.20	0.00
tblFireplaces	NumberNoFireplace	75.40	0.00
tblFireplaces	NumberWood	12.20	0.00
tblFireplaces	NumberWood	2.60	0.00
tblFireplaces	NumberWood	37.70	0.00
tblLandUse	LandUseSquareFeet	121,970.00	121,968.00
tblLandUse	LandUseSquareFeet	244,000.00	372,832.00
tblLandUse	LandUseSquareFeet	1,357,200.00	1,458,236.00
tblLandUse	LandUseSquareFeet	0.00	1,500.00

tblLandUse	LotAcreage	0.09	0.40
tblLandUse	LotAcreage	15.25	13.90
tblLandUse	LotAcreage	3.25	2.40
tblLandUse	LotAcreage	244.81	80.20
tblLandUse	LotAcreage	0.15	0.60
tblLandUse	LotAcreage	0.00	0.20
tblProjectCharacteristics	CO2IntensityFactor	630.89	466.91
tblProjectCharacteristics	OperationalYear	2014	2020
tblSolidWaste	SolidWasteGenerationRate	0.00	17.28
tblVehicleTrips	CC_TTP	0.00	78.80
tblVehicleTrips	CNW_TTP	0.00	19.00
tblVehicleTrips	CW_TTP	0.00	2.20
tblVehicleTrips	DV_TP	40.00	0.00
tblVehicleTrips	DV_TP	0.00	21.00
tblVehicleTrips	PB_TP	15.00	34.00
tblVehicleTrips	PB_TP	0.00	50.00
tblVehicleTrips	PR_TP	45.00	66.00
tblVehicleTrips	PR_TP	0.00	29.00
tblVehicleTrips	ST_TR	1.59	29.13
tblVehicleTrips	ST_TR	7.16	5.38
tblVehicleTrips	ST_TR	2.20	2.48
tblVehicleTrips	ST_TR	722.03	542.25
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	10.08	9.40
tblVehicleTrips	ST_TR	42.04	21.01
tblVehicleTrips	ST_TR	0.00	404.00
tblVehicleTrips	SU_TR	1.59	29.13
tblVehicleTrips	SU_TR	6.07	4.59

tblVehicleTrips	SU_TR	2.44	2.70
tblVehicleTrips	SU_TR	542.72	407.59
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	8.77	8.18
tblVehicleTrips	SU_TR	20.43	10.61
tblVehicleTrips	SU_TR	0.00	404.00
tblVehicleTrips	WD_TR	1.59	29.13
tblVehicleTrips	WD_TR	6.59	5.51
tblVehicleTrips	WD_TR	2.74	3.27
tblVehicleTrips	WD_TR	496.12	372.50
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	9.57	9.03
tblVehicleTrips	WD_TR	44.32	65.08
tblVehicleTrips	WD_TR	0.00	404.00
tblWater	IndoorWaterUseRate	0.00	455,300.57
tblWater	OutdoorWaterUseRate	0.00	29,061.74
tblWoodstoves	NumberCatalytic	12.20	0.00
tblWoodstoves	NumberCatalytic	2.60	0.00
tblWoodstoves	NumberCatalytic	37.70	0.00
tblWoodstoves	NumberNoncatalytic	12.20	0.00
tblWoodstoves	NumberNoncatalytic	2.60	0.00
tblWoodstoves	NumberNoncatalytic	37.70	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	2.2575	0.1257	10.8679	5.7000e-004		0.0774	0.0774		0.0772	0.0772	0.0000	269.8360	269.8360	0.0221	4.6200e-003	271.7330
Energy	0.1673	1.4340	0.6400	9.1300e-003		0.1156	0.1156		0.1156	0.1156	0.0000	3,320.1152	3,320.1152	0.1351	0.0517	3,338.9930
Mobile	5.7166	17.8486	65.3530	0.1831	12.4361	0.2708	12.7070	3.3264	0.2497	3.5761	0.0000	12,914.4740	12,914.4740	0.4388	0.0000	12,923.6892
Waste						0.0000	0.0000		0.0000	0.0000	367.5659	0.0000	367.5659	21.7225	0.0000	823.7388
Water						0.0000	0.0000		0.0000	0.0000	24.6748	381.9790	406.6539	2.5581	0.0648	480.4458
Total	8.1414	19.4083	76.8608	0.1928	12.4361	0.4638	12.8999	3.3264	0.4424	3.7689	392.2407	16,886.4043	17,278.6450	24.8766	0.1211	17,838.5997

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1786	0.1257	10.8679	5.7000e-004		0.0774	0.0774		0.0772	0.0772	0.0000	269.8360	269.8360	0.0221	4.6200e-003	271.7330
Energy	0.1474	1.2635	0.5662	8.0400e-003		0.1018	0.1018		0.1018	0.1018	0.0000	3,028.9935	3,028.9935	0.1255	0.0469	3,046.1743
Mobile	5.5478	16.4024	61.1610	0.1658	11.2236	0.2461	11.4697	3.0021	0.2269	3.2290	0.0000	11,694.2592	11,694.2592	0.4001	0.0000	11,702.6613
Waste						0.0000	0.0000		0.0000	0.0000	183.7829	0.0000	183.7829	10.8613	0.0000	411.8694
Water						0.0000	0.0000		0.0000	0.0000	24.6748	341.0353	365.7102	2.5555	0.0642	439.2855
Total	6.8738	17.7915	72.5951	0.1744	11.2236	0.4253	11.6489	3.0021	0.4059	3.4080	208.4578	15,334.1240	15,542.5818	13.9645	0.1158	15,871.7236

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	15.57	8.33	5.55	9.53	9.75	8.30	9.70	9.75	8.26	9.57	46.85	9.19	10.05	43.87	4.42	11.03

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Underground Infrastructure (Phase 2)	Trenching	1/11/2019	1/11/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Underground Infrastructure (Phase 2)	Excavators	0		162	0.38
Underground Infrastructure (Phase 2)	Other Construction Equipment	0		171	0.42
Underground Infrastructure (Phase 2)	Tractors/Loaders/Backhoes	0		97	0.37

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
Underground Infrastructure (Phase 2)	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Underground Infrastructure (Phase 2) - 2019

Mitigated Construction On-Site

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

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	0.0000	0.0000	0.0000	0.0000	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							

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Improve Pedestrian Network

Provide Traffic Calming Measures

	ROG	NOx	CO	SO2	Fugitive 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	5.5478	16.4024	61.1610	0.1658	11.2236	0.2461	11.4697	3.0021	0.2269	3.2290	0.0000	11,694.25 92	11,694.25 92	0.4001	0.0000	11,702.66 13
Unmitigated	5.7166	17.8486	65.3530	0.1831	12.4361	0.2708	12.7070	3.3264	0.2497	3.5761	0.0000	12,914.47 40	12,914.47 40	0.4388	0.0000	12,923.68 92

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	568.04	568.04	568.04	1,634,544	1,475,176
Condo/Townhouse	1,344.44	1,312.72	1119.96	4,469,088	4,033,352
Congregate Care (Assisted Living)	170.04	128.96	140.40	546,530	493,243
Fast Food Restaurant with Drive Thru	1,490.00	2,169.00	1630.36	1,691,241	1,526,345
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Single Family Housing	6,808.62	7,087.60	6167.72	23,089,412	20,838,195
Strip Mall	423.02	136.57	68.97	758,826	684,840
User Defined Retail	606.00	606.00	606.00	637,747	575,567
Total	11,410.16	12,008.88	10,301.44	32,827,387	29,626,716

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	16.60	8.40	6.90	33.00	48.00	19.00	52	39	9
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	66	0	34
User Defined Retail	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.468914	0.065172	0.173428	0.156844	0.056897	0.009079	0.016419	0.042157	0.001108	0.001337	0.005012	0.000672	0.002962

5.0 Energy Detail

5.1 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive 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	1,570.5292	1,570.5292	0.0976	0.0202	1,578.8341
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,664.3342	1,664.3342	0.1034	0.0214	1,673.1351
NaturalGas Mitigated	0.1474	1.2635	0.5662	8.0400e-003		0.1018	0.1018		0.1018	0.1018	0.0000	1,458.4643	1,458.4643	0.0280	0.0267	1,467.3402
NaturalGas Unmitigated	0.1673	1.4340	0.6400	9.1300e-003		0.1156	0.1156		0.1156	0.1156	0.0000	1,655.7811	1,655.7811	0.0317	0.0304	1,665.8579

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	4.86406e+006	0.0262	0.2241	0.0954	1.4300e-003		0.0181	0.0181		0.0181	0.0181	0.0000	259.5646	259.5646	4.9700e-003	4.7600e-003	261.1443
Congregate Care (Assisted Living)	603491	3.2500e-003	0.0278	0.0118	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003	0.0000	32.2046	32.2046	6.2000e-004	5.9000e-004	32.4006
Fast Food Restaurant with Drive Thru Parking Lot	1.05512e+006	5.6900e-003	0.0517	0.0435	3.1000e-004		3.9300e-003	3.9300e-003		3.9300e-003	3.9300e-003	0.0000	56.3052	56.3052	1.0800e-003	1.0300e-003	56.6479
Recreational Swimming Pool	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	2.4097e+007	0.1299	1.1104	0.4725	7.0900e-003		0.0898	0.0898		0.0898	0.0898	0.0000	1,285.9054	1,285.9054	0.0247	0.0236	1,293.7312
Strip Mall	12870	7.0000e-005	6.3000e-004	5.3000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6868	0.6868	1.0000e-005	1.0000e-005	0.6910
User Defined Retail	395670	2.1300e-003	0.0194	0.0163	1.2000e-004		1.4700e-003	1.4700e-003		1.4700e-003	1.4700e-003	0.0000	21.1145	21.1145	4.0000e-004	3.9000e-004	21.2430
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
Total		0.1673	1.4340	0.6400	9.1300e-003		0.1156	0.1156		0.1156	0.1156	0.0000	1,655.7811	1,655.7811	0.0317	0.0304	1,665.8579

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	526844	2.8400e-003	0.0243	0.0103	1.5000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.1144	28.1144	5.4000e-004	5.2000e-004	28.2855
Fast Food Restaurant with Drive Thru Parking Lot	1.01431e+006	5.4700e-003	0.0497	0.0418	3.0000e-004		3.7800e-003	3.7800e-003		3.7800e-003	3.7800e-003	0.0000	54.1277	54.1277	1.0400e-003	9.9000e-004	54.4571
Recreational Swimming Pool	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	2.11554e+007	0.1141	0.9748	0.4148	6.2200e-003		0.0788	0.0788		0.0788	0.0788	0.0000	1,128.9314	1,128.9314	0.0216	0.0207	1,135.8019
Strip Mall	11232	6.0000e-005	5.5000e-004	4.6000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5994	0.5994	1.0000e-005	1.0000e-005	0.6030
User Defined Retail	380368	2.0500e-003	0.0187	0.0157	1.1000e-004		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	20.2979	20.2979	3.9000e-004	3.7000e-004	20.4214
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	4.24246e+006	0.0229	0.1955	0.0832	1.2500e-003		0.0158	0.0158		0.0158	0.0158	0.0000	226.3936	226.3936	4.3400e-003	4.1500e-003	227.7714
Total		0.1474	1.2635	0.5662	8.0300e-003		0.1018	0.1018		0.1018	0.1018	0.0000	1,458.4643	1,458.4643	0.0280	0.0267	1,467.3402

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.14725e+006	242.9727	0.0151	3.1200e-003	244.2576
Congregate Care (Assisted Living)	193672	41.0173	2.5500e-003	5.3000e-004	41.2342
Fast Food Restaurant with Drive Thru Parking Lot	196400	41.5949	2.5800e-003	5.3000e-004	41.8149
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.52121e+006	1,169.3195	0.0726	0.0150	1,175.5028
Strip Mall	93860	19.8783	1.2300e-003	2.6000e-004	19.9834
User Defined Retail	73650	15.5981	9.7000e-004	2.0000e-004	15.6806
Total		1,664.3342	0.1034	0.0214	1,673.1351

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	1.08957e+006	230.7565	0.0143	2.9700e-003	231.9768
Congregate Care (Assisted Living)	184542	39.0835	2.4300e-003	5.0000e-004	39.2902
Fast Food Restaurant with Drive Thru	184028	38.9747	2.4200e-003	5.0000e-004	39.1808
Parking Lot	537618	113.8603	7.0700e-003	1.4600e-003	114.4624
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	5.26869e+006	1,115.8383	0.0693	0.0143	1,121.7388
Strip Mall	82160	17.4004	1.0800e-003	2.2000e-004	17.4924
User Defined Retail	69010.5	14.6155	9.1000e-004	1.9000e-004	14.6928
Total		1,570.5292	0.0976	0.0202	1,578.8341

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive 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	1.1786	0.1257	10.8679	5.7000e-004		0.0774	0.0774		0.0772	0.0772	0.0000	269.8360	269.8360	0.0221	4.6200e-003	271.7330
Unmitigated	2.2575	0.1257	10.8679	5.7000e-004		0.0774	0.0774		0.0772	0.0772	0.0000	269.8360	269.8360	0.0221	4.6200e-003	271.7330

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	1.9009					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0255	0.0000	1.3900e-003	0.0000		0.0176	0.0176		0.0174	0.0174	0.0000	252.1440	252.1440	4.8300e-003	4.6200e-003	253.6785
Landscaping	0.3310	0.1257	10.8665	5.7000e-004		0.0598	0.0598		0.0598	0.0598	0.0000	17.6921	17.6921	0.0173	0.0000	18.0545
Total	2.2575	0.1257	10.8679	5.7000e-004		0.0774	0.0774		0.0772	0.0772	0.0000	269.8360	269.8360	0.0221	4.6200e-003	271.7330

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.8220					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0255	0.0000	1.3900e-003	0.0000		0.0176	0.0176		0.0174	0.0174	0.0000	252.1440	252.1440	4.8300e-003	4.6200e-003	253.6785
Landscaping	0.3310	0.1257	10.8665	5.7000e-004		0.0598	0.0598		0.0598	0.0598	0.0000	17.6921	17.6921	0.0173	0.0000	18.0545
Total	1.1786	0.1257	10.8679	5.7000e-004		0.0774	0.0774		0.0772	0.0772	0.0000	269.8360	269.8360	0.0221	4.6200e-003	271.7330

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

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	365.7102	2.5555	0.0642	439.2855
Unmitigated	406.6539	2.5581	0.0648	480.4458

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 23.2339	54.6682	3.4000e-003	7.0000e-004	54.9573
Condo/Townhouse	15.8976 / 10.0224	72.4662	0.5222	0.0131	87.4930
Congregate Care (Assisted Living)	3.38801 / 2.13592	15.4436	0.1113	2.7900e-003	18.6460
Fast Food Restaurant with Drive Thru	1.21413 / 0.077498	3.9157	0.0398	9.8000e-004	5.0548
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	7.21369 / 4.42129	32.5847	0.2369	5.9400e-003	39.4017
Single Family Housing	49.1261 / 30.9708	223.9323	1.6137	0.0405	270.3676
Strip Mall	0.481471 / 0.295095	2.1748	0.0158	4.0000e-004	2.6298
User Defined Retail	0.455301 / 0.0290617	1.4684	0.0149	3.7000e-004	1.8956
Total		406.6539	2.5581	0.0648	480.4458

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 18.5871	43.7346	2.7200e-003	5.6000e-004	43.9658
Condo/Townhouse	15.8976 / 8.01791	66.2281	0.5218	0.0130	81.2219
Congregate Care (Assisted Living)	3.38801 / 1.70874	14.1142	0.1112	2.7700e-003	17.3096
Fast Food Restaurant with Drive Thru	1.21413 / 0.0619984	3.7631	0.0398	9.8000e-004	4.9013
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	7.21369 / 3.53703	29.8136	0.2368	5.9000e-003	36.6160
Single Family Housing	49.1261 / 24.7767	204.6556	1.6125	0.0402	250.9890
Strip Mall	0.481471 / 0.236076	1.9899	0.0158	3.9000e-004	2.4439
User Defined Retail	0.455301 / 0.0232494	1.4111	0.0149	3.7000e-004	1.8380
Total		365.7101	2.5555	0.0642	439.2855

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	367.5659	21.7225	0.0000	823.7388
Mitigated	183.7829	10.8613	0.0000	411.8694

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.68	0.3410	0.0202	0.0000	0.7643
Condo/Townhouse	112.24	22.7837	1.3465	0.0000	51.0598
Congregate Care (Assisted Living)	47.45	9.6319	0.5692	0.0000	21.5858
Fast Food Restaurant with Drive Thru	46.08	9.3538	0.5528	0.0000	20.9625
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	695.23	141.1254	8.3403	0.0000	316.2711
Single Family Housing	883.96	179.4359	10.6044	0.0000	402.1274
Strip Mall	6.83	1.3864	0.0819	0.0000	3.1071
User Defined Retail	17.28	3.5077	0.2073	0.0000	7.8610
Total		367.5659	21.7225	0.0000	823.7389

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.84	0.1705	0.0101	0.0000	0.3821
Condo/Townhouse	56.12	11.3919	0.6732	0.0000	25.5299
Congregate Care (Assisted Living)	23.725	4.8160	0.2846	0.0000	10.7929
Fast Food Restaurant with Drive Thru	23.04	4.6769	0.2764	0.0000	10.4813
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	347.615	70.5627	4.1701	0.0000	158.1356
Single Family Housing	441.98	89.7180	5.3022	0.0000	201.0637
Strip Mall	3.415	0.6932	0.0410	0.0000	1.5535
User Defined Retail	8.64	1.7538	0.1037	0.0000	3.9305
Total		183.7829	10.8613	0.0000	411.8694

9.0 Operational Offroad

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