Greenhouse Gas Assessment
Jamacha Boulevard Office Building
Spring Valley, CA

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List of Acronyms

APCD	Air Pollution Control District
AB	Assembly Bill
AB 32	Assembly Bill 32, Global Warming Solutions Act of 2006
AMSL	Above Mean Sea Level
ARB	Air Resources Board
ASTM	American Society of Testing and Materials
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CAT	Climate Action Team
CCAP	Center for Clean Air Policy
CCAR	California Climate Action Registry
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EV	Electric Vehicles
GCC	Global Climate Change
GHG	Greenhouse Gas
GGEP	Greenhouse Gas Emissions Policy
GGRP	Greenhouse Gas Reduction Plan
GP	General Plan
GPA	General Plan Amendment
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
HOA	Homeowners' Association
IPCC	Intergovernmental Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
MT	Metric Tons
MMT	Million Metric Tons
MW	Megawatts
N_2O	Nitrous Oxide
NF_3	Nitrogen Trifluoride
NOx	Oxides of Nitrogen
OPR	State Office of Planning and Research
PDFs	Project Design Features
PFCs	Perfluorocarbons

PM	Particulate Matter
ROG	Reactive Organic Gas
RMP	Resource Management Plan
RPS	Renewable Portfolio Standards
S-3-05	Executive Order S-3-05
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SDCGHGI	San Diego County Greenhouse Gas Inventory
SDG&E	San Diego Gas & Electric
SF_6	Sulfur Hexafluoride
SRI	Solar Reflective Index
TDM	Transportation Demand Management
THC	Total Hydrocarbon
UNFCCC	United Nations Framework Convention on Climate Change
USBGC	U.S. Green Building Council
VMT	Vehicle Miles Traveled

Executive Summary

This report presents an assessment of potential greenhouse gas impacts associated with the proposed Jamacha Boulevard Office Building project proposed for the Spring Valley community of the County of San Diego. The applicant proposes to construct a 12,000 square foot office building on an approximate 1.08-acre site on Jamacha Boulevard.

Specifically, the report discusses the scientific, regulatory and policy developments surrounding global climate change; provides a quantitative inventory of the greenhouse gas (GHG) emissions that would result from Project implementation (construction and operation); evaluates the significance of the Project's GHG emissions; and, identifies feasible mitigation to ensure that the Project does not significantly impact the environment.

GHG emissions were calculated for 2022 because 2022 was assumed to be the first full year of operations. GHG emissions would decrease with time due to phase-out of older vehicles and increasingly stringent GHG emission standards and due to implementation of the California Renewable Portfolio Standard. Therefore, 2022 represents a worst case estimate of GHG emissions for the project. Table ES-1 presents the emissions with incorporation of project design features (PDFs) and regulatory compliance measures for the proposed Project.

Since the County currently does not have GHG significance thresholds, it's suggested to use the qualitative approach the Bay Area Air Quality Management District (BAAQMD) adopted for their CEQA Thresholds of Significance for Climate Impacts guidelines (BAAQMD, 2022). This approach is recommended as it is considered a "fair share" approach to achieve long-term climate goals and is consistent with California Supreme Court outcome opinions garnered from Center for Biological Diversity v. Department of Fish & Wildlife (2015) (62 Cal.4th 204).

Under these thresholds additional design elements have been incorporated into this Project which are as follows:

For all Buildings,

- The project will not include natural gas appliances or natural gas plumbing within the non-residential development.
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. PDFs identified in ES-1 are indicative of the Projects goals to ensure this measure is met.

For Vehicle Trips,

- Meet the requirements of the Senate Bill 743 (SB-743) VMT targets by achieving a 15 percent below the existing VMT per employee rate.
- Achieve compliance with off-street electric vehicle (EV) requirements in the most recently adopted version of CALGreen Tier 2.

The proposed Project is consistent with plans, policies and regulations adopted to reduce GHG emissions because the Project would be consistent with the County of San Diego's General Plan. The site's General Plan designation is Office Professional, and the zoning for the site is C30 Commercial. The Project is proposing an office building which is consistent with the General Plan designation and zoning for the site. Because the project is consistent with the General Plan, it will not conflict with this plan's purpose of reducing GHG emissions.

The project would not conflict with the SANDAG Regional Transportation Plan and Sustainable Communities Strategy. The project is proposing an infill office building. According to the traffic analysis, the project's average VMT per employee is at least 15% below the County's Unincorporated Average VMT per employee and would result in less than significant impacts on VMT (LOS Engineering 2021) per SB-743. Therefore, the project would not conflict with the RTP/SCS goals of reducing GHG emissions.

The Project would include 28 Electric Vehicle Capable Spaces (EVCS) of which nine would include electric vehicle supply equipment (EVSE) or equipment generally considered universal for EVs. Based on compliance with CalGreen's Tier 2 EV standards, the Project would be consistent with applicable CEQA compliance requirements acceptable in the County of San Diego.

The project would not conflict with the ARB's Scoping Plan because it would be consistent with the policies and programs set forth within the Plan.

Therefore, the potential impact on greenhouse gases is less than significant.

Table ES-1 SUMMARY OF PROPOSED PROJECT'S ESTIMATED GREENHOUSE GAS EMISSIONS – 2022 (WITH PDFS AND REGULATORY COMPLIANCE MEASURES)				
Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Construction Emissions				
Construction Activities	242	0.0494	0.0000	243
Sequestration Loss	15	0.0000	0.0000	15
Sequestration Gain	(27)	(0.0000)	(0.0000)	(27)
Construction Sub-Total	**230**	**0.0494**	**0.0000**	**231**
Global Warming Potential Factor	1	25	298	
Construction Total	**230**	**1**	**0**	**231**
Amortized Construction Emissions	**8**			
Operational Emissions				
Area Sources	0.0002	0.0000	0.0000	0
Energy Use	54	0.0019	0.0005	54
Water Consumption	10	0.0560	0.0014	12
Solid Waste Handling	2	0.1071	0.0000	5
Vehicles	87	0.0046	0.0000	87
Operational Sub-Total	**153**	**0.1749**	**0.0019**	**158**
Global Warming Potential Factor	1	25	298	
Operational Total	**153**	**4**	**1**	**158**
Total with Amortized Construction Emissions	**166**			

1.0 INTRODUCTION

This report presents an assessment of potential greenhouse gas (GHG) impacts associated with the proposed Jamacha Boulevard Office Building project proposed for the Spring Valley community of the County of San Diego. The applicant proposes to construct a 12,000 square foot office building on an approximate 1.08-acre site on Jamacha Boulevard. More specifically, the evaluation addresses the potential impacts of greenhouse gas (GHG) emissions associated with construction and operation of the proposed Project.

The proposed Project is consistent with the County of San Diego General Plan. The site designation within the General Plan is Office Professional, and the zoning is C30 Commercial.

1.1 Project Location and Description

The applicant proposes to construct a 12,000 square foot office building on an undeveloped site on Jamacha Boulevard in Spring Valley. The site is approximately 1.08 acres in size. The site will include 48 paved parking spaces of which 28 would be EVCS and of those 28, nine would be EVSE. The Project would also include on-site landscaping including tree plantings. Figure 1 presents a schematic of the site.

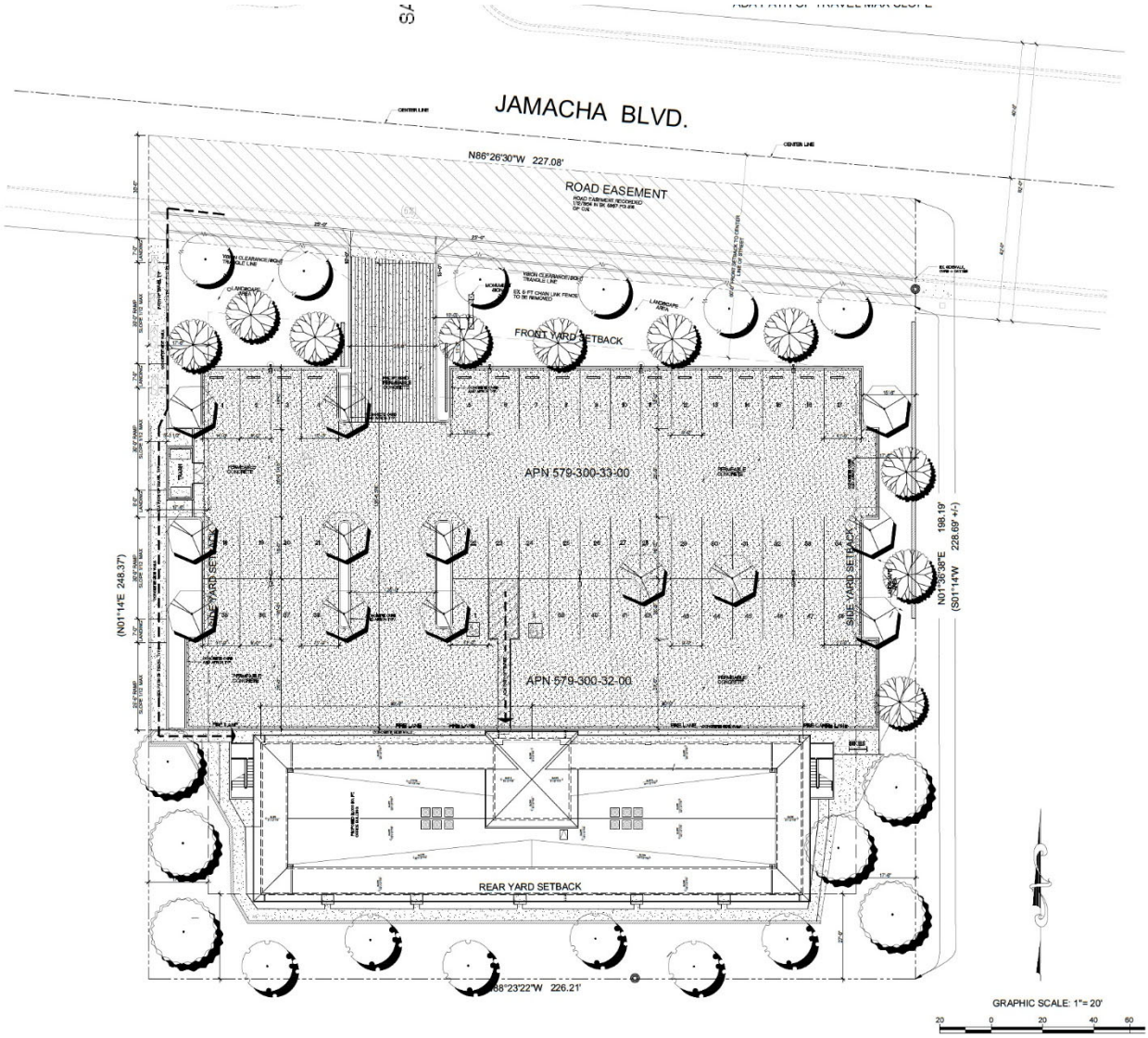

Figure 1. Jamacha Boulevard Office Building

1.2 General Principles and Existing Conditions

Global climate change (GCC) refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which are known as GHGs. These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere.

GCC may result from natural factors/processes, but is mainly attributable to human activities that change the composition of the atmosphere and alter the surface and features of land. For example, historical records indicate that global climate changes have occurred in the past due to natural phenomena (e.g., ice ages). According to the *Climate Science Special Report* (U.S. Global Change Research Program 2017), it is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century. For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence. The global atmospheric CO_2 concentration has now passed 400 parts per million (ppm), a level that last occurred about 3 million years ago, when both global average temperature and sea level were significantly higher than today (NOAA, 2023). Recent data indicate that, due to human (i.e., anthropogenic) influence, the current global conditions differ from past climate changes in rate and magnitude. The State of California has been at the forefront of developing solutions to address potential anthropogenic impacts to GCC.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructs emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC has concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 3.6º Fahrenheit (2º Celsius), which is assumed to

be necessary to avoid dangerous climate change (Association of Environmental Professionals 2007).

State law defines greenhouse gases as any of the following compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (California Health and Safety Code Section 38505(g)). CO_2, followed by CH_4 and N_2O, are the most common GHGs that result from human activity.

1.3 Sources and Global Warming Potentials of GHG

As discussed further below, the sources of GHG emissions, each GHG's global warming potential (GWP), and the atmospheric lifetime of GHGs are all important variables to be considered in the process of calculating carbon dioxide equivalent (CO_2e) emissions for discretionary land use projects that require a climate change analysis.

The State of California's Air Resources Board (ARB) compiles a GHG inventory of statewide anthropogenic GHG emissions and sinks. The current inventory covers the years 2000 to 2020, and is summarized in Figure 2 on the following page (CARB, 2022). When accounting for GHGs, emissions are expressed in terms of CO_2e and are typically quantified in metric tons (MT) or millions of metric tons (MMT)..

GHGs have varying GWPs. The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (EPA 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 25, and N_2O, which has a GWP of 298 (ARB 2017b). (The GWP values used in this report are sourced to the Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change.) Table 2 presents the GWP and atmospheric lifetimes of the GHGs that are regulated by the State of California.

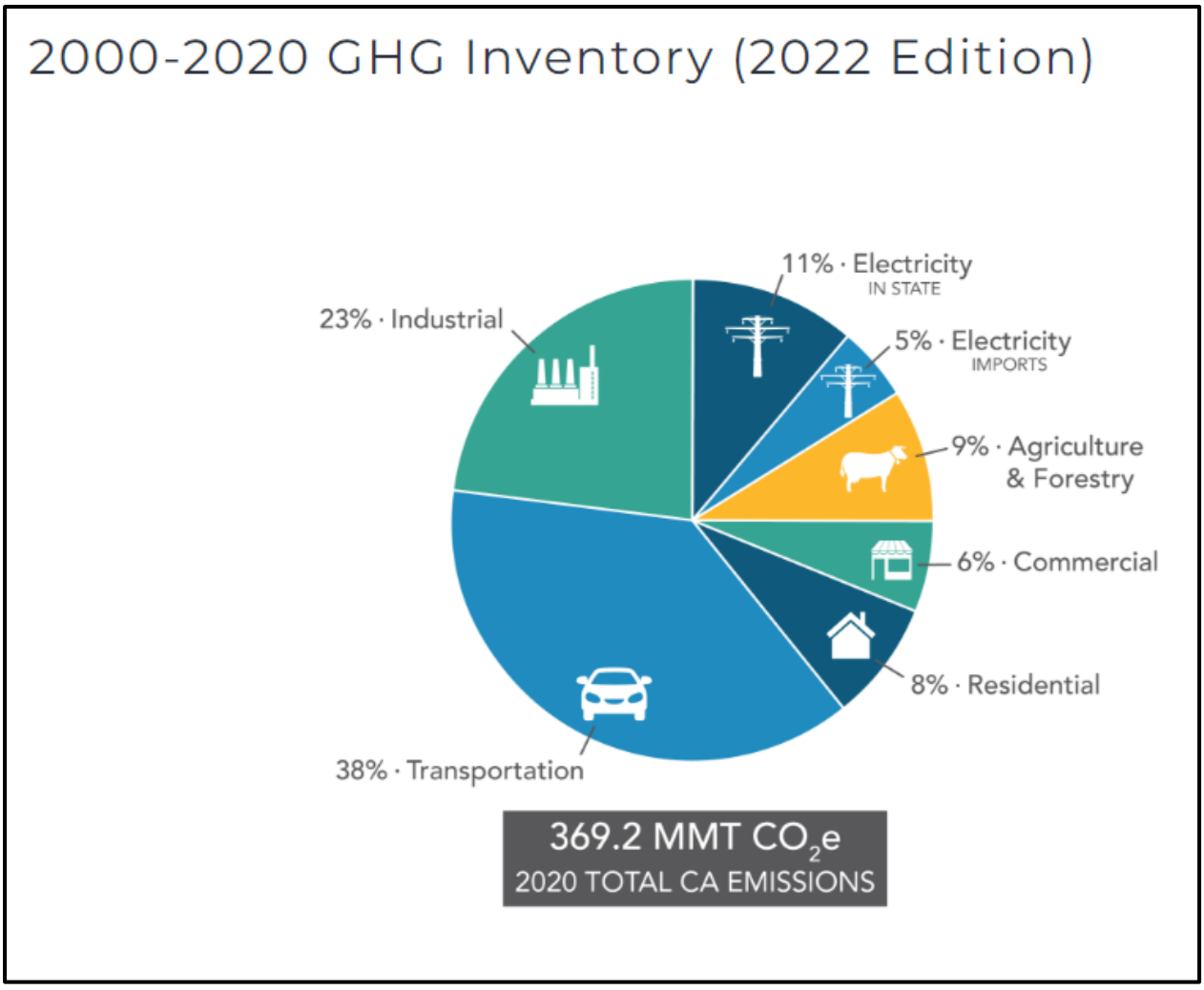

Figure 2. Jamacha Boulevard Office Building

Source: (CARB, 2022)

Table 2 Global Warming Potentials and Atmospheric Lifetimes of GHGs			
GHG	**Formula**	**100-Year Global Warming Potential**	**Atmospheric Lifetime (Years)**
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	25	12
Nitrous Oxide	N_2O	298	114
Sulfur Hexafluoride	SF_6	22,800	3,200
Hydrofluorocarbons	HFCs	124 to 14,800	1 to 100
Perfluorocarbons	PFCs	7,390 to 12,200	10,000 to 50,000
Nitrogen Trifluoride	NF_3	17,200	740
Source: The 2017 Climate Change Scoping Plan Update, ARB 2017b			

The primary, human-caused source of CO_2 is the combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. Concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure and cattle farming. Human-caused sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid.

Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses. Because the project would not emit appreciable amounts of trace GHGs, and because the California Emissions Estimator Model (CalEEMod) focuses on the main GHGs associated with development (CO_2, CH_4, and N_2O), this analysis focuses on CO_2, CH_4, and N_2O emissions.

1.4 Regulatory Framework

1.4.1 Federal and International Efforts

GCC is being addressed at both the international and federal levels. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments agreed to 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 GCC.

Clean Air Act. In *Massachusetts v. Environmental Protection Agency* (2007) 549 U.S. 497, the U.S. Supreme Court held that the U.S. Environmental Protection Agency (EPA) has authority under the Clean Air Act to regulate CO_2 emissions if those emissions pose an endangerment to the public health or welfare.

In 2009, the EPA issued an "endangerment finding" under the Clean Air Act, concluding that GHGs threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG emissions. These findings provide the basis for adopting national regulations to mandate GHG emission reductions under the Clean Air Act.

To date, the EPA has exercised its authority to regulate mobile sources that reduce GHG emissions via the control of vehicle manufacturers, as discussed below.

The EPA also has adopted standards that set a national limit on GHG emissions produced from new, modified, and reconstructed power plants, and has issued the Clean Power Plan, which is targeted toward the reduction of carbon emissions from existing power plants. The Clean Power Plan requires states to develop and implement plans that ensure that the power plants in their state – either individually, together or in combination with other measures – achieve interim performance rates over the period of 2022 to 2029 and final performance rates, rate-based goals or mass-based goals by 2030. In February 2016, the U.S. Supreme Court stayed implementation of the Clean Power Plan pending judicial review. Additionally, in March 2017, President Donald Trump's Executive Order on Energy Independence directed the EPA to undertake a review of the Clean Power Plan; and, in October 2017, the EPA issued its proposal to repeal the Clean Power Plan.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and National Highway Traffic Safety Administration issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

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

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

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

In August 2019, the EPA and the NHTSA jointly published a notice of the proposed rulemaking for the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule). The SAFE Vehicles Rule proposes amended Corporate Average Fuel Economy (CAFE) and Light-Duty Vehicle Greenhouse Gas Emissions Standards. This Notice of Proposed Rulemaking (NPRM) was the first formal step in setting the 2021-2026 Model Year (MY) standards that must be achieved by each automaker for its car and light-duty truck fleet (EPA, 2018). Part One of the SAFE Rule withdrew the State of California's waiver, afforded under the CAA to set GHG and zero-emissions vehicle (ZEV) standards separate from the federal government and became effective in November 2019. In March 2020, Part Two of the SAFE Rule was published which set amended fuel economy and CO_2 standards for Passenger Cars and Light Trucks for model years 2021 through 2026. (EPA, 2020). The SAFE Rule relaxed federal greenhouse gas emissions and CAFE standards to increase in stringency at only about 1.5 percent per year from model year (MY) 2020 levels over MYs 2021–2026. The previously established emission standards and related "augural" fuel economy standards would have achieved about 4% per year improvements through MY 2025.

In may 2022 the NHTSA published rules finalizing revised fuel economy standards for passenger cars and light trucks for model years (MYs) 2024-2025 that increase at a rate of 8 percent per year, and increase at a rate of 10 percent per year for MY 2026 vehicles. NHTSA currently projects that the revised standards would require an industry fleet-wide average of roughly 49 mpg in MY 2026, and would reduce average fuel outlays over the lifetimes of affected vehicles that provide consumers hundreds of dollars in net savings (NHTSA, 2022).

Energy Independence and Security Act. The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by the EPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and to create a separate fuel economy standard for trucks.

Additional provisions of this Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

1.4.2 State Actions

Executive Orders and Legislation Establishing Overarching State Climate Policies

Executive Order S-3-05. In 2005, former Governor Schwarzenegger signed Executive Order S-3-05, which established the following GHG emission reduction goals for California: (1) by 2010, reduce GHG emissions to 2000 levels; (2) by 2020, reduce GHG emissions to 1990 levels; and (3) by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32. Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, was enacted after considerable study and expert testimony before the Legislature. The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020 (Health & Safety Code, §38550). In order to achieve this reduction mandate, AB 32 requires the ARB to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG reductions.

In response to the adoption of AB 32, in 2007, the ARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline. The ARB's adoption of this limit is in accordance with Health & Safety Code section 38550.

Further, in 2008, the ARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health & Safety Code section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020.

In 2014, the ARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*).[1] The stated purpose of the *First Update* is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990

[1] Health & Safety Code section 38561(h) requires the ARB to update the Scoping Plan every five years.

levels by 2050."[2] The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32. The *First Update* also noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.[3]

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

Based on the ARB's research efforts, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050."[5] Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

In December 2017, the ARB adopted *California's 2017 Climate Change Scoping Plan* . The *2017 Scoping Plan* addresses the statewide emissions reduction target established pursuant to Senate Bill (SB) 32 and Executive Order B-30-15, as discussed below. The *2017 Scoping Plan* includes continuation of the Cap-and-Trade Program through 2030, and incorporates a Mobile Source Strategy (also developed by the ARB) that is intended to increase zero emission vehicle fleet penetration and establish a more stringent Low Carbon Fuel Standard target by 2030.

[2] ARB, First Update (May 2014), p. 4.
[3] Id. at p. 34.
[4] Id. at p. 6.
[5] Id. at p. 32.

When discussing project-level GHG emissions reduction actions and thresholds in the *2017 Scoping Plan*, the ARB states "[a]chieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development."[6] However, the ARB also recognizes that "[a]chieving net zero … may not be feasible or appropriate for every project … and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."[7] To the extent that a project's CEQA analysis recommends mitigation to reduce GHG emissions, the ARB "recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits locally."[8]

Finally, the latest scoping plan was just approved in 2022 and lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045. This plan addresses recent legislation and direction from Governor Newsom and extends and expands upon these earlier plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045 (CARB, 2022). The plan also suggests that bold steps are required by the State and calls for the need of vast research and development with respect to methods of capturing CO_2. The plan calls for a need to take an unprecedented transformation and aggressively seek reductions to reduce the need of fossil fuels by moving to zero emission transportation by electrifying cars, buses, trucks and trains. The plan relays on external controls and requires partnerships and collaboration with the federal government, U.S. state partners, and other jurisdictions around the world for California to succeed in achieving the scoping plan 2022 climate targets.

2015 State of the State Address. In his January 2015 inaugural address, Governor Brown identified key climate change strategy pillars, including: (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing the amount of electricity derived from renewable sources from one-third to 50 percent; (3) doubling the energy efficiency savings achieved at

[6] ARB, 2017 Scoping Plan (November 2017), p. 101.
[7] Id. at p. 102.
[8] Id. at p. 102.

existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy. As discussed below, the second and third pillars have been codified via legislation (SB 350).

Executive Order B-30-15. In April 2015, Governor Brown signed Executive Order B-30-15, which established the following GHG emission reduction goal for California: by 2030, reduce GHG emissions to 40 percent below 1990 levels. This reduction goal subsequently was codified through the enactment of SB 32 (see discussion below). This Executive Order also directed all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in Executive Order S-3-05 (see discussion above). Additionally, the Executive Order directed the ARB to update its Scoping Plan (see discussion above) to address the 2030 goal.

2016 State of the State Address. In his January 2016 inaugural address, Governor Brown identified a statewide goal to bring per capita GHGs down to two tons per person. The origin of this goal is the Global Climate Leadership Memorandum of Understanding (Under 2 MOU), which established limiting global warming to less than two degrees Celsius as the guiding principle for the reduction of GHG emissions by 2050. The parties to the Under 2 MOU have agreed to pursue emissions reductions consistent with a trajectory of 80 to 95 percent below 1990 levels by 2050 and/or achieve a per capita annual emissions goal of less than two metric tons by 2050. The Under 2 MOU has been signed or endorsed by 127 jurisdictions (including California) that represent 27 countries and six continents.

Senate Bill 32, and Assembly Bill 197. Enacted in 2016, SB 32 codifies the 2030 emissions reduction goal of Executive Order B-30-15 by requiring the ARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030.

SB 32 was coupled with a companion bill: AB 197. Designed to improve the transparency of the ARB's regulatory and policy-oriented processes, AB 197 created the Joint Legislative Committee

on Climate Change Policies, a committee with the responsibility to ascertain facts and make recommendations to the Legislature concerning statewide programs, policies and investments related to climate change. AB 197 also requires the ARB to make certain GHG emissions inventory data publicly available on its web site; consider the social costs of GHG emissions when adopting rules and regulations designed to achieve GHG emission reductions; and, include specified information in all Scoping Plan updates for the emission reduction measures contained therein.

Assembly Bill 1279. Enacted in 2022, AB 1279 otherwise known as the California Climate Crisis Act, sets the State of California's policy to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter, and to ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85% below the 1990 levels. The bill would require the state board to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

Energy-Related Sources

Renewable Portfolio Standard. California's Renewable Portfolio Standard requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. As amended in 2015 by SB 350, retail sellers of electric services must increase procurement from eligible renewable energy resources to 40 percent of total retail sales by 2024, 45 percent of total retail sales by 2027, and 50 percent of total retail sales by 2030. As amended in 2018 by SB 100, retail sellers of electric services must increase procurement from eligible renewable energy resources to 44 percent of total retail sales by 2024, to 50% of total retail sales by 2026, to 52% of total retail sales by 2027, and to 60% of total retail sales by 2030. SB 100 also called for the state to plan for a goal of 100% renewables by December 31, 2045.

SB 100 was amended in 2022 under SB 1020 whci revised the State's policy to instead provide that eligible renewable energy resources and zero-carbon resources supply 90% of all retail sales of electricity to California end-use customers by December 31, 2035, 95% of all retail sales of electricity to California end-use customers by December 31, 2040, 100% of all retail sales of electricity to California end-use customers by December 31, 2045, and 100% of electricity procured to serve all state agencies by December 31, 2035, as specified.

Building Energy Efficiency Standards (Title 24). Title 24, Part 6, of the California Code of Regulations regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The California Energy Commission's (CEC) 2019 Building Energy Efficiency Standards became effective on January 1, 2020. Since the 2019 Building Energy Efficiency Standards were adopted, the state has adopted 2022 Title 24 standards. The effective date of the 2022 standards is January 1, 2023.

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) are commonly referred to as CALGreen, and establish voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. The mandatory standards require the following:

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings;
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance;
- Sixty five (65) percent of construction and demolition waste must be diverted from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency;

- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations; and,
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

CALGreen is periodically amended; the most recent 2022 standards became effective on January 1, 2023. The updated Code includes modifications to current codes and will be a requirement to the Project. Mandatory requirements include many updated EV Charging requirements for multi and single-family developments (California Title 24, Part 11, 2022).

Mobile Sources

Pavley Standards. AB 1493 required the ARB to adopt regulations to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks for model years 2009–2016, which are often times referred to as the "Pavley I" standards. The ARB obtained a waiver from the EPA that allows for implementation of these regulations notwithstanding possible federal preemption concerns.

Low Carbon Fuel Standard. Executive Order S-1-07 requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the ARB by 2020.[9] In 2009, the ARB approved the Low Carbon Fuel Standard regulations, which became fully effective in April 2010. The regulations were subsequently re-adopted in September 2015 in response to related litigation.

Advanced Clean Cars Program. In 2012, the ARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for model years 2017–2025. (This program is sometimes referred to as "Pavley II.") The program combines the control of smog, soot, and GHGs

[9] Carbon intensity is a measure of the GHG emissions associated with the various production, distribution and use steps in the "lifecycle" of a transportation fuel.

with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs.

This program was recently updated and is known as the Advanced Clean Cars II (ACC II) Program. The ACC II regulations will rapidly scale down emissions of light-duty passenger cars, pickup trucks and SUVs starting with the 2026 model year through 2035. The regulations are two-pronged. First, it amends the Zero-emission Vehicle Regulation to require an increasing number of zero-emission vehicles, and relies on currently available advanced vehicle technologies, including battery-electric, hydrogen fuel cell electric and plug-in hybrid electric-vehicles, to meet air quality and climate change emissions standards. Second, the Low-emission Vehicle Regulations were amended to include increasingly stringent standards for gasoline cars and heavier passenger trucks to continue to reduce smog-forming emissions (CARB, 2023).

Senate Bill 375. The Sustainable Communities and Climate Protection Act of 2008 (SB 375) coordinates land use planning, regional transportation plans, and funding priorities to reduce GHG emissions from passenger vehicles through better-integrated regional transportation, land use, and housing planning that provides easier access to jobs, services, public transit, and active transportation options.[10] SB 375 specifically requires the Metropolitan Planning Organization (MPO) relevant to the Project area (here, the San Diego Association of Governments [SANDAG]) to include a Sustainable Communities Strategy in its Regional Transportation Plan that will achieve GHG emission reduction targets set by the ARB by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

For the area under SANDAG's jurisdiction, including the Project site, the ARB adopted regional targets for reduction of mobile source-related GHG emissions by 7 percent for 2020 and by 13 percent for 2035. (These targets are expressed by the ARB as a percent change in per capita GHG emissions relative to 2005 levels.)

[10] ARB, First Update (May 2014), pp. 49-50.

Pursuant to Government Code Section 65080(b)(2)(K), a Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it.

Zero Emission Vehicles. Zero emission vehicles (ZEVs) include plug-in electric vehicles, such as battery electric vehicles and plug-in hybrid electric vehicles, and hydrogen fuel cell electric vehicles.

In 2012, Governor Brown issued Executive Order B-16-2012, which calls for the increased penetration of ZEVs into California's vehicle fleet in order to help California achieve a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of that statewide target for the transportation sector, the Executive Order also calls upon the ARB, CEC and the California Public Utilities Commission to establish benchmarks that will: (1) allow over 1.5 million ZEVs to be on California roadways by 2025, and (2) provide the State's residents with easy access to ZEV infrastructure.

In its *First Update*, the ARB recognized that the light-duty vehicle fleet "will need to become largely electrified by 2050 in order to meet California's emission reduction goals."[11] Accordingly, the ARB's ACC program – summarized above – requires about 15 percent of new cars sold in California in 2025 to be a plug-in hybrid, battery electric or fuel cell vehicle.[12] Further, one of the elements of SB 350 (2015) – the Clean Energy and Pollution Reduction Act –establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the State's 2030 and 2050 reduction targets (see Public Utilities Code section 740.12). The ARB's *2017 Scoping Plan* also identified, as an element of its framework to achieve the statewide 2030 emissions reduction target codified by SB 32, the

[11] Id. at p. 48.
[12] Id. at p. 47.

objective to put 4.2 million zero emission and plug-in hybrid light-duty electric vehicles on the road by 2030.

In 2022 California released the latest scoping plan update which lays out the sector-by-sector roadmap for California to achieve carbon neutrality by 2045. This plan, addressing recent legislation and direction from Governor Newsom, extends and expands upon these earlier plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045 (CARB, 2022). The plan suggests that bold steps are required by the State and calls for the need of vast research and development with respect to methods of capturing CO_2. The plan call for a need to take an unprecedented transformation and aggressively seek reductions to reduce the need of fossil fuels by moving to zero emission transportation, electrifying the cars, busses, trucks and trains. The plan relays on external controls and requires partnership and collaboration with the federal government, other U.S. states, and other jurisdictions around the world for California to succeed in achieving its climate targets.

The proliferation of zero emission vehicles is being supported in multiple ways. For example, California is incentivizing the purchase of ZEVs through implementation of the Clean Vehicle Rebate Project (CVRP), which is administered by a non-profit organization (The Center for Sustainable Energy) for the ARB and currently subsidizes the purchase of passenger near-zero and zero emission vehicles. Additionally, CALGreen requires new residential and non-residential construction to be pre-wired to facilitate the future installation and use of electric vehicle chargers (see Section 4.106.4 and Section 5.106.5.3 of 2016 CALGreen Standards for the residential and non-residential pre-wiring requirements, respectively). As a final example, in January 2017, San Diego Gas & Electric Company (SDG&E) applied to the California Public Utilities Commission for authority to implement numerous programs intended to accelerate the electrification of the transportation sector. SDG&E's application includes, but is not limited to, proposals to: (i) install up to 90,000 charging stations at single-family homes throughout the company's service area; (ii) install charging infrastructure at various park-and-ride locations; (iii) provide incentives for electric taxis and shuttles; and, (iv) provide educational programs and financial incentives for the sale of electric vehicles.

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

Water Sources

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

Solid Waste Sources

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) diversion of 75 percent of all solid waste on or after 2020, and annually thereafter. The California Department of Resources Recycling and Recovery (CalRecycle) is

required to develop strategies, including source reduction, recycling, and composting activities, to achieve the 2020 goal.

CalRecycle published a discussion document, entitled *California's New Goal: 75 Percent Recycling,* which identified concepts that would assist the State in reaching the 75 percent goal by 2020. Subsequently, in August 2015, CalRecycle released the *AB 341 Report to the Legislature*, which identifies five priority strategies for achievement of the 75 percent goal: (1) moving organics out of landfills; (2) expanding recycling/manufacturing infrastructure; (3) exploring new approaches for State and local funding of sustainable waste management programs; (4) promoting State procurement of post-consumer recycled content products; and, (5) promoting extended producer responsibility.

1.4.3 Local Regulations and Standards

San Diego Forward. In October 2015, and in accordance with the requirements established by SB 375 (discussed above), SANDAG adopted *San Diego Forward: The Regional Plan*. The plan establishes a planning framework and implementation actions that increase the region's sustainability and encourage "smart growth while preserving natural resources and limiting urban sprawl."

In December 2015, the ARB accepted SANDAG's GHG emissions quantification determination for the *San Diego Forward* plan and found that it would meet the regional reduction targets adopted by the ARB in furtherance of SB 375 (see ARB Executive Order G-15-075).

In 2018, CARB updated the SB 375 targets. For purposes of SANDAG, the updated targets include a 15 percent reduction in emissions per capita by 2020 and a 19 percent reduction by 2035 (CARB, 2018). SANDAG is in the process of preparing its next SCS, which will consider whether and how the region could attain these reduction targets.

Currently SANDAG is working on the 2021 Regional Plan. The current Draft Plan provides a big picture vision for how the San Diego region will grow through 2050 and beyond with an implementation program to help make the plan a reality. Within the Draft Plan, SANDAG introduced a transformative vision for transportation in San Diego County that completely reimagines how people and goods could move throughout the region in the 21st century. The plan outlines the "5 Big Moves" which are: Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets, and the Next OS. The SANDAG Board of Directors will be asked to adopt the 2021 Regional Plan in late 2021. Once adopted, it will become the region's long-term plan to be implemented incrementally through the Regional Transportation Improvement Program (RTIP) (SANDAG, 2021).

General Plan Update. The County's General Plan Update (County of San Diego 2011) provides smart growth and land use planning principles designed to reduce vehicle miles traveled (VMT) and GHG emissions. As discussed in the General Plan Update, climate change and GHG reduction policies are addressed in plans and programs in multiple elements of the General Plan. The strategies for reduction of GHG emissions in the General Plan Update are as follows:

- Strategy A-1: Reduce vehicle trips generated, gasoline/energy consumption, and greenhouse gas emissions.
- Strategy A-2: Reduce non-renewable electrical and natural gas energy consumption and generation (energy efficiency).
- Strategy A-3: Increase generation and use of renewable energy sources.
- Strategy A-4: Reduce water consumption.
- Strategy A-5: Reduce and maximize reuse of solid wastes.
- Strategy A-6: Promote carbon dioxide consuming landscapes.
- Strategy A-7: Maximize preservation of open spaces, natural areas, and agricultural lands.

The General Plan Update also includes climate adaptation strategies to deal with potential adverse effects of climate change. The climate adaptation strategies include the following:

- Strategy B-1: Reduce risk from wildfire, flooding, and other hazards resulting from climate change.
- Strategy B-2: Conserve and improve water supply due to shortages from climate change.
- Strategy B-3: Promote agricultural lands for local food production.
- Strategy B-4: Provide education and leadership.

The County has also implemented a number of outreach programs such as the Green Building Program, lawn mower trade-in program, and reduction of solid waste by recycling to reduce air quality impacts as well as GHG emissions.

The County General Plan's Conservation and Open Space Element includes policies that are designed to reduce the emissions of criteria air quality pollutants, emissions of GHGs, and energy use in buildings and infrastructure, while promoting the use of renewable energy sources, conservation, and other methods of efficiency. The proposed Project is consistent with the following applicable General Plan Goals, as described in Appendix B of the proposed Project's Draft EIR.

- General Plan Goal COS-1, Inter-Connected Preserve System
- General Plan Goal COS-2, Sustainability of the Natural Environment
- General Plan Goal COS-14, Sustainable Land Development
- General Plan Goal COS-15, Sustainable Architecture and Buildings
- General Plan Goal COS-16, Sustainable Mobility
- General Plan Goal COS-17, Sustainable Solid Waste Management
- General Plan Goal COS-18, Sustainable Energy
- General Plan Goal COS-19, Sustainable Water Supply

Climate Action Plan. In February 2018, the County's Board of Supervisors adopted a Climate Action Plan (CAP) that serves as a guide to reduce GHG emissions in the unincorporated communities of San Diego County. The adopted CAP includes six chapters: (1) Introduction; (2) Greenhouse Gas Emissions Inventory, Projections, and Reduction Targets; (3) Greenhouse Gas

Reduction Strategies and Measures; (4) Climate Change Vulnerability, Resiliency, and Adaptation; (5) Implementation and Monitoring; and, (6) Public Outreach and Engagement. The CAP sets the following County-specific GHG reduction targets: by 2020, a 2 percent reduction from 2014 levels; by 2030, a 40 percent reduction from 2014 levels; and, by 2050, a 77 percent reduction from 2014 levels. The CAP is designed to achieve those targets through the implementation of multiple strategies and measures applicable to five general categories of GHG emission sources: (1) Built Environment and Transportation; (2) Energy; (3) Solid Waste; (4) Water and Wastewater; and, (5) Agriculture and Conservation.

The CAP was previously used to analyze impacts, but is no longer applicable because of the decision by the Court of Appeal, Fourth Appellate District, setting aside the CAP invalidation (see Sierra Club v. County of San Diego (Case No. D064243)).

In 06/07/2021, the San Diego Superior Court ruled that the San Diego County's CAP fails to comply with its own and the state's goals of cutting back on carbon emissions. The judge rejected the county's proposal to use carbon credits from out of the county or out of the country, saying that offsetting greenhouse gas emissions in other parts of the world does nothing to help us here at home. In June 2020, the state court of appeals upheld the ruling that the CAP is not consistent with the County's General Plan.

The County's most relevant plans for reducing GHG emissions are currently the SANDAG RTP/SCS and the County's General Plan.

2.0 POTENTIAL CLIMATE CHANGE IMPACTS TO PROJECT SITE

2.1 Existing Conditions

The Project site is currently undeveloped and includes disturbed areas. Natural vegetation and soils temporarily store carbon as part of the terrestrial carbon cycle. Carbon is assimilated into plants as they grow and then dispersed back into the environment when they die. Therefore, there are two existing sources of carbon storage at the Project site: natural vegetation and soils.

It is difficult to assess net changes in carbon storage associated with the proposed Project, but carbon sequestration rates for native vegetation in the Spring Valley region are relatively low in comparison to heavily vegetated areas such as forests. For example, according to the EPA (http://www.epa.gov/sequestration/rates.html), riparian areas are estimated to sequester from 0.1 to 0.3 metric tons of CO_2e per acre per year in comparison to forests, which are estimated to sequester 0.6 to 2.6 metric tons of CO_2e per acre per year. Native vegetation in the Spring Valley region, which consists mainly of scrub, would be expected to provide a low level of carbon sequestration. The site is currently disturbed with a minimum of scrub on site.

Of relevance also are changes in fire regime. Specifically, carbon in natural vegetation areas is likely to be released into the atmosphere through wildfire every 20 to 150 years, whereas carbon in landscaped areas likely will be protected from wildfire. The balance between these factors will influence the long-term carbon budget on the site.

The majority of carbon within the Project site is stored in the soil. Soil carbon accumulates from inputs of plant and animal matter, roots, and other living components of the soil ecosystem (e.g., bacteria, worms, etc.). Soil carbon is lost through biological respiration, erosion, and other forms of disturbance. Overall, soil carbon moves more slowly through the carbon cycle, and it offers greater potential for long-term carbon storage. Field observations suggest that urban soils can sequester relatively large amounts of carbon. And, observations from across the United States suggest that warmer and drier climates (such as southern California) may have slightly higher soil organic matter levels when compared to equivalent areas before development.

Based on the site's current conditions and the absence of development, existing GHG emissions are negligible and assumed to be zero. There is existing vegetation that would sequester carbon, which is included in the analysis.

2.2 Typical Adverse Effects

California-specific studies identifying potential impacts resulting from anticipated global warming have identified the following areas of concern:

Public Health. Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase; and, an increase in wildfires could also occur, with corresponding increases in the release of pollutants, including particulate matter, further compromising air quality.

Potential health effects from GCC may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases (such as malaria, dengue fever, yellow fever, and encephalitis) may increase, such as those spread by mosquitoes and other disease-carrying insects.

Potential public health impacts from climate change would be global in nature rather than site-specific. That being said, because the Project site is not located in an area that is subject to climate sensitive diseases (such as the tropics), it is unlikely that risks associated with these diseases would increase substantially. It is too speculative to estimate the potential frequency of heat waves at the Project site that would be associated with GCC (OEHHA 2013)

Water Resources. A vast network of reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system utilizes Sierra Nevada mountain snowpack and the Colorado River to supply water during the dry spring and summer months; other sources also provide a substantial amount of the County's water supply. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise more precipitation would fall as rainnstead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90% (OEHHA 2013)

According to Cal-Adapt.org (Cal-Adapt 2020), extended periods of drought are anticipated for the San Diego region as temperatures rise from 2023 through 2050 as the average maximum temperature rises an estimated 5.0 degrees Fahrenheit and the average mimum temperature rises 3.6 degrees Fahrenheit during that period. The model predicts that rainfall is projected to decrease by approximately 3.1 inches per year under this scenario.

The State's water resources are also at risk from rising sea levels. An influx of seawater would degrade California's estuaries, wetlands, and groundwater aquifers. Based on information from the Cal-Adapt.org website, the maximum inundation depth for the San Diego shoreline during a 100-year storm would increase from current levels with increases in sea level rise. Inindation depths could be as high as 3.5-4.0 meters with a sea level rise of 1.41 meters.

Impacts to water resources could affect the Project site through decreased availability of water in southern California overall. Decreased availability could lead to higher prices and water rationing. However, due to the scientific and factual uncertainties regarding the effects of climate change at a regional level, it is too speculative to quantify the effect of this impact. Nonetheless, reference should be made to the EIR's water supply analysis for further information.

Agriculture. Increased GHG and associated increases in temperature are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. Significant reductions in available water supply to support agriculture would

also impact production. Crop growth and development will change as will the intensity and frequency of pests and diseases (CDFA 2020).

This potential effect of climate change would not directly impact the proposed Project because the Project does not involve agricultural uses.

Ecosystems/Habitats. Continued global warming will likely shift the ranges of existing invasive plants and weeds, thus alternating competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Continued global warming is also likely to increase the populations of and types of pests. Continued global warming would also affect natural ecosystems and biological habitats throughout the State (OEHHA 2013).

Due to the scientific and factual uncertainties regarding the effects of climate change on a site-specific level, particularly as to sensitive biological resources, it is too speculative to assess the effect of this impact on the Project site. Nonetheless, reference should be made to the EIR's analysis of biological resources for further information.

Wildland Fires. Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. 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. Cal-Adapt has estimated increases in hectares burned for the state as a whole and for the San Diego region. Increases are especially projected for inland areas within the County (OEHHA 2013).

The Project site generally has a low potential for fire risks due to the type of on-site native vegetation. If fire risks do increase due to GCC, the Project has developed a fire protection plan that will protect the site and minimize hazards arising from wildland fires.

Sea Level Rising and Coastal Flooding. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasing threaten the State’s coastal regions (OEHHA 2013).

Because the Project site is not located in a coastal area, it is unlikely to be affected by rising sea levels.

2.3 California Climate Adaptation Strategy

As part of its climate change planning process, the California Natural Resources Agency prepared its California Climate Adaptation Strategy (CNRA 2009) to summarize the best known science on climate change impacts in California, with the goal of assessing vulnerability to climate change impacts. According to the ARB, some of the potential California-specific impacts of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years.

To protect the State's public health and safety, resources, and economy, the California Natural Resources Agency—in coordination with other state agencies—has updated the *2009 California Climate Adaptation Strategy* with a document that is titled, *Safeguarding California: Reducing Climate Risk*. The final *Safeguarding California Plan: 2018 Update* (January 2018) provides policy guidance for state decision makers relative to climate risks in nine sectors: agriculture; biodiversity and habitat; emergency management; energy; forestry; ocean and coastal ecosystems and resources; public health; transportation; and water. It also identifies policies for reducing GHG emissions and accelerating the transition to a clean-energy economy through reductions in emissions, readiness, and continued research.

3.0 CLIMATE CHANGE SIGNIFICANCE CRITERIA

According to Appendix G of the CEQA Guidelines, the following criteria are considered to establish a significance threshold for GCC impacts:

Would the project:

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

Rationale for Selection of Guidelines. As background, SB 97, enacted in 2007, expressly recognized the need to analyze GHG emissions as a part of the CEQA process. SB 97 required the Governor's Office of Planning and Research (OPR) to develop, and CNRA to adopt, amendments to the CEQA Guidelines to address the analysis and mitigation of GHG emissions. (Pub. Resources Code, §21083.05.) In 2010, a series of CEQA Guidelines amendments were adopted to fulfill SB 97 requirements, including revisions to Appendix G of the CEQA Guidelines. The Appendix G revisions included two questions related to GHG emissions, which were intended to satisfy the Legislative directive in Public Resources Code Section 21083.05 that the effects of GHG emissions be analyzed under CEQA. (The continued utilization of Appendix G, as set forth above, accords to the analytical framework set forth in the Project's Draft EIR (March 2015).

Section 15064.4 of the CEQA Guidelines was added as one of the amendments addressing GHG emissions. Section 15064.4 states that the "determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." Section 15064.4(b)(1)-(3) further states that, "a lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment: (1) the extent to which a project may increase or

reduce greenhouse gas emissions as compared to the existing environmental setting; (2) whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and, (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." (For purposes of the analysis presented in this report, focus is placed on criterion (1) above, with consideration given to whether the proposed Project would increase or reduce existing GHG emissions levels.

Recognizing that GHG emissions contribute to the cumulative impact condition of global climate change, Section 15064(h)(1) of the CEQA Guidelines is also applicable. Section 15064(h)(1) states that "the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable." A cumulative impact may be significant when the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of other past, current, and reasonably foreseeable probable future projects. However, as provided in CEQA Guidelines Section 15130(a)(3), "[a] project's contribution is less than cumulatively considerable if the project is required to implement…its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." Further, "[t]he mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable" (CEQA Guidelines Section 15064 (h)(4)).

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

Neither the State of California nor the SDAPCD has adopted emission-based thresholds for GHG emissions from the land use development sector under CEQA. Therefore, the significance criteria

for global climate change used in this analysis are based on Appendix G of the CEQA Guidelines. The first criterion requires evaluation of whether the Project's GHG emissions would significantly impact the environment either directly or indirectly, while the second criterion requires evaluation of the Project's potential to conflict with any applicable plans, policies or regulations adopted to reduce GHG emissions.

Since the County currently does not have GHG significance thresholds, it's suggested to use the qualitative approach the Bay Area Air Quality Management District (BAAQMD) adopted for their CEQA Thresholds of Significance for Climate Impacts guidelines (BAAQMD, 2022). This approach is recommended as it is considered a "fair share" approach to achieve long-term climate goals and is consistent with California Supreme Court outcome opinions garnered from Center for Biological Diversity v. Department of Fish & Wildlife (2015) (62 Cal.4th 204).

Under these thresholds additional design elements have been incorporated into this Project which are as follows:

For all Buildings,

- The project will not include natural gas appliances or natural gas plumbing within the non-residential development.
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. PDFs identified in ES-1 are indicative of the Projects goals to ensure this measure is met.

For Vehicle Trips,

- Meet the requirements of the Senate Bill 743 (SB-743) VMT targets by achieving a 15 percent below the existing VMT per employee rate.
- Achieve compliance with off-street electric vehicle (EV) requirements in the most recently adopted version of CALGreen Tier 2.

The significance of impacts has been evaluated relative to whether the project is consistent with the applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Accordingly, the project's consistency with the County's General Plan, consistency with applied

BAAQMD GHG significance thresholds, SANDAG's RTP/SCS, and the ARB's Scoping Plan provides a means of assessing the potential for significant impacts.

4.0 GREENHOUSE GAS INVENTORY

GHG emissions associated with the proposed Project were estimated separately for seven categories of emissions: (1) construction; (2) carbon sequestration; (3) area sources, including fireplace use and landscaping; (4) energy use, including electricity and natural gas usage; (5) water consumption; (6) solid waste handling; and (7) transportation.

The complete emissions inventory is summarized below and included in Appendices B through D.

4.1 Existing Greenhouse Gas Emissions

As discussed in Section 2.1, the site is currently in a disturbed state with minor amounts of scrub vegetation. This analysis assumes that the existing emission levels are zero. The analysis takes into account the loss in carbon sequestration from development of the existing site. For the purpose of this analysis, it was assumed that the existing site is vegetated with scrub, which has a minor amount of carbon sequestration potential.

4.2 Construction Greenhouse Gas Emissions

Construction GHG emissions include emissions from heavy construction equipment, truck traffic, and worker trips. Emissions from the construction phase of the project were estimated using the CalEEMod Model, Version 2016.3.2 (SCAQMD 2016)[13] and is based on the anticipated construction schedule to full buildout.

[13] Since the analysis was completed, an updated version of CalEEMod has been released. The updated version of the model Version 2022.1 is the latest update to CalEEMod and brings a new web-based platform, with many new features and components, such as a geospatial interface, location-specific vehicle miles traveled analysis, climate risks analysis, and health and equity. These significant updates enable CalEEMod to deliver enhanced analysis of GHG and criteria pollutant emissions and support local governments to better address climate change, public health, and equity. The latest version of CalEEMod includes construction equipment emission factors from OFFROAD 2017-ORION Version 1.0.1, which takes into account phaseout of older equipment and additional control measures. Mobile source emissions were calculated using EMFAC2021, which also includes phaseout of older vehicles and updated emission control measures. Because the San Diego region did not provide specific information on VMT to be included in CalEEMod, default trip lengths are included in the update. The 2016 version of CalEEMod provides a more conservative estimate of emissions for the project because it does not include the additional control measures included in the updated version.

4.3 Operational Greenhouse Gas Emissions

Operational GHG emissions were calculated using CalEEMod, with adjustments to account for site-specific conditions.

Area Source Emissions. CalEEMod calculates emissions associated with area sources, including landscaping equipment and maintenance activities. No adjustments were made to the default assumptions within CalEEMod.

Energy Use Emissions. Energy use generates GHGs through emissions from power plants that generate electricity, as well as emissions from natural gas usage.

CalEEMod includes energy intensity factors for utilities that are based on emission factors for electricity presented in Power Utility Protocol reports. However, implementation of the RPS will influence GHG emissions associated with the Project's electricity use. Therefore, the emission factors for utility energy use have been adjusted to account for implementation of the 33% RPS by 2020, which as discussed in Section 1.4.2, is the statewide goal for 2020 as set forth in Executive Order S-14-08.

At a minimum, the Project would meet the energy efficiency requirements of Title 24. CalEEMod assumes buildings would meet Title 24 as of 2022 energy efficiency standards. The buildings would be constructed post-2019 and would therefore be required to meet the requirements of Title 24 as of 2019. For conservative purposes, it was assumed that buildings would meet the energy efficiency requirements of Title 24 as of 2016.

Water. Water use and energy use are often closely linked. The provision of potable water to commercial users consumes large amounts of energy associated with five stages: source and conveyance, treatment, distribution, end use, and wastewater treatment. The Project will include low-flow fixtures in faucets, toilets, and showers. GHG emissions from water use were calculated based on CalEEMod, assuming that low-flow fixtures would be used, and that water-efficient irrigation systems would be employed that would reduce outdoor water use by 6.1%, based on the

default reduction in CalEEMod. This is a conservative assumption as it is based on statewide defaults.

Solid Waste. The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. Solid waste generation rates were estimated from CalEEMod, and GHG emissions from solid waste management were estimated using the model, assuming landfilling of solid waste with flaring.

AB 341 sets forth a legislative declaration that it is the policy goal of the state that not less than 75% of solid waste generated be source reduced, recycled, or composted by the year 2020. In April 2017, the County of San Diego Board of Supervisors adopted a goal of reaching 75% diversion by 2025 for the unincorporated areas of the County. According to the County of San Diego Strategic Plan to Reduce Waste (County of San Diego 2017), the County achieved a diversion rate of 62% in 2015 and is working on developing a high diversion plan to meet the 75% goal. However, for conservative purposes, it was assumed that solid waste diversion rates of 20% would be achieved, which was recommended for past projects by the County Department of Planning and Development Services as a conservative estimate of solid waste diversion.

Transportation. Several regulatory initiatives have been passed to reduce emissions from on-road vehicles, as discussed in Table 6 and Section 1.3. These measures include the Pavley I standards, the LCFS, and the Advanced Clean Cars program. There are no approved adjustment factors for GHG emission calculations within CalEEMod; therefore, no adjustments to calculations were made from the CalEEMod results. No adjustments were made within the CalEEMod default assumptions to account for adopton of the SAFE rule. However, the adjustment factors for CO_2 for the SAFE rule for EMFAC2014 in 2022 are approximately 1% (1.0110) and would not substantially affect the results of the analysis (ARB 2019).

CalEEMod uses emission factors from EMFAC2014 for the San Diego Air Basin. The EMFAC2014 model provides estimates of CO_2 emissions with implementation of the Pavley I, and Advanced Clean Cars programs. The LCFS is not included in EMFAC2014 because its GHG reductions are considered to occur upstream.

Carbon Sequestration. Based on the site landscaping plan, the project will plant approximately 39 new trees. For the purpose of this analysis, the trees were considered to be mixed hardwoods.

Construction Emissions and Sequestration. Table 3 presents the calculation of construction emissions and sequestration loss and gain. As recommended by the SCAQMD (SCAQMD 2008), the one-time contribution from construction and sequestration were amortized and added to project operational emissions. The SCAQMD recommends using an amortization period of 30 years to account for the contribution of construction and sequestration over the project's lifetime.

In summary, the following GHG-reducing features were assumed in CalEEMod:

- Rule 67.0.1 coatings applied (50 g/l interior [flat] and 100 g/l exterior [non-flat]) (no change in GHG calculation)
- Water exposed areas 3 times daily during construction (no change in GHG calculation)
- Reduce vehicle speeds to 15 mph on unpaved surfaces (no change in GHG calculations)
- Trip generation rate 10 trips per 1,000 square feet (based on SANDAG data and traffic analysis)
- Default energy use (Title 24 as of 2016) This is the default within the CalEEMod model. Because the project would be constructed after January 1, 2023, it would be subject to the requirements of Title 24 as of 2022, which require additional energy efficiency measures. Thus the analysis is conservative.
- 33% Renewable Portfolio Standard implemented
- Low flow faucets, toilets, and showers installed
- Water-efficient irrigation systems would reduce outdoor water use by 6.1% (CalEEMod default)
- Institute recycling and composting services to reduce solid waste generation and handling by 20% (County-recommended values)
- 39 new trees to be planted on site

Table 3 presents a summary of the GHG emissions for the proposed Project.

Table 3 SUMMARY OF PROPOSED PROJECT'S ESTIMATED GREENHOUSE GAS EMISSIONS – 2022 (WITH PDFS AND REGULATORY COMPLIANCE MEASURES)				
Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Construction Emissions				
Construction Activities	242	0.0494	0.0000	243
Sequestration Loss	15	0.0000	0.0000	15
Sequestration Gain	(27)	(0.0000)	(0.0000)	(27)
Construction Sub-Total	**230**	**0.0494**	**0.0000**	**231**
Global Warming Potential Factor	1	25	298	
Construction Total	**230**	**1**	**0**	**231**
Amortized Construction Emissions	**8**			
Operational Emissions				
Area Sources	0.0002	0.0000	0.0000	0
Energy Use	54	0.0019	0.0005	54
Water Consumption	10	0.0560	0.0014	12
Solid Waste Handling	2	0.1071	0.0000	5
Vehicles	87	0.0046	0.0000	87
Operational Sub-Total	**153**	**0.1749**	**0.0019**	**158**
Global Warming Potential Factor	1	25	298	
Operational Total	**153**	**4**	**1**	**158**
Total with Amortized Construction Emissions	**166**			

As shown in Table 3, the GHG emissions associated with the proposed Project would be 231 metric tons of CO_2e during construction, and 158 metric tons of CO_2e during operations. Adding in the amortized construction emissions as recommended by the SCAQMD (SCAQMD 2008), the total GHG emissions associated with the proposed Project would be 166 metric tons of CO_2e.

The project will include the following GHG reduction measures:

- The project will designate 10% of its parking spaces for carpool/vanpool-only and electric vehicle-only designated parking spaces. This will result in a total of 5 parking spaces for shared and reduced parking.
- The project will submit a Landscape Document Package that is compliant with the County's Water Conservation in Landscaping Ordinance.

In addition, the Project would include design features to meet the requirements of the BAAQMD qualitative GHG significance thresholds and shall also include the following:

For all Buildings,

- The project will not include natural gas appliances or natural gas plumbing within the non-residential development.
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. PDFs identified in ES-1 are indicative of the Projects goals to ensure this measure is met.

For Vehicle Trips,

- Meet the requirements of the Senate Bill 743 (SB-743) VMT targets by achieving a 15 percent below the existing VMT per employee rate.
- Achieve compliance with off-street electric vehicle (EV) requirements in the most recently adopted version of CALGreen Tier 2.

5.0 SUMMARY OF PROJECT DESIGN FEATURES AND IMPACTS

5.1 Project Greenhouse Gas Emissions

As discussed in Section 4, the proposed Project would result in GHG emissions of 166 metric tons of CO_2e. However, since the Project would implement BAAQMD qualitative significance

thresholds and include design features as required, a less than significant GHG impact would be expected.

5.2 Consistency with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing GHG Emissions

The site's General Plan designation is Office Professional, and the zoning for the site is C30 Commercial. The Project is proposing an office building which is consistent with the General Plan designation and zoning for the site. Because the project is consistent with the General Plan, it will not conflict with this plan or increase GHG emissions beyond what would have been assumed within GHG inventories estimated by the General Plan. The Project includes qualitative design features to reduce GHG impacts to less than significant.

The project would not conflict with the SANDAG Regional Transportation Plan and Sustainable Communities Strategy. The project is proposing an infill office building. According to the traffic analysis, the project's average VMT per employee is at least 15% below the County's Unincorporated Average VMT per employee and would result in less than significant impacts on VMT (LOS Engineering 2021). Therefore, the project would not conflict with the RTP/SCS goals of reducing GHG emissions.

The proposed Project, therefore, would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

6.0 CONCLUSIONS

The proposed Jamacha Boulevard Office Building Project would not result in significant emissions of GHGs from construction and operations.

The proposed Project, therefore, would not result in any significant GHG impacts, and cumulative impacts would be less than significant.

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Jamacha Office Building

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	12.00	1000sqft	1.08	12,000.00	0
Other Asphalt Surfaces	0.54	Acre	0.54	23,522.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	556.22	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 33% RPS

Land Use - Project description

Construction Phase - Project description

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Plus water truck

Off-road Equipment -

Grading - Site grading

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - SANDAG

Area Coating - Rule 67.0.1 coatings

Energy Use -

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - Tier 3 equipment

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	10.00	23.00
tblConstructionPhase	NumDays	200.00	154.00
tblConstructionPhase	NumDays	4.00	21.00
tblConstructionPhase	NumDays	10.00	86.00

tblGrading	AcresOfGrading	7.88	1.08
tblLandUse	LotAcreage	0.28	1.08
tblOffRoadEquipment	HorsePower	402.00	250.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	720.49	556.22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblSequestration	NumberOfNewTrees	0.00	39.00
tblVehicleTrips	WD_TR	11.03	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2445	1.6399	1.5423	2.8100e-003	0.0653	0.0800	0.1453	0.0308	0.0761	0.1069	0.0000	238.3477	238.3477	0.0491	0.0000	239.5748
Maximum	**0.2445**	**1.6399**	**1.5423**	**2.8100e-003**	**0.0653**	**0.0800**	**0.1453**	**0.0308**	**0.0761**	**0.1069**	**0.0000**	**238.3477**	**238.3477**	**0.0491**	**0.0000**	**239.5748**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1207	1.3962	1.6702	2.8100e-003	0.0360	0.0790	0.1151	0.0149	0.0790	0.0939	0.0000	238.3475	238.3475	0.0491	0.0000	239.5745
Maximum	**0.1207**	**1.3962**	**1.6702**	**2.8100e-003**	**0.0360**	**0.0790**	**0.1151**	**0.0149**	**0.0790**	**0.0939**	**0.0000**	**238.3475**	**238.3475**	**0.0491**	**0.0000**	**239.5745**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**50.62**	**14.86**	**-8.30**	**0.00**	**44.83**	**1.18**	**20.80**	**51.75**	**-3.84**	**12.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.3989	0.2750
2	4-1-2021	6-30-2021	0.5395	0.4461
3	7-1-2021	9-30-2021	0.5309	0.4412
		Highest	0.5395	0.4461

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0527	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Energy	1.3100e-003	0.0119	9.9800e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	53.6195	53.6195	1.8600e-003	5.3000e-004	53.8237
Mobile	0.0243	0.1059	0.2761	9.4000e-004	0.0826	8.0000e-004	0.0834	0.0221	7.4000e-004	0.0229	0.0000	87.0090	87.0090	4.6400e-003	0.0000	87.1249
Waste						0.0000	0.0000		0.0000	0.0000	2.2654	0.0000	2.2654	0.1339	0.0000	5.6124
Water						0.0000	0.0000		0.0000	0.0000	0.6766	10.6707	11.3474	0.0699	1.7200e-003	13.6072
Total	**0.0783**	**0.1178**	**0.2862**	**1.0100e-003**	**0.0826**	**1.7000e-003**	**0.0843**	**0.0221**	**1.6400e-003**	**0.0238**	**2.9420**	**151.2994**	**154.2414**	**0.2103**	**2.2500e-003**	**160.1684**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0527	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Energy	1.3100e-003	0.0119	9.9800e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	53.6195	53.6195	1.8600e-003	5.3000e-004	53.8237
Mobile	0.0243	0.1059	0.2761	9.4000e-004	0.0826	8.0000e-004	0.0834	0.0221	7.4000e-004	0.0229	0.0000	87.0090	87.0090	4.6400e-003	0.0000	87.1249
Waste						0.0000	0.0000		0.0000	0.0000	1.8123	0.0000	1.8123	0.1071	0.0000	4.4899
Water						0.0000	0.0000		0.0000	0.0000	0.5413	9.0459	9.5872	0.0560	1.3800e-003	11.3967
Total	**0.0783**	**0.1178**	**0.2862**	**1.0100e-003**	**0.0826**	**1.7000e-003**	**0.0843**	**0.0221**	**1.6400e-003**	**0.0238**	**2.3536**	**149.6746**	**152.0282**	**0.1696**	**1.9100e-003**	**156.8354**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**20.00**	**1.07**	**1.43**	**19.37**	**15.11**	**2.08**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	27.6120
Vegetation Land Change	-15.4440
Total	**12.1680**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2021	1/31/2021	5	21	
2	Paving	Paving	2/1/2021	5/31/2021	5	86	
3	Building Construction	Building Construction	5/1/2021	12/2/2021	5	154	
4	Architectural Coating	Architectural Coating	12/1/2021	12/31/2021	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1.08

Acres of Paving: 0.54

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 1,411 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	6.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	250	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	14.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0480	0.0000	0.0480	0.0261	0.0000	0.0261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0179	0.1876	0.0902	2.3000e-004		8.1400e-003	8.1400e-003		7.4900e-003	7.4900e-003	0.0000	20.5071	20.5071	6.6300e-003	0.0000	20.6729
Total	**0.0179**	**0.1876**	**0.0902**	**2.3000e-004**	**0.0480**	**8.1400e-003**	**0.0561**	**0.0261**	**7.4900e-003**	**0.0336**	**0.0000**	**20.5071**	**20.5071**	**6.6300e-003**	**0.0000**	**20.6729**

3.2 Grading - 2021

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	3.6000e-004	2.6000e-004	2.6200e-003	1.0000e-005	8.4000e-004	1.0000e-005	8.5000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.7356	0.7356	2.0000e-005	0.0000	0.7361
Total	**3.6000e-004**	**2.6000e-004**	**2.6200e-003**	**1.0000e-005**	**8.4000e-004**	**1.0000e-005**	**8.5000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7356**	**0.7356**	**2.0000e-005**	**0.0000**	**0.7361**

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					0.0187	0.0000	0.0187	0.0102	0.0000	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7300e-003	0.1133	0.1306	2.3000e-004		4.8100e-003	4.8100e-003		4.8100e-003	4.8100e-003	0.0000	20.5071	20.5071	6.6300e-003	0.0000	20.6729
Total	**5.7300e-003**	**0.1133**	**0.1306**	**2.3000e-004**	**0.0187**	**4.8100e-003**	**0.0235**	**0.0102**	**4.8100e-003**	**0.0150**	**0.0000**	**20.5071**	**20.5071**	**6.6300e-003**	**0.0000**	**20.6729**

3.2 Grading - 2021

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	3.6000e-004	2.6000e-004	2.6200e-003	1.0000e-005	8.4000e-004	1.0000e-005	8.5000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.7356	0.7356	2.0000e-005	0.0000	0.7361
Total	**3.6000e-004**	**2.6000e-004**	**2.6200e-003**	**1.0000e-005**	**8.4000e-004**	**1.0000e-005**	**8.5000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7356**	**0.7356**	**2.0000e-005**	**0.0000**	**0.7361**

3.3 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0333	0.3329	0.3809	5.8000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	50.5894	50.5894	0.0160	0.0000	50.9903
Paving	7.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0340**	**0.3329**	**0.3809**	**5.8000e-004**		**0.0179**	**0.0179**		**0.0165**	**0.0165**	**0.0000**	**50.5894**	**50.5894**	**0.0160**	**0.0000**	**50.9903**

3.3 Paving - 2021

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	1.9400e-003	1.3900e-003	0.0140	4.0000e-005	4.4800e-003	3.0000e-005	4.5100e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	3.9159	3.9159	1.1000e-004	0.0000	3.9187
Total	**1.9400e-003**	**1.3900e-003**	**0.0140**	**4.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5100e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**3.9159**	**3.9159**	**1.1000e-004**	**0.0000**	**3.9187**

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	0.0137	0.2855	0.4236	5.8000e-004		0.0166	0.0166		0.0166	0.0166	0.0000	50.5893	50.5893	0.0160	0.0000	50.9903
Paving	7.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.2855**	**0.4236**	**5.8000e-004**		**0.0166**	**0.0166**		**0.0166**	**0.0166**	**0.0000**	**50.5893**	**50.5893**	**0.0160**	**0.0000**	**50.9903**

3.3 Paving - 2021

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	1.9400e-003	1.3900e-003	0.0140	4.0000e-005	4.4800e-003	3.0000e-005	4.5100e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	3.9159	3.9159	1.1000e-004	0.0000	3.9187
Total	**1.9400e-003**	**1.3900e-003**	**0.0140**	**4.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5100e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**3.9159**	**3.9159**	**1.1000e-004**	**0.0000**	**3.9187**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1396	1.0500	0.9933	1.7000e-003		0.0527	0.0527		0.0509	0.0509	0.0000	139.7917	139.7917	0.0250	0.0000	140.4156
Total	**0.1396**	**1.0500**	**0.9933**	**1.7000e-003**		**0.0527**	**0.0527**		**0.0509**	**0.0509**	**0.0000**	**139.7917**	**139.7917**	**0.0250**	**0.0000**	**140.4156**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4300e-003	0.0475	0.0127	1.2000e-004	3.0700e-003	1.0000e-004	3.1700e-003	8.9000e-004	1.0000e-004	9.8000e-004	0.0000	12.0785	12.0785	9.0000e-004	0.0000	12.1009
Worker	3.7500e-003	2.6700e-003	0.0269	8.0000e-005	8.6400e-003	6.0000e-005	8.7100e-003	2.3000e-003	6.0000e-005	2.3500e-003	0.0000	7.5516	7.5516	2.2000e-004	0.0000	7.5570
Total	**5.1800e-003**	**0.0502**	**0.0396**	**2.0000e-004**	**0.0117**	**1.6000e-004**	**0.0119**	**3.1900e-003**	**1.6000e-004**	**3.3300e-003**	**0.0000**	**19.6302**	**19.6302**	**1.1200e-003**	**0.0000**	**19.6580**

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	0.0493	0.9299	1.0379	1.7000e-003		0.0563	0.0563		0.0563	0.0563	0.0000	139.7915	139.7915	0.0250	0.0000	140.4154
Total	**0.0493**	**0.9299**	**1.0379**	**1.7000e-003**		**0.0563**	**0.0563**		**0.0563**	**0.0563**	**0.0000**	**139.7915**	**139.7915**	**0.0250**	**0.0000**	**140.4154**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4300e-003	0.0475	0.0127	1.2000e-004	3.0700e-003	1.0000e-004	3.1700e-003	8.9000e-004	1.0000e-004	9.8000e-004	0.0000	12.0785	12.0785	9.0000e-004	0.0000	12.1009
Worker	3.7500e-003	2.6700e-003	0.0269	8.0000e-005	8.6400e-003	6.0000e-005	8.7100e-003	2.3000e-003	6.0000e-005	2.3500e-003	0.0000	7.5516	7.5516	2.2000e-004	0.0000	7.5570
Total	**5.1800e-003**	**0.0502**	**0.0396**	**2.0000e-004**	**0.0117**	**1.6000e-004**	**0.0119**	**3.1900e-003**	**1.6000e-004**	**3.3300e-003**	**0.0000**	**19.6302**	**19.6302**	**1.1200e-003**	**0.0000**	**19.6580**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0429					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5200e-003	0.0176	0.0209	3.0000e-005		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	2.9362	2.9362	2.0000e-004	0.0000	2.9413
Total	**0.0455**	**0.0176**	**0.0209**	**3.0000e-005**		**1.0800e-003**	**1.0800e-003**		**1.0800e-003**	**1.0800e-003**	**0.0000**	**2.9362**	**2.9362**	**2.0000e-004**	**0.0000**	**2.9413**

3.5 Architectural Coating - 2021

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	1.2000e-004	9.0000e-005	8.6000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2417	0.2417	1.0000e-005	0.0000	0.2419
Total	**1.2000e-004**	**9.0000e-005**	**8.6000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2417**	**0.2417**	**1.0000e-005**	**0.0000**	**0.2419**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0429					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-004	0.0156	0.0211	3.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	2.9362	2.9362	2.0000e-004	0.0000	2.9413
Total	**0.0436**	**0.0156**	**0.0211**	**3.0000e-005**		**1.0900e-003**	**1.0900e-003**		**1.0900e-003**	**1.0900e-003**	**0.0000**	**2.9362**	**2.9362**	**2.0000e-004**	**0.0000**	**2.9413**

3.5 Architectural Coating - 2021

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	1.2000e-004	9.0000e-005	8.6000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2417	0.2417	1.0000e-005	0.0000	0.2419
Total	**1.2000e-004**	**9.0000e-005**	**8.6000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2417**	**0.2417**	**1.0000e-005**	**0.0000**	**0.2419**

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	0.0243	0.1059	0.2761	9.4000e-004	0.0826	8.0000e-004	0.0834	0.0221	7.4000e-004	0.0229	0.0000	87.0090	87.0090	4.6400e-003	0.0000	87.1249
Unmitigated	0.0243	0.1059	0.2761	9.4000e-004	0.0826	8.0000e-004	0.0834	0.0221	7.4000e-004	0.0229	0.0000	87.0090	87.0090	4.6400e-003	0.0000	87.1249

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	120.00	29.52	12.60	219,215	219,215
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	120.00	29.52	12.60	219,215	219,215

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Other Asphalt Surfaces	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.6905	40.6905	1.6100e-003	2.9000e-004	40.8179
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	40.6905	40.6905	1.6100e-003	2.9000e-004	40.8179
NaturalGas Mitigated	1.3100e-003	0.0119	9.9800e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.9290	12.9290	2.5000e-004	2.4000e-004	13.0058
NaturalGas Unmitigated	1.3100e-003	0.0119	9.9800e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.9290	12.9290	2.5000e-004	2.4000e-004	13.0058

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					
General Office Building	242280	1.3100e-003	0.0119	9.9800e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.9290	12.9290	2.5000e-004	2.4000e-004	13.0058
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.3100e-003**	**0.0119**	**9.9800e-003**	**7.0000e-005**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**12.9290**	**12.9290**	**2.5000e-004**	**2.4000e-004**	**13.0058**

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					
General Office Building	242280	1.3100e-003	0.0119	9.9800e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.9290	12.9290	2.5000e-004	2.4000e-004	13.0058
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.3100e-003**	**0.0119**	**9.9800e-003**	**7.0000e-005**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**12.9290**	**12.9290**	**2.5000e-004**	**2.4000e-004**	**13.0058**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	161280	40.6905	1.6100e-003	2.9000e-004	40.8179
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**40.6905**	**1.6100e-003**	**2.9000e-004**	**40.8179**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	161280	40.6905	1.6100e-003	2.9000e-004	40.8179
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**40.6905**	**1.6100e-003**	**2.9000e-004**	**40.8179**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0527	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Unmitigated	0.0527	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004

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	4.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0484					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0527**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

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	4.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0484					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0527**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.5872	0.0560	1.3800e-003	11.3967
Unmitigated	11.3474	0.0699	1.7200e-003	13.6072

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	2.1328 / 1.3072	11.3474	0.0699	1.7200e-003	13.6072
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**11.3474**	**0.0699**	**1.7200e-003**	**13.6072**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	1.70624 / 1.22746	9.5872	0.0560	1.3800e-003	11.3967
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**9.5872**	**0.0560**	**1.3800e-003**	**11.3967**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.8123	0.1071	0.0000	4.4899
Unmitigated	2.2654	0.1339	0.0000	5.6124

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	11.16	2.2654	0.1339	0.0000	5.6124
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**2.2654**	**0.1339**	**0.0000**	**5.6124**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	8.928	1.8123	0.1071	0.0000	4.4899
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.8123**	**0.1071**	**0.0000**	**4.4899**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	12.1680	0.0000	0.0000	12.1680

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Scrub	1.08 / 0	-15.4440	0.0000	0.0000	-15.4440
Total		**-15.4440**	**0.0000**	**0.0000**	**-15.4440**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	39	27.6120	0.0000	0.0000	27.6120
Total		**27.6120**	**0.0000**	**0.0000**	**27.6120**