GREENHOUSE GAS ANALYSIS

516 La Costa Boutique Hotel
516 La Costa Avenue
Encinitas, California 92024

Prepared For

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Greenhouse Gas Analysis

for the

516 La Costa Boutique Hotel Project

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List of Acronyms

APCD	Air Pollution Control District
AB 32	Assembly Bill 32, Global Warming Solutions Act of 2006
ARB	Air Resources Board
CAPCOA	California Air Pollution Control Officers Association
CAT	Climate Action Team
CCAR	California Climate Action Registry
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EPIC	University of San Diego School of Law Energy Policy Initiative Center
GCC	Global Climate Change
GHG	Greenhouse Gas
GGRP	Greenhouse Gas Reduction Plan
GP	General Plan
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
LEED	Leadership in Energy and Environmental Design
MMT	Million Metric Tons
MW	Megawatts
N_2O	Nitrous Oxide
OPR	State Office of Planning and Research
PFCs	Perfluorocarbons
RPS	Renewable Portfolio Standards
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SDCGHGI	San Diego County Greenhouse Gas Inventory
UNFCCC	United Nations Framework Convention on Climate Change
USBGC	U.S. Green Building Council
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

The Project is proposing to construct a 17-room boutique hotel with a restaurant with 1,165 square feet of indoor and outdoor dining space (including 345 square feet of outdoor dining) at a site in the City of Encinitas. The total project development will be 12,434 square feet. The site is located at 516 La Costa Avenue. The site is currently vacant.

Greenhouse gas (GHG) impacts will be attributable to emissions associated with construction and operational emissions associated with traffic and energy use. This report presents an evaluation of existing conditions at the site, thresholds of significance, and potential GHG impacts associated with construction and operation of the project.

Figure 1. 516 La Costa Boutique Hotel Site Plan

Methodology. To gauge the potential significance of global climate change impacts associated with the proposed project, emissions associated with construction and operation of the project were estimated. With respect to operational-related activities, the emissions inventory considered electricity use, natural gas use, water use, and vehicles. Emissions were evaluated based on their consistency with the goals of Assembly Bill (AB) 32.

1.1 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. GCC may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land. Historical records indicate that global climate changes have occurred in the past due to natural phenomena (such as during previous ice ages). Some data indicate that the current global conditions differ from past climate changes in rate and magnitude.

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 greenhouse gases (GHGs). These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere, much like a greenhouse. GHGs are emitted by both natural processes and human activities. Without these natural GHGs, the Earth's temperature would be about 61º Fahrenheit cooler (California Environmental Protection Agency 2006). Emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere. For example, data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years; however, concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts.

The IPCC concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 35.6º 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.

1.2 Sources and Global Warming Potentials of GHG

Anthropogenic sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Accordingly, anthropogenic sources of CH_4 include landfills, fermentation of manure and cattle farming. Anthropogenic 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.

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (USEPA 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases 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. Table 1 presents the GWP and atmospheric lifetimes of common GHGs. In order to account for each GHG's respective GWP, all types of GHG emissions are expressed in terms of CO_2 equivalents (CO_2e) and are typically quantified in metric tons (MT) or millions of metric tons (MMT).

Table 1 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	121
Sulfur Hexafluoride	SF_6	22,800	3,200
Hydrofluorocarbons	HFCs	124 to 14,800	1 to 100
Perfluorocarbons	PFCs	7,390 to 12,200	3.000 to 50,000
Nitrogen Trifluoride	NF_3	17,200	500
Source:California Air Resources Board, https://www.arb.ca.gov/cc/inventory/background/gwp.htm			

The California Air Resources Board (ARB) compiled a statewide inventory of anthropogenic GHG emissions and sinks that includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 1990 to 2019, and is summarized in Table 2. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the IPCC. The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include: Agriculture; Commercial; Electricity Generation; Forestry; Industrial; Residential; and Transportation.

Table 2 State of California GHG Emissions by Sector				
Sector	**Total 1990 Emissions ($MMTCO_2e$)**	**Percent of Total 1990 Emissions**	**Total 2019 Emissions ($MMTCO_2e$)**	**Percent of Total 2019 Emissions**
Agriculture	23.4	5%	31.75	8%
Commercial	14.4	3%	15.86	4%
Electricity Generation	110.6	26%	58.83	14%
Forestry (excluding sinks)	0.2	<1%	Not reported	
Industrial	103.0	24%	88.18	21%
Residential	29.7	7%	27.95	7%
Transportation	150.7	35%	166.14	40%
Recycling and Waste			8.85	2%
High GWP Gases			20.58	5%
Forestry Sinks	(6.7)		Not reported	

1.3 Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (Federal, State, and regional/local) has specific responsibilities relating to air quality regulation. GHG emissions and the regulation of GHGs is a relatively new component of this air quality regulatory framework.

1.3.1 National and International Efforts

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. 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 global climate change. The U.S. Supreme Court rules in *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007), that USEPA has the ability to regulate GHG emissions. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs.

In *Massachusetts v. Environmental Protection Agency* (2007) 549 U.S. 497, the U.S. Supreme Court held that the U.S. Environmental Protection Agency (USEPA) 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 USEPA 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 USEPA has exercised its authority to regulate mobile sources that reduce GHG emissions via the control of vehicle manufacturers, as discussed immediately below.[1]

[1] The USEPA 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

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 USEPA, the Department of Transportation (DOT), and the Department of Energy (DOE) 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 USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the same federal agencies to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed 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, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In 2018, the USEPA and NHTSA proposed to amend certain existing fuel economy and GHG emissions standards for passenger cars and light trucks and establish new standards, covering model years 2021 through 2026. Compared to maintaining the post-2020 standards now in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2–3 percent of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of one degree Celsius by 2100. California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global

or mass-based goals by 2030. In February 2016, the U.S. Supreme Court stayed implementation of the Clean Power Plan pending judicial review.

climate change initiatives. Thus, the timing and consequences of the 2018 federal proposal are speculative at this time. The USEPA and NHTSA's adopted the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program," in September 2019. Based on the ARB's evaluation in the document titled "EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One" (dated November 20, 2019), the GHG implications of the federal rulemaking are not yet known.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the USEPA 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. In August 2016, the USEPA and NHTSA finalized the next phase (Phase 2) of the fuel economy and GHG standards for medium- and heavy-duty trucks, which apply to vehicles with model year 2018 and later.

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 USEPA 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."

1.3.2 State Regulations and Standards

The following subsections describe regulations and standards that have been adopted by the State of California to address GCC issues.

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*).[2] 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 levels by 2050."[3] 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.[4]

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."[5] 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.

[2] Health & Safety Code section 38561(h) requires the ARB to update the Scoping Plan every five years.
[3] ARB, First Update (May 2014), p. 4.
[4] Id. at p. 34.
[5] Id. at p. 6.

Based on the ARB's research efforts, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050."[6] 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 January 2017, the ARB released the draft of *The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target* (*Second Update*). This update addresses the statewide emissions reduction target established pursuant to Senate Bill (SB) 32 and Executive Order B-30-15, as discussed below. The major elements of the *Second Update*, as proposed in the ARB's January 2017 draft, include (but are not limited to) achieving the following milestones by 2030: a 50 percent Renewable Portfolio Standard (discussed below); a more stringent Low Carbon Fuel Standard (discussed below) that requires an 18 percent reduction in carbon intensity; deploying additional near-zero and zero emissions technologies in the transportation sectors; increasing the stringency of the SB 375 (discussed below) reduction targets for 2035; a 20 percent reduction in GHG emissions from the refinery sector; and, continued deployment of a declining emissions cap under the Cap-and-Trade Program.

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 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).

[6] Id. at p. 32.

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 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.

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. Further, 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.

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.

The California Public Utilities Commission, CEC, and the ARB also have a shared, established goal of achieving Zero Net Energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.

The ZNE goal generally means that new buildings must use a combination of improved efficiency and renewable energy generation to meet 100 percent of their annual energy need, as specifically defined by the CEC:

"A ZNE Code Building is one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building, at the level of a single 'project' seeking development entitlements and building code permits, measured using the [CEC]'s Time Dependent Valuation (TDV) metric. A ZNE Code Building meets an Energy Use Intensity value designated in the Building Energy Efficiency Standards by building type and climate zone that reflect best practices for highly efficient buildings."[7]

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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;

[7] CEC, 2015 Integrated Energy Policy Report (2015), p. 41.
[8] CEC, 2015 Integrated Energy Policy Report (2015), p. 41.

- 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; and, the 2016 standards became effective on January 1, 2017. The CALGreen 2019 standards will continue to improve upon the 2016 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The CALGreen 2019 standards went into effect on January 1, 2020.

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 USEPA 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.

[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.

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 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 greenhouse gases.

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.)

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.

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

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] The ARB's draft *Second Update* also identified, as a "major element" of its framework to achieve the statewide 2030 emissions reduction target codified by SB 32, the objective to put 4.2 million ZEVs on the road by 2030.

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

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

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.

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.

1.3.3 Local Regulations and Standards

In March of 2011, the City of Encinitas adopted the *City of Encinitas Climate Action Plan* (2011 CAP) to provide guidance to the City to achieve statewide reduction targets and to respond and

adapt to the impacts of climate change. In 2009, the City partnered with members of the San Diego Regional Climate Protection Initiative, local governments in the County of San Diego, and Local Governments for Sustainability (ICLEI) to discuss how the region was going to monitor and address global climate change. This partnership facilitated the City's initial GHG inventory for the year 2005, which served as the 2011 CAP's baseline year. The 2005 baseline totaled 548,993 metric tons of carbon dioxide equivalent (MTCO2e) emissions per year, or 8.78 MTCO2e per year per capita. Under a business-as-usual (BAU) scenario which assumes the continuation of conventional behaviors without the inclusion of any additional efforts or legislative actions to reduce GHG emissions, the 2011 CAP determined that the City's GHG inventory for 2020 would be 646,947 MTCO2e per year or 9.5 MTCO2e per year per capita. To achieve consistency with federal and State GHG reduction goals, the CAP specified that the City would reduce emissions 12 percent below 2005 levels by 2020, equivalent to reducing emissions by 164,159 MTCO2e in 2020.

On January 17, 2018, the City of Encinitas adopted its updated final 2018 Climate Action Plan (2018 CAP). The 2018 CAP builds upon the goals of the 2011 CAP and provides a more recent inventory for the City (2012). The GHG inventory performed for 2012 demonstrated that the activities within the City emitted 483,773 MTCO2e. Consistent with recommendations from the Assembly Bill (AB) 32 2008 Scoping Plan, the City must achieve a 13 percent reduction from 2012 levels by 2020 and a 41 percent reduction by 2030 to be in line with the statewide targets discussed in Section 1.3. This equates to reducing emissions by 53,232 MTCO2e by 2020 and 197,724 MTCO2e by 2030. The 2018 CAP organizes strategies, goals, and actions based on the sectors evaluated in the 2012 inventory (i.e., on-road transportation, electricity, natural gas, solid waste, water, off-road transportation, and wastewater). Strategies were developed to target improving the GHG efficiency of citywide community and municipal activities.

The CAP was revised in 2020 and was adopted by the City Council on November 18, 2020. Adoption of the CAP update was the culmination of a year-long process that included reevaluation of the City's 2030 greenhouse gas emissions projection to include anticipated increased housing units, establishment of more ambitious emissions reduction targets, and the development of more

effective emissions reduction CAP measures and complimentary supporting measures. The CAP sets a target of reducing GHG emissions by 44% below 2012 levels in 2030.

2.0 POTENTIAL CLIMATE CHANGE IMPACTS TO PROJECT SITE

2.1 Existing Conditions

The site is currently vacant and in a disturbed state. As it currently exists the site is not a source of GHG emissions.

2.2 Typical Adverse Effects

The Climate Scenarios Report (CCCC 2006) uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century. Three warming ranges were identified: lower warming range (3.0 to 5.5 degrees Fahrenheit (ºF)); medium warming range (5.5 to 8.0 ºF); and higher warming range (8.0 to 10.5 ºF). The Climate Scenarios Report then presents an analysis of the future projected climate changes in California under each warming range scenario.

According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California. These impacts would result from a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. These impacts are described below.

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 O_3 formation are projected to increase by 25 to 35 percent under the lower warming range and 75 to 85 percent under the medium warming range. In addition, if global background O_3 levels increase as is predicted in some scenarios, it may become impossible to meet local air quality standards. An increase in wildfires could also occur, and the corresponding increase in the release of pollutants including $PM_{2.5}$ could further compromise air quality. The Climate Scenarios Report indicates that large wildfires could become up to 55 percent more frequent of GHG emissions are not significantly reduced.

Potential health effects from global climate change 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.

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 relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise more precipitation would fall as rain instead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. 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.

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.

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.

Wildland Fires. Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State.

Rising Sea Levels. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasing threaten the State's coastal regions. Under the high warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. A sea level risk of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats.

2.3 California Climate Adaptation Strategy

As part of its climate change planning process, the CNRA 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. The Climate Adaptation Strategy also outlines possible solutions that can be implemented within and across state agencies to promote resiliency.

The California Climate Adaptation Strategy takes into account the long-term, complex, and uncertain nature of climate change and establishes a proactive foundation for an ongoing adaptation process. The strategy made preliminary recommendations as a first step in addressing responses to impacts of global climate change within the state. Key recommendations include:

1. A Climate Adaptation Advisory Panel (CAAP) will be appointed to assess the greatest risks to California from climate change and recommend strategies to reduce those risks building on California's Climate Adaptation Strategy.
2. Identify necessary changes to California's water management and uses.
3. Consider project alternatives that avoid significant new development in areas that cannot be adequately protected (planning, permitting, development, and building) from flooding, wildfire and erosion due to climate change.
4. All state agencies responsible for the management and regulation of public health, infrastructure or habitat subject to significant climate change should prepare as appropriate agency-specific adaptation plans, guidance, or criteria by September 2010.
5. To the extent required by CEQA Guidelines Section 15126.2, all significant state projects, including infrastructure projects, must consider the potential impacts of locating such projects in areas susceptible to hazards resulting from climate change.
6. The California Emergency Management Agency (Cal EMA) will collaborate with the California Natural Resources Agency, the Climate Action Team, the Energy Commission, and the CAAP to assess California's vulnerability to climate change, identify impacts to state assets, and promote climate adaptation/mitigation awareness through the Hazard Mitigation Web Portal and My Hazards Website as well as other appropriate sites.
7. Using existing research the state should identify key California land and aquatic habitats that could change significantly during this century due to climate change. Based on this identification, the state should develop a plan for expanding existing protected areas or altering land and water management practices to minimize adverse effects from climate change induced phenomena.
8. The best long-term strategy to avoid increased health impacts associated with climate change is to ensure communities are healthy to build resilience to increased spread of disease and temperature increases.
9. Communities with General Plans and Local Coastal Plans should begin, when possible, to amend their plans to assess climate change impacts, identify areas most vulnerable to these impacts, and develop reasonable and rational risk reduction strategies using the CAS as guidance.

10. State fire fighting agencies should begin immediately to include climate change impact information into fire program planning to inform future planning efforts.
11. State agencies should meet projected population growth and increased energy demand with greater energy conservation and an increased use of renewable energy.
12. Existing and planned climate change research can and should be used for state planning and public outreach purposes; new climate change impact research should be broadened and funded.

In 2018, the California Natural Resources Agency updated its Climate Adaptation Strategy in *Safeguarding California Plan: 2018 Update* (CNRA 2018). This plan, which updates the previous California Climate Adaptation Strategy documents, highlights climate risks in nine sectors in California, discusses progress to date, and makes realistic sector-specific recommendations. The California Natural Resources Agency is in the process of preparing an update to the 2018 strategy.

3.0 CLIMATE CHANGE SIGNIFICANCE CRITERIA

According to the California Natural Resources Agency[13], "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis." Significance criteria were developed in Appendix G of the CEQA Guidelines.

The project would have a significant impact if it would:

- 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.

As discussed in Section 15064.4 of the CEQA Guidelines, 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. Section 15064.4 further provides that 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 GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

[13] California Natural Resources Agency, Initial Statement of Reasons for Regulatory Action, Proposed Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gases Pursuant to SB 97. July 2009.

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The City of Encinitas has not established a GHG significance threshold to date. Several lead agencies in California have adopted a screening threshold as recommended by the CAPCOA Report, *CEQA and Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, which proposes a screening-level threshold of 900 metric tons of CO_2e to evaluate whether a project must conduct further analysis. For the purpose of this analysis, the CAPCOA screening threshold of 900 metric tons of CO_2e has been used to evaluate the potential significance of GHG emissions associated with the project.

4.0 GREENHOUSE GAS IMPACTS

GHG emissions associated with the 516 La Costa Boutique Hotel Project were estimated for six categories of emissions: (1) construction; (2) area sources; (3) energy use, including electricity and natural gas usage; (4) water consumption, use, and treatment; (5) solid waste management, and (6) vehicles. The analysis also includes an estimate of GHG emissions from energy use that assumes 2016 Title 24-compliant buildings as a baseline within the CalEEMod Model. The complete emissions inventory is summarized below and included in the Appendix.

4.1 Existing Conditions

As discussed above, the existing site is not a source of GHG emissions. Emissions from the current site are therefore assumed to be zero.

4.2 Construction Greenhouse Gas Emissions

Construction GHG emissions include emissions from heavy construction equipment, truck traffic, and worker trips. Emissions were calculated using the CalEEMod Model, Version 2016.3.2, which is the newest land use emissions model developed by the SCAQMD (SCAQMD 2016), for completed and proposed construction. Table 3 presents the construction-related emissions associated with construction of the project.

Table 3
Construction GHG Emissions
Total Metric tons

Construction Phase	CO_2e Emissions, metric tons
Construction	297

Per guidance from the SCAQMD (SCAQMD 2008), construction emissions are amortized over a 30-year period to account for the contribution of construction emissions over the lifetime of the project. Amortizing the emissions from construction of the Proposed Project over a 30-year period would result in an annual contribution of 10 metric tons of CO_2e. These emissions are added to

operational emissions to account for the contribution of construction to GHG emissions for the lifetime of the project.

4.3 Operational Greenhouse Gas Emissions

Development would involve the construction of a 17-room boutique hotel, along with a quality restaurant with 1,165 square feet of seating (indoor and outdoor). The total development would be 12,434 square feet.

4.3.1 Area Sources

The CalEEMod model assumes that area source emissions associated with the project would include minor emissions from landscaping equipment and maintenance of the building.

4.3.2 Energy Use

As discussed above, the CalEEMod Model assumes a baseline of 2016 Title 24 standards. The baseline energy use provides a conservative estimate of current energy requirements relative to future energy requirements.

As discussed above, the CalEEMod Model assumes a baseline of 2016 Title 24 standards. The baseline energy use provides a conservative estimate of current energy requirements relative to future energy requirements.

4.3.3 Water Usage

Water usage was estimated based on the CalEEMod Model. The GHG emissions associated with water usage, conveyance, treatment, and wastewater disposal are included within the CalEEMod

model calculations. For the purpose of this analysis, it was assumed that the project would be equipped with low-flow fixtures.

4.3.4 Vehicle Emissions

The analysis of GHG emissions from vehicles is based on total vehicle miles traveled annually. According to the traffic impact study (Mizuta Traffic Consultants 2021), the hotel would generate 10 daily trips per room, and the restaurant would generate 100 trips per square foot. These trip generation rates were included in the analysis.

4.3.5 Solid Waste

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, transportation of waste, and disposal. Solid waste generation rates were estimated from CalEEMod Model, and GHG emissions from solid waste management were estimated using the model, assuming landfilling of solid waste with flaring. It was assumed based on statewide solid waste reduction goals that solid waste generation would be reduced by 50%.

4.3.6 Operational Emissions Summary

The results of the inventory for operational emissions for the proposed project are presented in Table 4. These include GHG emissions associated with buildings (natural gas, purchased electricity), water consumption (energy embodied in potable water), solid waste management (including transport and landfill gas generation), and vehicles.

Table 4 SUMMARY OF ESTIMATED OPERATIONAL GREENHOUSE GAS EMISSIONS				
Emission Source	**Annual Emissions (Metric tons/year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Operational Emissions				
Area Sources	0.0006	0.0000	0.0000	0.0006
Electricity Use	49	0.0019	0.0004	49
Natural Gas Use	47	0.0009	0.0009	47
Water Use	2	0.0206	0.0005	3
Solid Waste Management	2	0.1245	0.0000	5
Vehicle Emissions	177	0.0095	0.0000	177
Amortized Construction Emissions	10	0.0000	0.0000	10
Total	**287**	**0.1574**	**0.0018**	**291**
Global Warming Potential Factor	**1**	**25**	**298**	
CO_2 Equivalent Emissions	**287**	**4**	**0**	**291**

As shown in Table 4, the total CO_2e emissions from the project would be 291 metric tons. The total GHG emissions are below the CAPCOA screening threshold of 900 metric tons of CO_2e. The project's contribution to GHG emissions would therefore be less than significant.

5.0 CONCLUSIONS

Net emissions of GHGs were quantified for both construction and operation of the 516 La Costa Boutique Hotel Project. Both the project's total GHG emissions of 291 metric tons of CO_2e and would be below the CAPCOA screening threshold of 900 metric tons of CO_2e. Through the mobile source emission regulatory framework, Title 24 energy efficiency requirements, and RPS, emissions will be reduced further for the Proposed Project to a level that is consistent with the goals of AB 32.

The project will comply with the City of Encinitas CAP and will adopt the following measures:

Number	Measure	Implementation
BE-3	Adopt Higher Energy Efficiency Standards for Commercial Buildings: Meet 2019 California Green Building Standards Code Nonresidential Tier 1 Voluntary Measures.	The project will adopt the 2019 California Green Building Standards Code Nonresidential Tier 1 Voluntary Measures
BE-4	Require Decarbonization of New Commercial Buildings: All new commercial buildings must install wiring and install all electric appliances.	This measure is not effective until the Green Building Ordinance (2021-13) has been adopted.
RE-3	Require Commercial Buildings to Install Solar Photovoltaic Systems	The project will install a rooftop solar photovoltaic system on the roof of the restaurant as shown in the architectural plans.
CET-5	Require Commercial Electric Vehicle Charging Stations	The project will include four electric vehicle charging stations in the parking area as shown in the architectural plans.
CS-1	Develop and Implement an Urban Tree Planting Program: When new parking lots are part of a development, trees are required to be planted at a ratio of one tree per every 5 parking spaces.	The project is proposing to include 18 deciduous trees and 23 evergreen trees as part of its landscaping plan.

The project would not conflict with or obstruct implementation of the City of Encinitas CAP. Therefore, the proposed project would not result in a cumulatively considerable global climate change impact.

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Appendix A

Greenhouse Gas Emission Calculations

516 La Costa Hotel - San Diego Air Basin, Annual

516 La Costa Hotel

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	17.38	1000sqft	0.40	17,375.00	0
Hotel	17.00	Room	0.57	11,544.00	0
Quality Restaurant	1.17	1000sqft	0.03	1,165.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
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 - Based on site plan

Construction Phase - Based on estimated construction schedule

Grading - Site grading

Architectural Coating - Rule 67.0.1 coatings

Vehicle Trips - Based on site access stucy

Area Coating - Rule 67.0.1 coatings

Energy Use -

Construction Off-road Equipment Mitigation -

Water 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
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	217.00
tblConstructionPhase	NumDays	2.00	44.00
tblConstructionPhase	NumDays	5.00	66.00
tblConstructionPhase	PhaseEndDate	12/20/2022	6/30/2023
tblConstructionPhase	PhaseEndDate	12/6/2022	6/30/2023
tblConstructionPhase	PhaseEndDate	7/19/2022	8/31/2022
tblConstructionPhase	PhaseEndDate	12/13/2022	6/30/2023
tblConstructionPhase	PhaseStartDate	12/14/2022	4/30/2023
tblConstructionPhase	PhaseStartDate	7/20/2022	9/1/2022
tblConstructionPhase	PhaseStartDate	7/16/2022	7/1/2022
tblConstructionPhase	PhaseStartDate	12/7/2022	3/31/2023
tblGrading	AcresOfGrading	16.50	1.17
tblLandUse	LandUseSquareFeet	24,684.00	11,544.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	720.49	556.22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	ST_TR	8.19	10.00
tblVehicleTrips	ST_TR	94.36	100.00
tblVehicleTrips	SU_TR	5.95	10.00
tblVehicleTrips	SU_TR	72.16	100.00

tblVehicleTrips	WD_TR	8.17	10.00
tblVehicleTrips	WD_TR	89.95	100.00

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					
2022	0.0986	0.8308	0.7070	1.3800e-003	0.1074	0.0371	0.1445	0.0567	0.0353	0.0920	0.0000	116.8616	116.8616	0.0231	0.0000	117.4394
2023	0.1729	1.0238	1.1875	2.1300e-003	0.0129	0.0453	0.0582	3.4800e-003	0.0434	0.0469	0.0000	179.5449	179.5449	0.0335	0.0000	180.3821
Maximum	**0.1729**	**1.0238**	**1.1875**	**2.1300e-003**	**0.1074**	**0.0453**	**0.1445**	**0.0567**	**0.0434**	**0.0920**	**0.0000**	**179.5449**	**179.5449**	**0.0335**	**0.0000**	**180.3821**

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					
2022	0.0986	0.8308	0.7070	1.3800e-003	0.0464	0.0371	0.0835	0.0233	0.0353	0.0586	0.0000	116.8614	116.8614	0.0231	0.0000	117.4392
2023	0.1729	1.0238	1.1875	2.1300e-003	0.0129	0.0453	0.0582	3.4800e-003	0.0434	0.0469	0.0000	179.5448	179.5448	0.0335	0.0000	180.3819
Maximum	**0.1729**	**1.0238**	**1.1875**	**2.1300e-003**	**0.0464**	**0.0453**	**0.0835**	**0.0233**	**0.0434**	**0.0586**	**0.0000**	**179.5448**	**179.5448**	**0.0335**	**0.0000**	**180.3819**

	ROG	NOx	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**	**50.71**	**0.00**	**30.09**	**55.45**	**0.00**	**24.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2022**	**9-30-2022**	0.4484	0.4484
2	**10-1-2022**	**12-31-2022**	0.4838	0.4838
3	**1-1-2023**	**3-31-2023**	0.4427	0.4427
4	**4-1-2023**	**6-30-2023**	0.7467	0.7467
		Highest	0.7467	0.7467

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	0.0551	0.0000	3.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.4000e-004	6.4000e-004	0.0000	0.0000	6.8000e-004
Energy	4.7300e-003	0.0430	0.0361	2.6000e-004		3.2700e-003	3.2700e-003		3.2700e-003	3.2700e-003	0.0000	95.8908	95.8908	2.8400e-003	1.2100e-003	96.3227
Mobile	0.0579	0.2230	0.5735	1.9100e-003	0.1738	1.5400e-003	0.1753	0.0465	1.4400e-003	0.0480	0.0000	176.6961	176.6961	9.5200e-003	0.0000	176.9341
Waste						0.0000	0.0000		0.0000	0.0000	2.1071	0.0000	2.1071	0.1245	0.0000	5.2201
Water						0.0000	0.0000		0.0000	0.0000	0.2495	2.7812	3.0307	0.0257	6.3000e-004	3.8603
Total	**0.1177**	**0.2660**	**0.6099**	**2.1700e-003**	**0.1738**	**4.8100e-003**	**0.1786**	**0.0465**	**4.7100e-003**	**0.0512**	**2.3565**	**275.3688**	**277.7253**	**0.1626**	**1.8400e-003**	**282.3378**

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	0.0551	0.0000	3.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.4000e-004	6.4000e-004	0.0000	0.0000	6.8000e-004
Energy	4.7300e-003	0.0430	0.0361	2.6000e-004		3.2700e-003	3.2700e-003		3.2700e-003	3.2700e-003	0.0000	95.8908	95.8908	2.8400e-003	1.2100e-003	96.3227
Mobile	0.0579	0.2230	0.5735	1.9100e-003	0.1738	1.5400e-003	0.1753	0.0465	1.4400e-003	0.0480	0.0000	176.6961	176.6961	9.5200e-003	0.0000	176.9341
Waste						0.0000	0.0000		0.0000	0.0000	2.1071	0.0000	2.1071	0.1245	0.0000	5.2201
Water						0.0000	0.0000		0.0000	0.0000	0.1996	2.2525	2.4520	0.0206	5.0000e-004	3.1158
Total	**0.1177**	**0.2660**	**0.6099**	**2.1700e-003**	**0.1738**	**4.8100e-003**	**0.1786**	**0.0465**	**4.7100e-003**	**0.0512**	**2.3066**	**274.8401**	**277.1467**	**0.1575**	**1.7100e-003**	**281.5933**

	ROG	NOx	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**	**2.12**	**0.19**	**0.21**	**3.16**	**7.07**	**0.26**

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	7/1/2022	8/31/2022	5	44	
2	Building Construction	Building Construction	9/1/2022	6/30/2023	5	217	
3	Paving	Paving	3/31/2023	6/30/2023	5	66	
4	Architectural Coating	Architectural Coating	4/30/2023	6/30/2023	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1.17

Acres of Paving: 0.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 19,064; Non-Residential Outdoor: 6,355; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	3	8.00	46	0.45

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	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	5.00	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

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1000	0.0000	0.1000	0.0547	0.0000	0.0547	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2641	0.1306	3.1000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	27.2392	27.2392	8.8100e-003	0.0000	27.4594
Total	**0.0238**	**0.2641**	**0.1306**	**3.1000e-004**	**0.1000**	**0.0114**	**0.1114**	**0.0547**	**0.0105**	**0.0652**	**0.0000**	**27.2392**	**27.2392**	**8.8100e-003**	**0.0000**	**27.4594**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.0000e-004	4.0800e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.1877	1.1877	3.0000e-005	0.0000	1.1885
Total	**5.8000e-004**	**4.0000e-004**	**4.0800e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.1877**	**1.1877**	**3.0000e-005**	**0.0000**	**1.1885**

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					0.0390	0.0000	0.0390	0.0213	0.0000	0.0213	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0238	0.2641	0.1306	3.1000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	27.2391	27.2391	8.8100e-003	0.0000	27.4594
Total	**0.0238**	**0.2641**	**0.1306**	**3.1000e-004**	**0.0390**	**0.0114**	**0.0504**	**0.0213**	**0.0105**	**0.0318**	**0.0000**	**27.2391**	**27.2391**	**8.8100e-003**	**0.0000**	**27.4594**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.0000e-004	4.0800e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.1877	1.1877	3.0000e-005	0.0000	1.1885
Total	**5.8000e-004**	**4.0000e-004**	**4.0800e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.1877**	**1.1877**	**3.0000e-005**	**0.0000**	**1.1885**

3.3 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0717	0.5439	0.5536	9.6000e-004		0.0256	0.0256		0.0247	0.0247	0.0000	78.9860	78.9860	0.0138	0.0000	79.3299
Total	**0.0717**	**0.5439**	**0.5536**	**9.6000e-004**		**0.0256**	**0.0256**		**0.0247**	**0.0247**	**0.0000**	**78.9860**	**78.9860**	**0.0138**	**0.0000**	**79.3299**

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	6.3000e-004	0.0211	5.6400e-003	6.0000e-005	1.4400e-003	4.0000e-005	1.4800e-003	4.2000e-004	4.0000e-005	4.6000e-004	0.0000	5.6325	5.6325	4.1000e-004	0.0000	5.6427
Worker	1.8600e-003	1.2800e-003	0.0131	4.0000e-005	4.5300e-003	3.0000e-005	4.5700e-003	1.2100e-003	3.0000e-005	1.2300e-003	0.0000	3.8162	3.8162	1.0000e-004	0.0000	3.8188
Total	**2.4900e-003**	**0.0224**	**0.0188**	**1.0000e-004**	**5.9700e-003**	**7.0000e-005**	**6.0500e-003**	**1.6300e-003**	**7.0000e-005**	**1.6900e-003**	**0.0000**	**9.4487**	**9.4487**	**5.1000e-004**	**0.0000**	**9.4615**

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	0.0717	0.5439	0.5536	9.6000e-004		0.0256	0.0256		0.0247	0.0247	0.0000	78.9859	78.9859	0.0138	0.0000	79.3298
Total	**0.0717**	**0.5439**	**0.5536**	**9.6000e-004**		**0.0256**	**0.0256**		**0.0247**	**0.0247**	**0.0000**	**78.9859**	**78.9859**	**0.0138**	**0.0000**	**79.3298**

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	6.3000e-004	0.0211	5.6400e-003	6.0000e-005	1.4400e-003	4.0000e-005	1.4800e-003	4.2000e-004	4.0000e-005	4.6000e-004	0.0000	5.6325	5.6325	4.1000e-004	0.0000	5.6427
Worker	1.8600e-003	1.2800e-003	0.0131	4.0000e-005	4.5300e-003	3.0000e-005	4.5700e-003	1.2100e-003	3.0000e-005	1.2300e-003	0.0000	3.8162	3.8162	1.0000e-004	0.0000	3.8188
Total	**2.4900e-003**	**0.0224**	**0.0188**	**1.0000e-004**	**5.9700e-003**	**7.0000e-005**	**6.0500e-003**	**1.6300e-003**	**7.0000e-005**	**1.6900e-003**	**0.0000**	**9.4487**	**9.4487**	**5.1000e-004**	**0.0000**	**9.4615**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0990	0.7612	0.8197	1.4300e-003		0.0334	0.0334		0.0323	0.0323	0.0000	118.0394	118.0394	0.0200	0.0000	118.5405
Total	**0.0990**	**0.7612**	**0.8197**	**1.4300e-003**		**0.0334**	**0.0334**		**0.0323**	**0.0323**	**0.0000**	**118.0394**	**118.0394**	**0.0200**	**0.0000**	**118.5405**

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	7.2000e-004	0.0248	7.6800e-003	8.0000e-005	2.1600e-003	3.0000e-005	2.1900e-003	6.2000e-004	3.0000e-005	6.5000e-004	0.0000	8.2045	8.2045	5.6000e-004	0.0000	8.2184
Worker	2.6300e-003	1.7400e-003	0.0182	6.0000e-005	6.7800e-003	5.0000e-005	6.8200e-003	1.8000e-003	4.0000e-005	1.8400e-003	0.0000	5.4846	5.4846	1.4000e-004	0.0000	5.4882

Total	**3.3500e-003**	**0.0265**	**0.0259**	**1.4000e-004**	**8.9400e-003**	**8.0000e-005**	**9.0100e-003**	**2.4200e-003**	**7.0000e-005**	**2.4900e-003**	**0.0000**	**13.6891**	**13.6891**	**7.0000e-004**	**0.0000**	**13.7066**

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	0.0990	0.7612	0.8197	1.4300e-003		0.0334	0.0334		0.0323	0.0323	0.0000	118.0393	118.0393	0.0200	0.0000	118.5404
Total	**0.0990**	**0.7612**	**0.8197**	**1.4300e-003**		**0.0334**	**0.0334**		**0.0323**	**0.0323**	**0.0000**	**118.0393**	**118.0393**	**0.0200**	**0.0000**	**118.5404**

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	7.2000e-004	0.0248	7.6800e-003	8.0000e-005	2.1600e-003	3.0000e-005	2.1900e-003	6.2000e-004	3.0000e-005	6.5000e-004	0.0000	8.2045	8.2045	5.6000e-004	0.0000	8.2184
Worker	2.6300e-003	1.7400e-003	0.0182	6.0000e-005	6.7800e-003	5.0000e-005	6.8200e-003	1.8000e-003	4.0000e-005	1.8400e-003	0.0000	5.4846	5.4846	1.4000e-004	0.0000	5.4882
Total	**3.3500e-003**	**0.0265**	**0.0259**	**1.4000e-004**	**8.9400e-003**	**8.0000e-005**	**9.0100e-003**	**2.4200e-003**	**7.0000e-005**	**2.4900e-003**	**0.0000**	**13.6891**	**13.6891**	**7.0000e-004**	**0.0000**	**13.7066**

3.4 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0213	0.2058	0.2905	4.5000e-004		0.0102	0.0102		9.3900e-003	9.3900e-003	0.0000	38.8490	38.8490	0.0123	0.0000	39.1569
Paving	5.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0218**	**0.2058**	**0.2905**	**4.5000e-004**		**0.0102**	**0.0102**		**9.3900e-003**	**9.3900e-003**	**0.0000**	**38.8490**	**38.8490**	**0.0123**	**0.0000**	**39.1569**

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	1.3400e-003	8.9000e-004	9.2300e-003	3.0000e-005	3.4400e-003	2.0000e-005	3.4600e-003	9.1000e-004	2.0000e-005	9.4000e-004	0.0000	2.7845	2.7845	7.0000e-005	0.0000	2.7863
Total	**1.3400e-003**	**8.9000e-004**	**9.2300e-003**	**3.0000e-005**	**3.4400e-003**	**2.0000e-005**	**3.4600e-003**	**9.1000e-004**	**2.0000e-005**	**9.4000e-004**	**0.0000**	**2.7845**	**2.7845**	**7.0000e-005**	**0.0000**	**2.7863**

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	0.0213	0.2058	0.2905	4.5000e-004		0.0102	0.0102		9.3900e-003	9.3900e-003	0.0000	38.8490	38.8490	0.0123	0.0000	39.1569
Paving	5.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0218**	**0.2058**	**0.2905**	**4.5000e-004**		**0.0102**	**0.0102**		**9.3900e-003**	**9.3900e-003**	**0.0000**	**38.8490**	**38.8490**	**0.0123**	**0.0000**	**39.1569**

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	1.3400e-003	8.9000e-004	9.2300e-003	3.0000e-005	3.4400e-003	2.0000e-005	3.4600e-003	9.1000e-004	2.0000e-005	9.4000e-004	0.0000	2.7845	2.7845	7.0000e-005	0.0000	2.7863
Total	**1.3400e-003**	**8.9000e-004**	**9.2300e-003**	**3.0000e-005**	**3.4400e-003**	**2.0000e-005**	**3.4600e-003**	**9.1000e-004**	**2.0000e-005**	**9.4000e-004**	**0.0000**	**2.7845**	**2.7845**	**7.0000e-005**	**0.0000**	**2.7863**

3.5 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0429					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3100e-003	0.0293	0.0408	7.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	5.7448	5.7448	3.4000e-004	0.0000	5.7534
Total	**0.0472**	**0.0293**	**0.0408**	**7.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**5.7448**	**5.7448**	**3.4000e-004**	**0.0000**	**5.7534**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4500e-003	0.0000	5.4000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4381	0.4381	1.0000e-005	0.0000	0.4384
Total	**2.1000e-004**	**1.4000e-004**	**1.4500e-003**	**0.0000**	**5.4000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4381**	**0.4381**	**1.0000e-005**	**0.0000**	**0.4384**

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	4.3100e-003	0.0293	0.0408	7.0000e-005		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003	0.0000	5.7448	5.7448	3.4000e-004	0.0000	5.7534
Total	**0.0472**	**0.0293**	**0.0408**	**7.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**5.7448**	**5.7448**	**3.4000e-004**	**0.0000**	**5.7534**

Mitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4500e-003	0.0000	5.4000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4381	0.4381	1.0000e-005	0.0000	0.4384
Total	**2.1000e-004**	**1.4000e-004**	**1.4500e-003**	**0.0000**	**5.4000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4381**	**0.4381**	**1.0000e-005**	**0.0000**	**0.4384**

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	0.0579	0.2230	0.5735	1.9100e-003	0.1738	1.5400e-003	0.1753	0.0465	1.4400e-003	0.0480	0.0000	176.6961	176.6961	9.5200e-003	0.0000	176.9341
Unmitigated	0.0579	0.2230	0.5735	1.9100e-003	0.1738	1.5400e-003	0.1753	0.0465	1.4400e-003	0.0480	0.0000	176.6961	176.6961	9.5200e-003	0.0000	176.9341

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	170.00	170.00	170.00	322,988	322,988
Other Asphalt Surfaces	0.00	0.00	0.00		
Quality Restaurant	116.50	116.50	116.50	138,188	138,188
Total	286.50	286.50	286.50	461,177	461,177

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
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Quality Restaurant	9.50	7.30	7.30	12.00	69.00	19.00	38	18	44

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Other Asphalt Surfaces	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998
Quality Restaurant	0.606234	0.039465	0.179154	0.102641	0.014368	0.005395	0.016820	0.024508	0.001929	0.001857	0.005869	0.000761	0.000998

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	49.0921	49.0921	1.9400e-003	3.5000e-004	49.2458
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	49.0921	49.0921	1.9400e-003	3.5000e-004	49.2458
NaturalGas Mitigated	4.7300e-003	0.0430	0.0361	2.6000e-004		3.2700e-003	3.2700e-003		3.2700e-003	3.2700e-003	0.0000	46.7988	46.7988	9.0000e-004	8.6000e-004	47.0769
NaturalGas Unmitigated	4.7300e-003	0.0430	0.0361	2.6000e-004		3.2700e-003	3.2700e-003		3.2700e-003	3.2700e-003	0.0000	46.7988	46.7988	9.0000e-004	8.6000e-004	47.0769

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					
Hotel	673823	3.6300e-003	0.0330	0.0278	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	35.9578	35.9578	6.9000e-004	6.6000e-004	36.1715
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
Quality Restaurant	203153	1.1000e-003	9.9600e-003	8.3700e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	10.8410	10.8410	2.1000e-004	2.0000e-004	10.9054
Total		**4.7300e-003**	**0.0430**	**0.0361**	**2.6000e-004**		**3.2700e-003**	**3.2700e-003**		**3.2700e-003**	**3.2700e-003**	**0.0000**	**46.7988**	**46.7988**	**9.0000e-004**	**8.6000e-004**	**47.0769**

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					
Hotel	673823	3.6300e-003	0.0330	0.0278	2.0000e-004		2.5100e-003	2.5100e-003		2.5100e-003	2.5100e-003	0.0000	35.9578	35.9578	6.9000e-004	6.6000e-004	36.1715
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
Quality Restaurant	203153	1.1000e-003	9.9600e-003	8.3700e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	10.8410	10.8410	2.1000e-004	2.0000e-004	10.9054
Total		**4.7300e-003**	**0.0430**	**0.0361**	**2.6000e-004**		**3.2700e-003**	**3.2700e-003**		**3.2700e-003**	**3.2700e-003**	**0.0000**	**46.7988**	**46.7988**	**9.0000e-004**	**8.6000e-004**	**47.0769**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	149495	37.7171	1.4900e-003	2.7000e-004	37.8352
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	45085.5	11.3749	4.5000e-004	8.0000e-005	11.4106
Total		**49.0921**	**1.9400e-003**	**3.5000e-004**	**49.2458**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	149495	37.7171	1.4900e-003	2.7000e-004	37.8352
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	45085.5	11.3749	4.5000e-004	8.0000e-005	11.4106
Total		**49.0921**	**1.9400e-003**	**3.5000e-004**	**49.2458**

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	0.0551	0.0000	3.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.4000e-004	6.4000e-004	0.0000	0.0000	6.8000e-004
Unmitigated	0.0551	0.0000	3.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.4000e-004	6.4000e-004	0.0000	0.0000	6.8000e-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	0.0508					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.4000e-004	6.4000e-004	0.0000	0.0000	6.8000e-004
Total	**0.0551**	**0.0000**	**3.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.4000e-004**	**6.4000e-004**	**0.0000**	**0.0000**	**6.8000e-004**

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	0.0508					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Landscaping	3.0000e-005	0.0000	3.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.4000e-004	6.4000e-004	0.0000	0.0000	6.8000e-004
Total	**0.0551**	**0.0000**	**3.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.4000e-004**	**6.4000e-004**	**0.0000**	**0.0000**	**6.8000e-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	2.4520	0.0206	5.0000e-004	3.1158
Unmitigated	3.0307	0.0257	6.3000e-004	3.8603

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Hotel	0.431235 / 0.047915	1.6878	0.0141	3.4000e-004	2.1428
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0.355134 / 0.0226682	1.3429	0.0116	2.8000e-004	1.7175
Total		**3.0307**	**0.0257**	**6.2000e-004**	**3.8603**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	0.344988 / 0.0449922	1.3689	0.0113	2.7000e-004	1.7330
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	0.284108 / 0.0212854	1.0831	9.3000e-003	2.3000e-004	1.3828
Total		**2.4520**	**0.0206**	**5.0000e-004**	**3.1158**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	2.1071	0.1245	0.0000	5.2201
Unmitigated	2.1071	0.1245	0.0000	5.2201

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	9.31	1.8899	0.1117	0.0000	4.6820
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.07	0.2172	0.0128	0.0000	0.5381
Total		**2.1071**	**0.1245**	**0.0000**	**5.2201**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	9.31	1.8899	0.1117	0.0000	4.6820
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	1.07	0.2172	0.0128	0.0000	0.5381
Total		**2.1071**	**0.1245**	**0.0000**	**5.2201**

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