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## Greenhouse Gas Analysis for Santa Fe Residential Development

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**GREENHOUSE GAS TECHNICAL STUDY**  
**SANTA FE RESIDENTIAL DEVELOPMENT**

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## **1.0 INTRODUCTION**

### **1.1 Purpose of Analysis**

The City of Encinitas Development Services Department (Department) has reviewed the application materials submitted for the Santa Fe residential development project (Project). The department identified several issues and corrections in a letter dated May 19, 2021. The 1<sup>st</sup> review cycle comments are incorporated into a review checklist, which can be used to deem the application complete.

Since the Project would exceed the City's greenhouse gas (GHG) screening threshold (50 units) for requiring a GHG study, it is required to be submitted with the next review cycle. In an email from Scott Vurbeff, the Environmental Project Manager, it was indicated that the GHG study should include comparison to the CAPCOA 900 MT CO<sub>2</sub>e threshold, as a screening threshold for CEQA purposes (Vurbeff 2021). If the screening threshold is exceeded for the Project, then a per capita efficiency threshold that is consistent with the CAPs city-wide GHG reduction target should be used.

This GHG study is provided to allow evaluation of the necessary information for a complete application. Once the application is deemed complete, formal environmental evaluation of the Project will commence and the Department will determine whether the Project qualifies for an exemption or preparation of an initial study.

### **1.2 Project Description**

The Project consists of 35 single family residential units and 8 duplex units for a total of 51 residential units. The Project is located at 845 Santa Fe Drive, in the City of Encinitas. It is bounded by Santa Fe Drive to the north, Munevar Road to the south, a tennis club to the east, and residential commercial/residential lots to the west. Access is proposed off of Munevar Road with no access off of Santa Fe Drive. The first full year of operation is anticipated for 2024.

The single-family residential parcels encompass approximately 3.0 acres, while the duplexes encompass approximately 0.53 acres. The site is zoned R-8 and located in a Coastal Overlay Zone.

Several existing buildings will be demolished at the Project location. These include a 10,000 square foot (sq. ft.) church with administrative office, a 4,000 sq. ft. preschool and office, and a 2,100 sq. ft. house.

## **2.0 GREENHOUSE GAS STUDY**

A greenhouse gas (GHG) analysis was performed to evaluate potential environmental impacts associated with the emissions of GHGs and the effects of global climate change with the proposed Project. This study analyzes the potential for climate change impacts associated with construction activity and operation of the proposed Project.

## 2.1 Greenhouse Gases

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxides (N<sub>2</sub>O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). California Health and Safety Code Section 38505(g) defines GHGs to include the following compounds: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, chlorofluorocarbons (CFCs), HFCs, and SF<sub>6</sub>.

Based upon the California Air Resources Board (CARB) California Greenhouse Gas Inventory, 2021 edition, (CARB 2021), California produced 418.2 million metric tons (MMT) CO<sub>2</sub> equivalent (CO<sub>2</sub>e) in 2019. The major source of GHGs in California is transportation, contributing 39.7 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 21.1 percent of the state's GHG emissions (CARB 2021).

## 2.2 California GHG Regulations

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 states that by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels (CalEPA 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA 2006). The 2006 CAT Report recommended various strategies that the state could pursue to reduce GHG emissions. These strategies could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels; the same requirement as under S-3-05), and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. After completing a comprehensive review and update process, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO<sub>2</sub>e. The Scoping Plan was approved by CARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations,

alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms. Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is an environmental issue that requires analysis under California Air Quality Act (CEQA). SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010. Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in *Appendix F: Energy Conservation* of the CEQA Guidelines.
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the state's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. The California Energy Commission updates the Building Energy Efficiency Standards every three years. The 2016 Building Energy Efficiency Standards apply to new construction of, and additions and alterations to, residential and nonresidential buildings and have been incorporated into the most recent CalEEMod model. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must comply with the 2019 standards. The 2019 commercial standards are estimated to be 7 percent more efficient than the 2016 standards and include increased lighting efficiency and ventilation. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

27 CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

Senate Bill 375 (SB 375) was adopted in September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable community's strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPOs' sustainable community's strategy or alternate planning strategy for consistency with its assigned targets.

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. Additionally, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided, they provide a minimum 50 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings must meet for occupancy certification. Enforcement is generally through the local building official.

On April 29, 2015, Governor Brown issued Executive Order B-30-15 to establish a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 - the most aggressive benchmark enacted by any government in North America to reduce dangerous carbon emissions over the next decade and a half. This executive action set the stage for the important work being done on climate change by the Legislature. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments.

California is on track to meet or exceed the current target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent from 1990 levels by 2050.



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

### **2.3 Local GHG Regulations and Plans**

#### *City of Encinitas Climate Action Plan*

Encinitas adopted its Climate Action Plan (CAP) in January 2018, with an interim revision in November 2020 (City of Encinitas 2020). The CAP contains GHG emissions inventory, projections, goals, reduction measures, and actions to reduce Citywide GHG emissions and achieve the City’s 2020 and 2035 reduction targets. The CAP sets ambitious targets to reduce emissions 13 percent below 2012 levels by 2020 and 41 percent below 2012 levels by 2030. The CAP includes numerous measures such as the following:

- Reducing building energy consumption
- Reducing municipal operation energy consumption
- Achieving 100 percent renewable electricity supply in homes and business
- Increasing renewable electricity supply in municipal operations
- Reducing:
  - Citywide potable water consumption
  - Vehicle miles traveled (VMT)
  - On-road fuel use
  - Off-road fuel use
- Increasing:
  - Use of alternative fuels
  - Urban tree cover
- Diverting solid waste

#### *Green Building Incentive Program*

The county has a Green Building Incentive Program designed to promote the use of resource efficient construction materials, water conservation and energy efficiency in new and remodeled residential and commercial buildings. The program offers incentives of reduced plan check turnaround time and a 7.5-percent reduction in plan

check and building permit fees for projects meeting minimum program requirements, which include options for natural resource conservation, water conservation, and energy conservation.

#### *Encinitas Green Building Ordinance 2021-13*

The City of Encinitas adopted Green Building Ordinance 2021-13 on October 27, 2021. This ordinance establishes the requirements for electricity requirements in new residential developments. The Project will meet the requirements of the ordinance. However, the Project emissions were modeled conservatively, using the default natural gas characteristics in CalEEMod. Residential units meeting the requirements in this ordinance are anticipated to achieve lower GHG emissions.

#### *Construction and Demolition Recycling Ordinance*

The county has adopted the construction and demolition recycling ordinance Sec. 68.511-520, that is designed to divert debris from construction and demolition projects away from landfill disposal in the unincorporated County of San Diego. The ordinance requires that 90 percent of inert materials and 70 percent of all other materials from a project be recycled. In order to comply with the ordinance, applicants must submit a Construction and Demolition Debris Management Plan and a fully refundable Performance Guarantee prior to building permit issuance.

As referenced, pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the state CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents but contain no suggested thresholds of significance for GHG emissions. Instead, lead agencies are given the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant.

## **2.4 Project Specific Guidelines and GHG Thresholds of Significance**

Screening thresholds have been published by the California Air Pollution Control Officers Association (CAPCOA) for determining the need for additional analysis and mitigation for GHG-related impacts under CEQA. This Project is analyzed using CAPCOA's screening level threshold of 900 metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>e) (CAPCOA 2008). The 900 MT CO<sub>2</sub>e screening threshold was determined by CAPCOA as an emission level that would indicate project emissions would result in less than cumulatively significant impacts and would not interfere with the ability of the state to achieve state reduction targets, identified by AB 32. Under SB 32, the state has reviewed its commitment to also reduce its GHG emissions to 40% below 1990 levels by 2030. Based on a linear regression, under the assumption

that CAPCOA's 900 MT CO<sub>2</sub>e threshold is applicable for projects up to operational year 2020, an annual reduction of 5% is applied to projects with operational years of 2021 to 2030, to demonstrate compliance with the SB 32 target by 2030. Based on the annual reduction rate, the 2024 project-specific screening level would be 720 MT CO<sub>2</sub>e, a 20% reduction for operational year 2024.

Encinitas Development Services has advised that a CAP checklist is not available, while the city implements ordinances. For now, they have advised to use CAPCOA's 900 MT CO<sub>2</sub>e threshold and if the screening threshold is triggered for a project, then the per capita efficiency threshold that is consistent with the CAP's city-wide GHG reduction target should be used (Vurbeff 2021).

#### **2.4.1 Project Specific Service Population Threshold**

A number of air districts in the State of California have recommended or adopted efficiency metrics or service population (SP) thresholds as a method for analyzing cumulative GHG emissions and significance of impacts under CEQA. For this Project, the Project's SP refers to a Project's employees that would be generated by the proposed Project's development. This efficiency metric is expressed as MT CO<sub>2</sub>e per SP per year (MT CO<sub>2</sub>e/SP/year).

Efficiency metrics represent the GHG efficiency needed for development to achieve California's GHG emissions target established under AB 32. The intent of AB 32 is to accommodate a population and economic growth in California, but in a way that achieves a lower rate of GHG emissions statewide. Typical efficiency metrics are based on the land use sector (residential and commercial uses) and only account for land use-related emissions and residential population and employment.

It was determined that the efficiency metric is the most responsive to the GHG significance evaluation for this Project given the relatively small project. Furthermore, the efficiency metric approach is one of the methods for analyzing GHG emissions discussed in the *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife* 224 Cal.App.4th 1105 (Newhall Ranch 2015). Specifically, the Supreme Court noted that numeric approaches may be appropriate for determining significance of GHG emissions, and emphasized the consideration of GHG efficiency (62 Cal.4th at 220, 230). Therefore, the validity of using the efficiency metric approach is supported by the Supreme Court ruling in the Newhall Ranch case. While the Newhall Ranch decision did not specifically recommend the efficiency-based approach, the ruling did note that numerical efficiency metric approaches may be appropriate for determining significance of GHG emissions under particular circumstances.

At this time, the state has codified a target for reducing emissions to 40 percent below 1990 emissions levels by 2030 (SB 32) and has developed a Scoping Plan to demonstrate how the state will achieve the 2030 target and make substantial progress toward the 2050 goal of 80% reduction in 1990 GHG emissions levels set by EO S-3-05. In the recently signed EO B-55-18, which identifies a new goal of carbon neutrality by 2045 and supersedes the goal established by EO S-3-05, CARB has been tasked with including a pathway toward EO B-55-18 goals in the next Scoping Plan update. While state and regional regulatory of energy and

transportation systems, along with the state's Cap and Trade Program, are designed to be set at limits to achieve most of the reductions needed to hit the state's long-term targets, local government can do their fair share toward meeting the state's targets by siting and approving projects that accommodate population growth with projects that are GHG-efficient.

In the Scoping Plan Update, CARB suggested substantial progress could be made if a regional or countywide GHG reduction plan targeted reducing emissions to 6 MT CO<sub>2</sub>e per capita by 2030 and 2 MT CO<sub>2</sub>e per capita by 2050, but do not necessarily need to be project-specific targets. We note that considering the overall statewide emissions in 1990 and 2014 and the projected statewide population in 2030 and 2050, these per-capita goals would be equivalent to reducing 2014 emissions by 40 percent by 2030. The per-capita targets were determined to be applicable to the county because the county seeks to achieve state goals and CARB's per-capita metrics provide the means to accomplish that. Local data should be used to establish an analytical path between the threshold and a project providing its fair share contribution towards meeting state targets using the project population's efficient generation of GHG.

#### **2.4.2 Local Data and Service Population Analysis**

The efficiency metric assesses the GHG efficiency of a project on a "service population (SP)" basis (where the efficiency metric equals project emissions divided by the sum of the number of jobs provided by a project). The metric represents the rate of emissions needed to achieve a fair share of the state's emissions mandate embodied in AB 32. One method for determining a fair share contribution quantitatively is to determine if a project's per service person (i.e., residents and employees of the project) GHG efficiency level is more or less than the GHG efficiency level that would be needed for a jurisdiction to achieve the goals mandated by AB 32 and SB 32.

A GHG inventory, with projections, was incorporated into the City of Encinitas Climate Action Plan (CAP) (City of Encinitas 2020). The GHG inventory for baseline year 2012 was shown to be 458,957 MT CO<sub>2</sub>e/year. A projection to 2020 with legislative reductions was shown to be 419,873 MT CO<sub>2</sub>e and in 2030 with legislative reductions was shown to be 292,300 MT CO<sub>2</sub>e. Legislative reductions in 2030 are anticipated to provide a 36% reduction from the 2012 baseline year.

The City of Encinitas population was shown as 60,057 in 2012, with a projection of 62,908 in 2020 and 64,938 in 2030 (City of Encinitas 2020).

By interpolation of the CAP data for the Encinitas GHG inventory in 2024, the first year of operations for the Project, would be 368,844 MT CO<sub>2</sub>e. By interpolation of the CAP values, the 2024 population is projected as 63,720. In order to achieve the projected 2024 emission levels, the efficiency target would be approximately **5.79 MT CO<sub>2</sub>e/SP/year**.

## **2.5 Greenhouse Gas Study Methodology**

GHG emissions associated with construction and operation of the proposed Project and existing development have been estimated using California Emissions Estimator Model (CalEEMod) version 2020.4.0 (CAPCOA 2021).

### **2.5.1 Construction GHG Emissions Calculation Methodology**

Construction of the proposed Project would generate temporary GHG emissions primarily associated with the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest emission quantities because the use of heavy equipment is greatest during this phase of construction. Emissions associated with the construction period were estimated based on the projected maximum amount of equipment that would be used on-site at one time. Air districts have recommended amortizing temporary construction-related emissions over a 30-year period to calculate annual emissions (SCAQMD 2008). Complete CalEEMod GHG modeling for construction, results and assumptions can be viewed in Attachment B.

### **2.5.2 Operational GHG Emissions Calculation Methodology**

Default values used in CalEEMod version 2020.4.0 are based on the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod provides operational emissions of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>. This methodology has been subjected to peer review by numerous public and private stakeholders, and in particular by the CEC; and therefore, is considered reasonable and reliable for use in GHG impact analysis pursuant to CEQA.

Emissions associated with area sources (i.e., consumer products, landscape maintenance, and architectural coating) were calculated in CalEEMod based on standard emission rates from CARB, United States Environmental Protection Agency (USEPA), and district supplied emission factor values (CalEEMod 2021). Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod 2021). Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California. Emissions from mobile sources were quantified based on trip generation estimates defined the Local Transportation Assessment (LTA) (Mizuta 2021).

## **2.6 Estimate of GHG Emissions**

### **2.6.1 Construction GHG Emissions**

Construction activity is assumed to occur over a period of 12 months beginning in January 2023 and concluding in December 2023. Based on CalEEMod results,

construction activity for the Project would generate an estimated 321 metric tons of CO<sub>2</sub>e, as shown in Table 1. Amortized over a 30-year period (the assumed life of the Project), construction of the proposed Project would generate 10.7 metric tons of CO<sub>2</sub>e per year.

<b>TABLE 1 CONSTRUCTION GREENHOUSE GAS EMISSIONS</b>	
<b>Year</b>	<b>Annual Emissions (MT CO<sub>2</sub>e)</b>
2023	321
<b>Amortized over 30 years</b>	<b>10.7</b>

See Attachment B for CalEEMod emission results files.

**2.6.2 Operational GHG Emissions**

Long-term emissions relate to energy use, solid waste, water use, and transportation. Each source is discussed below and includes the emissions associated with existing development and the anticipated emissions that would result from the proposed Project.

*Area Emissions*

Emissions from residential fireplaces, landscaping equipment, architectural coatings, and household consumer products are considered area sources. Estimated annual GHG emissions from area sources for the Project would be about 22.9 MT CO<sub>2</sub>e.

*Energy Use*

Operation of the residential development would consume both electricity and natural gas (see Attachment B for CalEEMod results). The generation of electricity through combustion of fossil fuels typically yields CO<sub>2</sub>, and to a smaller extent, N<sub>2</sub>O and CH<sub>4</sub>. Natural gas emissions can be calculated using default values from the CEC sponsored CEUS and RASS studies which are built into CalEEMod. The overall net increase in energy use at the Project site would result in approximately 97.7 metric tons of CO<sub>2</sub>e per year.

*Water Use Emissions*

The CalEEMod results indicate that the Project would use approximately 5.4 million gallons of water per year. Based on the amount of electricity generated to supply and convey this amount of water, the Project would generate approximately 17.5 metric tons of CO<sub>2</sub>e per year.

*Solid Waste Emissions*

For solid waste generated on-site, it was assumed that the Project would achieve at least 50% diversion rate at opening consistent with AB 341 (which amended the California Integrated Waste Management Act of 1989 [AB 939]). The CalEEMod results indicate that the Project would result in approximately 12.7 metric tons of CO<sub>2</sub>e per year associated with solid waste disposed within landfills.

*Mobile Source Emissions*

Mobile source GHG emissions were estimated using the average daily trips calculated in the Local Transportation Assessment (LTA) (Mizuta 2021). Table 2 shows the estimated mobile emissions of GHGs for the Project based on the Project characteristics. As shown in Table 2, the Project would generate approximately 442 metric tons of CO<sub>2</sub>e associated with new vehicle trips.

*Project Design Features*

In addition to the mandatory design measures, the Project will incorporate solar as applicable and available. For this study, the Project will use solar power for at least 50% of the total electricity usage.

Low water fixtures and low water irrigation systems will be utilized to minimize water usage.

<b>TABLE 2 OPERATIONAL GREENHOUSE GAS EMISSIONS</b>	
<b>Emission Source</b>	<b>Annual Emissions (MT CO<sub>2</sub>e/yr)</b>
Area	22.9
Energy	97.7
Water Use	17.5
Solid Waste	12.7
Mobile Source	442
<b>Total Operational</b>	<b>593</b>

See Attachment B for CalEEMod emission results files.

Total operational GHG emissions associated with the Project are estimated to be 593 MT CO<sub>2</sub>e on an annual basis.

**2.6.3 Combined Construction and Operational Emissions**

Table 3 shows the combined net new construction, operational, and mobile GHG emissions associated with the proposed Project. As discussed above, temporary emissions associated with construction activity are amortized over 30 years (the anticipated life of the Project).

<b>TABLE 3 COMBINED ANNUAL GREENHOUSE GAS EMISSIONS</b>	
<b>Year</b>	<b>Annual Emissions (MT CO<sub>2</sub>e)</b>
Construction (amortized)	10.7
Operational	593
<b>Total</b>	<b>603</b>
<b>CAPCOA Screening Threshold for 2024</b>	<b>720</b>
<b>Exceeds Threshold?</b>	<b>No</b>

a. See Attachment B for CalEEMod emission results files.

Total annual operational GHG emissions, with amortized construction GHG emissions associated with the Project are estimated to total 603 MT CO<sub>2</sub>e on an annual basis. The total Project emissions will be less than the CAPCOA screening threshold for 2024, so the Project would result in **less than significant GHG impacts**.

Although Project emissions are less than the screening threshold, the Project was evaluated against the service population threshold as a conservative measure. Based on the CalEEMod-estimated potential for 146 residents, the proposed Project would generate 4.13 MT CO<sub>2</sub>e per SP in 2024 (603 MT CO<sub>2</sub>e ÷ 146 residents). Based on this, the proposed Project would generate fewer emissions than the localized SB 32 efficiency metric of 5.79 MT CO<sub>2</sub>e per SP. As the Project-calculated SP efficiency metric is below the localized SP efficiency metric, the Project would not impair the State’s attainment of its SB 32 reduction target. This is consistent with the Encinitas CAP, so the Project would result in **less than significant GHG impacts**.

**3.0 FINDINGS AND CONCLUSIONS**

Based on the greenhouse gas analysis, the total Project operational plus amortized construction emissions will be less than the CAPCOA screening threshold for 2024, so the Project would result in **less than significant GHG impacts**.

In addition, the Project would neither conflict nor interfere with the state’s implementation of SB 32’s target of reducing statewide GHG emissions to 40 percent



below 1990 levels by 2030. The Project calculated 4.13 MT CO<sub>2</sub>e SP is below the localized 5.79 MT CO<sub>2</sub>e per SP metric, which is consistent with the stated 2024 efficiency metric, and therefore, the Project would result in **less than significant cumulative GHG impacts**.

#### 4.0 REFERENCES

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**ATTACHMENT A**

**SITE DIAGRAM FOR SANTA FE RESIDENTIAL  
DEVELOPMENT**

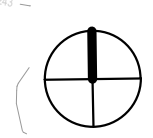


**1 SITE DIAGRAM**

1/32" = 1'-0"

TYPE	LOT	NET SF
SFR	1	4,082 SF
SFR	2	4,110 SF
SFR	3	4,551 SF
SFR	4	3,827 SF
SFR	5	3,832 SF
SFR	6	4,014 SF
SFR	7	3,437 SF
SFR	8	3,404 SF
SFR	9	3,405 SF
SFR	10	3,407 SF
SFR	11	3,408 SF
SFR	12	3,409 SF
SFR	13	3,410 SF
SFR	14	3,209 SF
SFR	15	3,226 SF
SFR	16	3,226 SF
SFR	17	3,226 SF
SFR	18	3,226 SF
SFR	19	3,226 SF
SFR	20	3,226 SF
SFR	21	3,111 SF

TYPE	LOT	NET SF
SFR	22	3,229 SF
SFR	23	3,247 SF
SFR	24	3,247 SF
SFR	25	3,247 SF
SFR	26	3,247 SF
SFR	27	3,247 SF
SFR	28	3,247 SF
SFR	29	3,132 SF
SFR	30	3,907 SF
SFR	31	3,455 SF
SFR	32	3,424 SF
SFR	33	3,424 SF
SFR	34	3,424 SF
SFR	35	3,424 SF
SFR	36	3,424 SF
SFR	37	3,424 SF
SFR	38	3,380 SF
MULTI-FAMILY	39	11,338 SF
MULTI-FAMILY	40	11,859 SF
Grand total:	40	154,296 SF



**ATTACHMENT B**

**CALEEMOD AIR EMISSION MODEL RESULTS  
ANNUAL GHG EMISSIONS FOR CONSTRUCTION AND OPERATION**

Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Santa Fe Residential Dev  
San Diego Air Basin, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	38.00	Dwelling Unit	3.00	68,400.00	109
Condo/Townhouse	13.00	Dwelling Unit	0.53	13,000.00	37

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.6	<b>Precipitation Freq (Days)</b>	40
<b>Climate Zone</b>	13			<b>Operational Year</b>	2024
<b>Utility Company</b>	San Diego Gas & Electric				
<b>CO2 Intensity (lb/MWhr)</b>	539.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use - 38 single family homes totaling 131,101 sq ft of lot area = 3.0 acres lot area; 13 Townhomes (2 Buildings) totaling 23,197 sq ft = 0.53 acres

Construction Phase - Building Construction adjusted from 230 days to 190 days to total 12 months of construction. All other phases as default days.

Demolition - Buildings to be demo'd total 16,100 sq ft

Architectural Coating - SDAPCD Rule 67.0.1 VOC as 50 g/L interior/exterior and 100 g/L parking lot paint

Vehicle Trips - Weekday trips adjusted to match the Mizuta LTA, Nov 2021, Table 4-1 Project Trips Gen Rates

Woodstoves - Fireplaces, if used, would be gas. No wood stoves or fireplaces.

Area Coating - SDAPCD Rule 67.0.1 VOC as 50 g/L interior/exterior and 100 g/L parking lot paint

Construction Off-road Equipment Mitigation - Watering 3x per day during construction

Area Mitigation - Use of low VOC paints, as per Rule 67.0.1 and electric landscaping when possible

Energy Mitigation - Solar is anticipated on all new structures and would provide at least 50% of electricity use.

Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Water Mitigation - Low flow fixtures per CalGreen, including water efficient irrigation.

Waste Mitigation - Minimum of 50% recycling of waste

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	230.00	190.00
tblConstructionPhase	PhaseEndDate	2/22/2024	12/28/2023
tblConstructionPhase	PhaseEndDate	1/3/2024	11/8/2023
tblConstructionPhase	PhaseEndDate	1/29/2024	12/4/2023
tblConstructionPhase	PhaseStartDate	1/30/2024	12/5/2023
tblConstructionPhase	PhaseStartDate	1/4/2024	11/9/2023
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberWood	4.55	0.00
tblFireplaces	NumberWood	13.30	0.00
tblLandUse	LotAcreage	12.34	3.00
tblLandUse	LotAcreage	0.81	0.53
tblVehicleTrips	WD_TR	7.32	8.00
tblVehicleTrips	WD_TR	9.44	10.00



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tblWoodstoves	NumberCatalytic	0.65	0.00
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	0.65	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

**2.0 Emissions Summary**

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Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
2023													318.6646	0.0737	2.2000e-003	321.1618
Maximum													318.6646	0.0737	2.2000e-003	321.1618

**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					
2023													318.6642	0.0737	2.2000e-003	321.1614
Maximum													318.6642	0.0737	2.2000e-003	321.1614

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

		Highest		
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**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													22.7122	1.0200e-003	4.1000e-004	22.8583
Energy													141.4162	6.4200e-003	1.6300e-003	142.0616
Mobile													435.2521	0.0311	0.0198	441.9383
Waste													10.2856	0.6079	0.0000	25.4820
Water													17.3520	0.1093	2.6800e-003	20.8817
<b>Total</b>													<b>627.0180</b>	<b>0.7557</b>	<b>0.0245</b>	<b>653.2218</b>

Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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													22.7066	1.0100e-003	4.1000e-004	22.8525
Energy													97.2460	3.7200e-003	1.3000e-003	97.7264
Mobile													435.2521	0.0311	0.0198	441.9383
Waste													5.1428	0.3039	0.0000	12.7410
Water													14.6740	0.0875	2.1500e-003	17.5007
<b>Total</b>													<b>575.0215</b>	<b>0.4273</b>	<b>0.0237</b>	<b>592.7589</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>8.29</b>	<b>43.46</b>	<b>3.50</b>	<b>9.26</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/28/2023	2/3/2023	5	5	
3	Grading	Grading	2/4/2023	2/15/2023	5	8	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

4	Building Construction	Building Construction	2/16/2023	11/8/2023	5	190
5	Paving	Paving	11/9/2023	12/4/2023	5	18
6	Architectural Coating	Architectural Coating	12/5/2023	12/28/2023	5	18

**Acres of Grading (Site Preparation Phase): 7.5**

**Acres of Grading (Grading Phase): 8**

**Acres of Paving: 0**

**Residential Indoor: 164,835; Residential Outdoor: 54,945; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

**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	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	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
Demolition	6	15.00	0.00	73.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	23.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Water Exposed Area

Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 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					
Fugitive Dust													0.0000	0.0000	0.0000	0.0000
Off-Road													33.9921	9.5200e-003	0.0000	34.2301
<b>Total</b>													<b>33.9921</b>	<b>9.5200e-003</b>	<b>0.0000</b>	<b>34.2301</b>

**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													2.1905	1.1000e-004	3.5000e-004	2.2971
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.9518	3.0000e-005	3.0000e-005	0.9605
<b>Total</b>													<b>3.1424</b>	<b>1.4000e-004</b>	<b>3.8000e-004</b>	<b>3.2576</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 2023**

**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													0.0000	0.0000	0.0000	0.0000
Off-Road													33.9920	9.5200e-003	0.0000	34.2300
<b>Total</b>													<b>33.9920</b>	<b>9.5200e-003</b>	<b>0.0000</b>	<b>34.2300</b>

**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													2.1905	1.1000e-004	3.5000e-004	2.2971
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.9518	3.0000e-005	3.0000e-005	0.9605
<b>Total</b>													<b>3.1424</b>	<b>1.4000e-004</b>	<b>3.8000e-004</b>	<b>3.2576</b>



Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 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					
Fugitive Dust													0.0000	0.0000	0.0000	0.0000
Off-Road													8.3627	2.7000e-003	0.0000	8.4303
<b>Total</b>													<b>8.3627</b>	<b>2.7000e-003</b>	<b>0.0000</b>	<b>8.4303</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.2856	1.0000e-005	1.0000e-005	0.2881
<b>Total</b>													<b>0.2856</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2881</b>

Santa Fe Residential Dev - San Diego Air Basin, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2023**

**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													0.0000	0.0000	0.0000	0.0000
Off-Road													8.3627	2.7000e-003	0.0000	8.4303
<b>Total</b>													<b>8.3627</b>	<b>2.7000e-003</b>	<b>0.0000</b>	<b>8.4303</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.2856	1.0000e-005	1.0000e-005	0.2881
<b>Total</b>													<b>0.2856</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2881</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 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					
Fugitive Dust													0.0000	0.0000	0.0000	0.0000
Off-Road													10.4243	3.3700e-003	0.0000	10.5085
<b>Total</b>													<b>10.4243</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>10.5085</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.3807	1.0000e-005	1.0000e-005	0.3842
<b>Total</b>													<b>0.3807</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.3842</b>

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**3.4 Grading - 2023**

**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													0.0000	0.0000	0.0000	0.0000
Off-Road													10.4242	3.3700e-003	0.0000	10.5085
<b>Total</b>													<b>10.4242</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>10.5085</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.3807	1.0000e-005	1.0000e-005	0.3842
<b>Total</b>													<b>0.3807</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.3842</b>

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**3.5 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													220.2145	0.0524	0.0000	221.5242
<b>Total</b>													<b>220.2145</b>	<b>0.0524</b>	<b>0.0000</b>	<b>221.5242</b>

**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
Vendor													9.5309	2.9000e-004	1.3800e-003	9.9496
Worker													13.8651	4.1000e-004	3.9000e-004	13.9907
<b>Total</b>													<b>23.3960</b>	<b>7.0000e-004</b>	<b>1.7700e-003</b>	<b>23.9403</b>

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**3.5 Building Construction - 2023**

**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													220.2143	0.0524	0.0000	221.5239
<b>Total</b>													<b>220.2143</b>	<b>0.0524</b>	<b>0.0000</b>	<b>221.5239</b>

**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
Vendor													9.5309	2.9000e-004	1.3800e-003	9.9496
Worker													13.8651	4.1000e-004	3.9000e-004	13.9907
<b>Total</b>													<b>23.3960</b>	<b>7.0000e-004</b>	<b>1.7700e-003</b>	<b>23.9403</b>

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**3.6 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													14.7407	4.6300e-003	0.0000	14.8565
Paving													0.0000	0.0000	0.0000	0.0000
<b>Total</b>													<b>14.7407</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>14.8565</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													1.1422	3.0000e-005	3.0000e-005	1.1526
<b>Total</b>													<b>1.1422</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>1.1526</b>

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**3.6 Paving - 2023**

**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													14.7407	4.6300e-003	0.0000	14.8565
Paving													0.0000	0.0000	0.0000	0.0000
<b>Total</b>													<b>14.7407</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>14.8565</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													1.1422	3.0000e-005	3.0000e-005	1.1526
<b>Total</b>													<b>1.1422</b>	<b>3.0000e-005</b>	<b>3.0000e-005</b>	<b>1.1526</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 Architectural Coating - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating													0.0000	0.0000	0.0000	0.0000
Off-Road													2.2979	1.4000e-004	0.0000	2.3014
<b>Total</b>													<b>2.2979</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>2.3014</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.2856	1.0000e-005	1.0000e-005	0.2881
<b>Total</b>													<b>0.2856</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2881</b>

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**3.7 Architectural Coating - 2023**

**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													0.0000	0.0000	0.0000	0.0000
Off-Road													2.2979	1.4000e-004	0.0000	2.3014
<b>Total</b>													<b>2.2979</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>2.3014</b>

**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
Vendor													0.0000	0.0000	0.0000	0.0000
Worker													0.2856	1.0000e-005	1.0000e-005	0.2881
<b>Total</b>													<b>0.2856</b>	<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.2881</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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													435.2521	0.0311	0.0198	441.9383
Unmitigated													435.2521	0.0311	0.0198	441.9383

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	104.00	105.82	81.64	288,573	288,573
Single Family Housing	380.00	362.52	324.90	1,055,410	1,055,410
<b>Total</b>	<b>484.00</b>	<b>468.34</b>	<b>406.54</b>	<b>1,343,983</b>	<b>1,343,983</b>

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Single Family Housing	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

**4.4 Fleet Mix**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Single Family Housing	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated													44.1701	2.7000e-003	3.3000e-004	44.3351
Electricity Unmitigated													88.3403	5.4000e-003	6.5000e-004	88.6702
NaturalGas Mitigated													53.0759	1.0200e-003	9.7000e-004	53.3913
NaturalGas Unmitigated													53.0759	1.0200e-003	9.7000e-004	53.3913

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	174509													9.3125	1.8000e-004	1.7000e-004	9.3678
Single Family Housing	820096													43.7634	8.4000e-004	8.0000e-004	44.0235
<b>Total</b>														<b>53.0759</b>	<b>1.0200e-003</b>	<b>9.7000e-004</b>	<b>53.3913</b>

**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	174509													9.3125	1.8000e-004	1.7000e-004	9.3678
Single Family Housing	820096													43.7634	8.4000e-004	8.0000e-004	44.0235
<b>Total</b>														<b>53.0759</b>	<b>1.0200e-003</b>	<b>9.7000e-004</b>	<b>53.3913</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	62969.8	15.4232	9.4000e-004	1.1000e-004	15.4809
Single Family Housing	297705	72.9170	4.4600e-003	5.4000e-004	73.1894
<b>Total</b>		<b>88.3403</b>	<b>5.4000e-003</b>	<b>6.5000e-004</b>	<b>88.6702</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	31484.9	7.7116	4.7000e-004	6.0000e-005	7.7404
Single Family Housing	148852	36.4585	2.2300e-003	2.7000e-004	36.5947
<b>Total</b>		<b>44.1701</b>	<b>2.7000e-003</b>	<b>3.3000e-004</b>	<b>44.3351</b>

**6.0 Area Detail**

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**6.1 Mitigation Measures Area**

- Use Electric Lawnmower
- Use Electric Leafblower
- Use Electric Chainsaw
- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive 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													22.7066	1.0100e-003	4.1000e-004	22.8525
Unmitigated													22.7122	1.0200e-003	4.1000e-004	22.8583

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**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating													0.0000	0.0000	0.0000	0.0000
Consumer Products													0.0000	0.0000	0.0000	0.0000
Hearth													22.0936	4.2000e-004	4.1000e-004	22.2249
Landscaping													0.6186	5.9000e-004	0.0000	0.6334
<b>Total</b>													<b>22.7122</b>	<b>1.0100e-003</b>	<b>4.1000e-004</b>	<b>22.8583</b>



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**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating													0.0000	0.0000	0.0000	0.0000
Consumer Products													0.0000	0.0000	0.0000	0.0000
Hearth													22.0936	4.2000e-004	4.1000e-004	22.2249
Landscaping													0.6130	5.9000e-004	0.0000	0.6276
<b>Total</b>													<b>22.7066</b>	<b>1.0100e-003</b>	<b>4.1000e-004</b>	<b>22.8525</b>

**7.0 Water Detail**

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**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

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.6740	0.0875	2.1500e-003	17.5007
Unmitigated	17.3520	0.1093	2.6800e-003	20.8817

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.847002 / 0.53398	4.4231	0.0279	6.8000e-004	5.3228
Single Family Housing	2.47585 / 1.56086	12.9290	0.0814	1.9900e-003	15.5589
<b>Total</b>		<b>17.3520</b>	<b>0.1093</b>	<b>2.6700e-003</b>	<b>20.8817</b>

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**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.677602 / 0.501407	3.7404	0.0223	5.5000e-004	4.4610
Single Family Housing	1.98068 / 1.46565	10.9336	0.0652	1.6000e-003	13.0397
<b>Total</b>		<b>14.6740</b>	<b>0.0875</b>	<b>2.1500e-003</b>	<b>17.5007</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Institute Recycling and Composting Services

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.1428	0.3039	0.0000	12.7410
Unmitigated	10.2856	0.6079	0.0000	25.4820

**8.2 Waste by Land Use**

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	5.98	1.2139	0.0717	0.0000	3.0074
Single Family Housing	44.69	9.0717	0.5361	0.0000	22.4747
<b>Total</b>		<b>10.2856</b>	<b>0.6079</b>	<b>0.0000</b>	<b>25.4820</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	2.99	0.6069	0.0359	0.0000	1.5037
Single Family Housing	22.345	4.5358	0.2681	0.0000	11.2373
<b>Total</b>		<b>5.1428</b>	<b>0.3039</b>	<b>0.0000</b>	<b>12.7410</b>

**9.0 Operational Offroad**

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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**11.0 Vegetation**

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