Appendix F

Greenhouse Gas Emissions Technical Report

GREENHOUSE GAS ASSESSMENT

Jefferson Oceanside Apartments
Multi-Family Mixed Use Development

City of Oceanside, CA

Prepared For:

JPI Development LLC
12250 El Camino Real, Suite 380
San Diego, CA 92130

Prepared By:

Ldn Consulting, Inc.
42428 Chisolm Trail
Murrieta, CA 92562

March 27, 2022

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EXECUTIVE SUMMARY

This greenhouse gas assessment was prepared according to guidelines established within the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32), Senate Bill 97 (SB97), California Environmental Quality Act (CEQA) and SB32. Greenhouse Gases (GHGs) analyzed in this study are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). To simplify GHG calculations, both CH_4 and N_2O are converted to equivalent amounts of CO_2 and are identified as carbon dioxide equivalent (CO_2e).

The site is located just south of the Crouch light rail station or south of the intersection Skylark Drive and Crouch Street in Oceanside, in central coastal San Diego County. The community would be situated on an approximately 19- acre project site and would consist of 295 apartment units and 3,000 Square Feet (SF) of retail space. All construction phases (i.e., grading through construction) of the proposed project are anticipated to be complete sometime in late 2025 and full buildout operations are expected in 2026.

Project design features (PDFs) have been included in this project and are identified in Section 1.4 of this report. The applicant has agreed to implement all PDFs, which will be included in the proposed project's Conditions of Approval (COA).

During construction of the Project, it is expected that approximately 1,407.39 Metric Tons (MT) of CO_2e will be generated. Given this, the Project would generate 46.91 MT CO_2e per year over the amortized 30-year minimum life of the Project. After Construction and during operations of the Project, a combined GHG emissions of 1,452.02 MT CO_2e is expected. The Project is consistent with the City's General Plan (Housing Element).

Based on the City's CAP, a project would be required to generate fewer service population emission than 3.5 MT CO_2e in 2026. The Project was found to generate 1,511.47 MT CO_2e with both annualized construction and annual operation GHG emissions averaged over a Project population of 673 residents (EPS, 2021) and 20 employees or a service population of 693. Given this, the Project would have a projected GHG emission rate of 2.18 MT CO_2e per SP or (1,511.47 MT CO_2e/ 693 persons). Based on this, the proposed Project would generate emissions below the City-specific localized efficiency metric of 3.5 MT CO_2e per SP. Given this, the Project would be found to generate a less than significant impact.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this GHG assessment is to provide documentation in support of the City's CEQA compliance requirement to analyze a project's contribution to greenhouse gas emissions. The proposed project's GHG emissions impacts are analyzed based on the recommended thresholds provided in Appendix G of the CEQA Guidelines which are (14 CCR 15000 et seq.):

1. *Will the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*
2. *Will the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

1.2 Project Location

The project site is located just south of the Crouch Light Rail Station or south of the intersection Skylark Drive and Crouch Street in Oceanside, in north coastal San Diego County. An existing single-family residential development lies south of the project site. A commercial office park is located west of the development and undeveloped land exists to the east. The site is within walking/biking distance to Crouch Street Station (<0.1 miles), also retail shopping and food stores are located across Oceanside Boulevard a short walk north along Crouch Street. A general Project vicinity map is shown in Figure 1-A of this report.

1.3 Project Description

The project site is approximately 19 acres; however, extreme slopes exist to the south of the project site. Based on this, the buildable area onsite is about 12.87 acres. The proposed site development plan is shown on Figure 1-B. The proposed project includes 295 dwelling units of residential apartments and 3,000 square feet of specialty retail. The site is currently zoned Community Commercial (CC) and conditional use permit and Mixed-Use Development Plan are required to allow for up to 29 units per acre. Access to the project site will be along the future roadway of South Oceanside Boulevard which connects to the existing roads of Crouch Street and Union Plaza Court. It is expected that the proposed project would begin construction in 2023 and be completed roughly two years later with full occupancy and operations expected in 2026. During the grading phase of the Project, it is expected that an export of up to 10,100 cubic yards (CY) will be required.

As part of the City's Housing Element the Community Commercial use allows for a density of up to 29 Units per gross acre and estimates that the project could be developed with as many

as 305 units (City of Oceanside, 2013). The project site has been designed to have a density of 22.9 units per acre with supporting neighborhood retail. Since the proposed project would construct only 295 of the projected 305 units within the housing element.

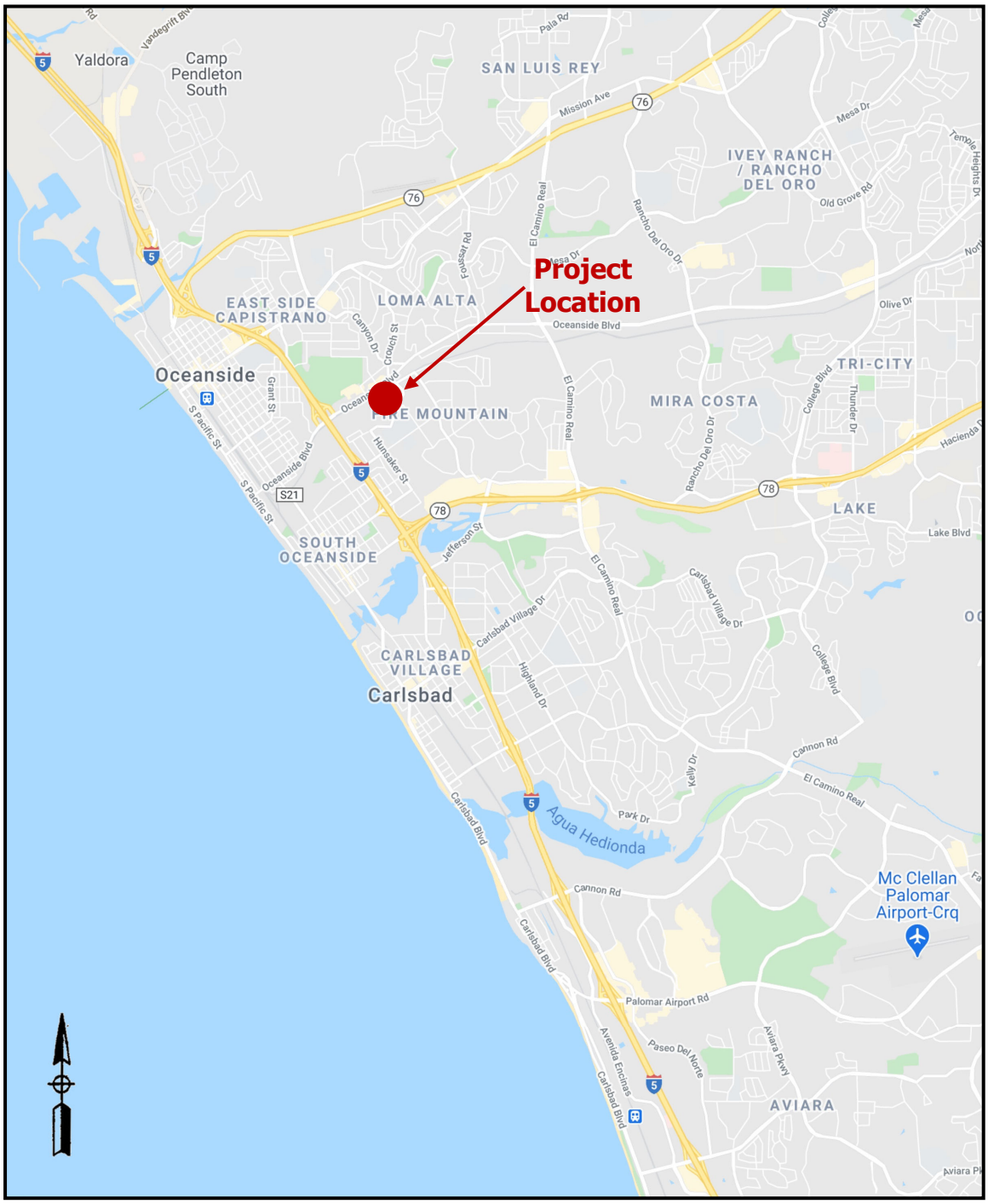
1.4 Project Design Features

The proposed project would implement Project Design Features (PDFs) specifically chosen to reduce both greenhouse gas and air quality emissions. These PDFs would promote sustainability through site design that would conserve energy, water, open space, and other natural resources, and would become specific Conditions of Approval (COA) by the City:

1. The project would install low flow water fixtures in all residential units and retail area.
2. All lighting within the project will be designed using LED technology for both indoor and outdoor areas.
3. The project would provide separate waste containers to allow for simpler material separations, or the project would pay for a waste collection service that recycles the materials in accordance with AB 341 to achieve a 75% waste diversion. 100% of all green waste will be diverted from landfills and recycled as mulch and used onsite.
4. The project would not install hearth (fireplace) options in residential units.
5. The project would install water efficient/drought tolerant and/or native landscape, use smart evapotranspiration controllers, would use reclaimed water on non-agricultural project landscaping areas and would limit conventional turf.
6. The project would install 413 kilowatts (kW) of solar within the development.
7. The project would meet all Electric Vehicle (EV) Charging Station requirements and will install 35 EV charging stations.
8. The project is located within walking distance to Crouch Street Rail station and is within walking distance to retail and commercial centers areas.
9. The project would comply with ENERGYSTAR appliance requirements and would meet ENERGYSTAR for Homes.
10. The project would be required to utilize Tier 3 construction Equipment with Diesel Particulate Filters (DPF) attached or equivalent.
11. The project would install high-efficiency HVAC systems.
12. The project would unbundle parking from apartment units and charge a monthly fee for each parking space.
13. Bike-share program for residents.
14. Transit pass subsidies for employees of the project in the retail/commercial area
15. New resident information packets about VMT reductions.
16. Transportation Demand Management (TDM) coordinator.

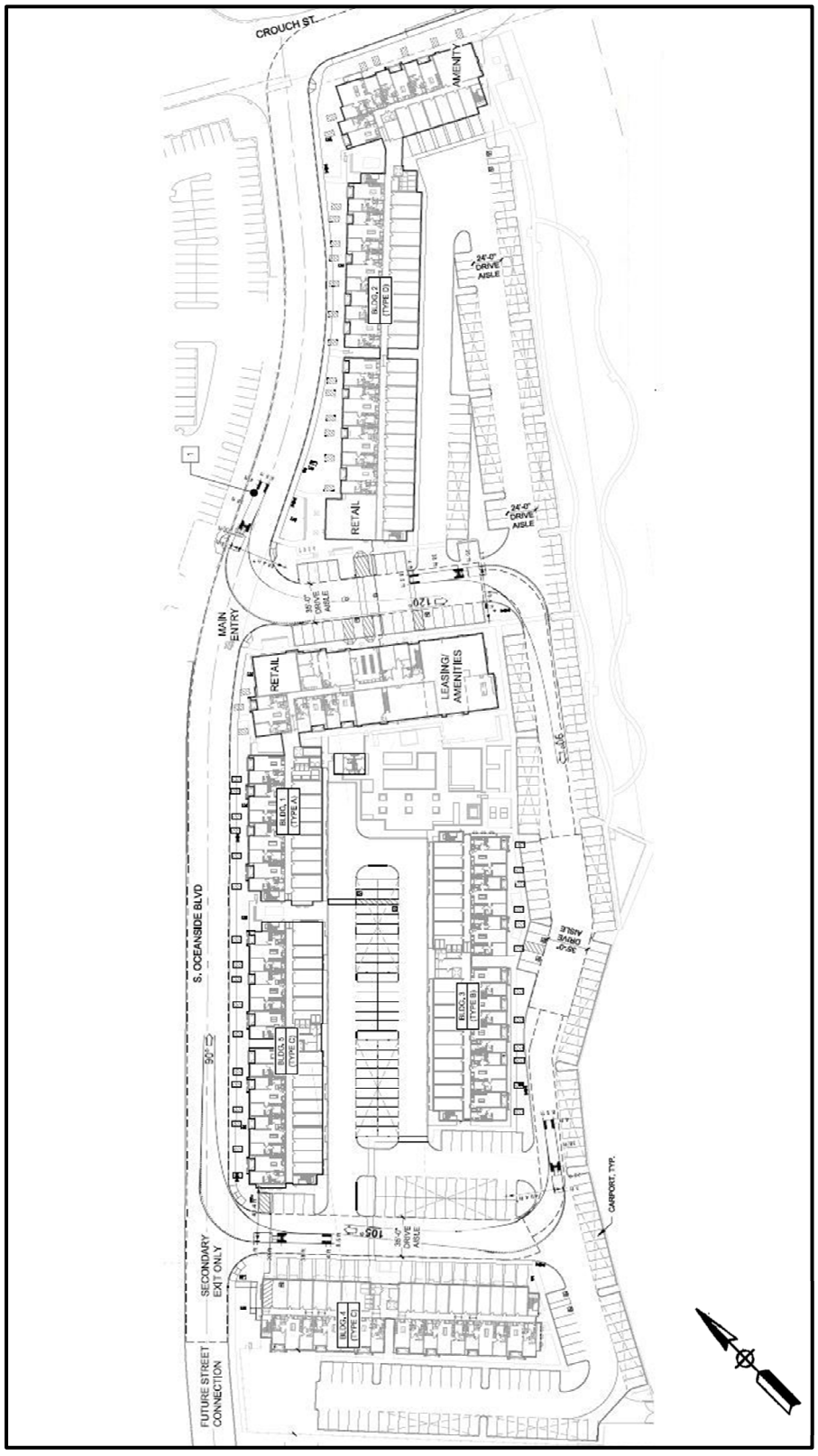
PDFs 1-7 above have been quantified in this analysis, while PDFs 8-16 are not specifically analyzed quantitatively in this analysis. As a result, the proposed project emissions are conservative.

Figure 1-A: Project Vicinity Map



Source: (Google, 2021)

Figure 1-B: Project Configuration



Source: (ADC, 2022)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Understanding Greenhouse Gases

GHGs such as water vapor and carbon dioxide are abundant in the earth's atmosphere. These gases are called "Greenhouse Gases" because they absorb and emit thermal infrared radiation which acts like an insulator to the planet. Without these gases, the earth's ambient temperature would either be extremely hot during the day or blistering cold at night. However, because these gases can both absorb and emit heat, the earth's temperature does not sway too far in either direction.

Over the years as human activities require the use of burning fossil fuels stored carbon is released into the air in the form of CO_2 and to a much lesser extent Carbon Monoxide (CO). Additionally, over the years scientist have measured this rise in Carbon Dioxide and the general consensus is that human activities contribute to the heating of the planet. Additionally, other GHGs such as Methane and Nitrous Oxide would contribute to global warming.

GHGs of concern as analyzed in this study are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). To simplify GHG calculations, both CH_4 and N_2O can be converted to an equivalent amount of CO_2 or CO_2e. CO_2e is calculated by multiplying the calculated levels of CH_4 and N_2O by a Global Warming Potential (GWP). The latest California Emissions Estimator Model (CalEEMod 2020.4.0) developed by Breeze Software uses the Intergovernmental Panel on Climate Change (IPCC) 2007 report as source data for GWP factors for both CH_4 and N_2O (CAPCOA, September 2016), using the 100-year period of 25 and 298, respectively (IPCC, 2007). Furthermore, it should be noted that biogenic GHGs from the degradation of organic materials produced by human activities such as solid waste breakdown and wastewater breakdown which are also calculated within CalEEMod and presented in this report.

2.2 Existing Setting

The existing site is mostly a vacant lot located south of the existing Crouch Street rail station within the City of Oceanside. A residential development exists to the south of the project site while mostly commercial surrounds the site to the west and north. A vacant lot exists to the east of the project. The site is mostly flat along the frontage of Oceanside Boulevard with elevations roughly 35 feet above mean sea level (MSL). The site then raises to roughly 130 feet above MSL to the southern terminus of the site.

2.3 Climate (Oceanside)

Climate within the San Diego Air Basin (SDAB) area varies dramatically over short geographical distances due to size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps the high desert mostly sunny and warm. Typically, during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north. Prevailing winds are generally westerly flowing towards the east for most of the year; however, during the autumn and winter, it is common for strong warm dry winds originating in the desert having a more easterly flow characteristic.

Meteorological trends within Oceanside produce daytime highs typically ranging between 65ºF in the winter to approximately 78ºF in the summer with August usually being the hottest month. Median temperatures range from approximately 55ºF in the winter to approximately 70ºF in the summer. The average humidity is approximately 64% in the winter and about 72% in the summer (City-Data, 2020).

3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT

3.1 Federal

Massachusetts v. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

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

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

3.2 State

State Greenhouse Gas Targets

Executive Order S-3-05

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

AB 32 and CARB's Climate Change Scoping Plan

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

Under AB 32, the California Air Resources Board (CARB) is responsible for and is recognized as having the expertise to carry out and develop the programs and regulations necessary to achieve the GHG emissions reduction mandate of AB 32. Therefore, in furtherance of AB 32, CARB adopted regulations requiring the reporting and verification of GHG emissions from specified sources, such as industrial facilities, fuel suppliers and electricity importers (see Health & Safety Code Section 35830; Cal. Code Regs., tit. 17, §§95100 et seq.). CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

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

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *Scoping Plan* established an overall framework for the measures that will be implemented to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The 2008 *Scoping Plan* evaluated opportunities for sector-specific reductions, integrated all CARB and Climate Action Team[1] early actions and additional GHG reduction features by both entities, identified additional measures to be pursued as regulations, and outlined the role of a cap-and-trade program. The key elements of the 2008 *Scoping Plan* include the following (CARB, 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33 percent
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions
4. Establishing targets for transportation related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard

[1] The Climate Action Team is comprised of state agency secretaries and heads of state agencies, boards and departments; these members work to coordinate statewide efforts to implement GHG emissions reduction programs and adaptation programs.

6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the 2008 *Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level, i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" [BAU]). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

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

In 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose of the *First Update* was 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." The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the *First Update*, CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." 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* identified key recommended actions for each sector that will facilitate achievement of EO S-3-05's 2050 reduction goal.

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

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

In November 2017, CARB released *California's 2017 Climate Change Scoping Plan* (*Second Update*) for public review and comment (CARB, 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below). The strategy includes continuing the Cap-and-Trade Program through 2030,[2] inclusive policies and broad support for clean technologies, enhanced industrial efficiency and competitiveness, prioritization of transportation sustainability, continued leadership on clean energy, putting waste resources to beneficial use, supporting resilient agricultural and rural economics and natural and working lands, securing California's water supplies, and cleaning the air and public health. When discussing project-level GHG emissions reduction actions and thresholds, the *Second Update* states "[a]chieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development." However, the *Second Update* also recognizes that such an achievement "may not be feasible or appropriate for every project … and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA." CARB's Governing Board adopted the *Second Update* in December 2017.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's *Scoping Plan* to express

[2] In July 2017, AB 398 was enacted into law, thereby extending the legislatively-authorized lifetime of the Cap-and-Trade Program to December 31, 2030.

the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016.

SB 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction target; make changes to CARB's membership and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members. The legislation further requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and identify specific information for GHG emissions reduction measures when updating the scoping plan, including information regarding the range of projected GHG emissions and air pollution reductions that result from each measure and the cost-effectiveness (including avoided social costs) of each measure (see Health & Safety Code Section 38562.7).

Building Energy

Title 24, Part 6

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new buildings and alterations or additions to existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2013 Title 24 standards went into effect on July 1, 2014 and were estimated to reduce energy uses between 3.8% to 36.4%, depending on the energy source and land (Architectural Energy Corporation (AEC), 2013).

The 2016 Title 24 standards, which went into effect on January 1, 2017, are the currently applicable standards. When comparing the 2013 and 2016 standards for electrical consumption, it is expected that low-rise, single-family detached homes and multi-family homes would use 12% and 15% less electricity under the 2016 standards, respectively. Similarly, implementation of the 2016 standards is expected to reduce natural gas consumption by 21% in single-family homes and 31% in multi-family homes. Newly constructed non-residential buildings are estimated to achieve a 5% reduction in electricity consumption under the 2016 standards and no significant change relative to natural gas consumption (California Energy Commission, 2015). The current version of CalEEMod used in this analysis employs, as a default parameter, the 2016 Title 24 standards to estimate GHG emissions.

The Project would be required, at a minimum, to comply with the latest version of Title 24 standards at the time the Project seeks building permits. Currently this would be the 2019 standards, as those standards went into effect on January 1, 2020. The 2019 standards continue to improve upon the 2016 standards for residential and nonresidential buildings. One of the most notable changes in the 2019 standards is the requirement for the installation of rooftop solar on residential buildings (California Energy Commission, 2017). It should be noted that the State updates these regulations every three years. Thus, throughout Project construction, buildings will need comply with the most recently adopted standards.

Title 24, Part 11

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

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.

- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- Sixty-five (65) percent of construction and demolition waste must be diverted from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations.
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

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

The newest CALGreen Standards were updated in 2019 which became effective on January 1, 2020. The updated Code includes modifications to current codes under Division 5.1 (Planning and Design), Division 5.3 (Water Efficiency and Conservation), Division 5.4 and 5.5 (Material Conservation and Resource Efficiency) and (Environmental Quality). (California Title 24, Part 11, 2019). Should building permits be required after January 2020, CALGreen standards would be applicable.

Zero Net Energy Design Goals

As recognized in the *First Update* to the *Scoping Plan*, the California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. As background, the California Public Utilities Commission first set forth its zero net energy goals in the 2008 Energy Efficiency Strategic Plan and the 2011 Big Bold Energy Efficiency Strategies. The key policy timelines include: (1) all new residential construction in California will be zero net energy by 2020, and (2) all new commercial construction in California will be zero net energy by 2030. As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a zero net energy code building is one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building using the CEC's Time Dependent

Valuation metric. It should be noted that Title 24 (2019) which became effective in 2020 requires rooftop solar for all new residential units.

Title 20

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

Mobile Sources

AB 1493

In response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent (CARB, Clean Car Standards - Pavley, Assembly Bill 1493, 2017).

EO S-1-07

Issued in January 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the

Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

In 2018, CARB extended and expanded the Low Carbon Fuel Standard regulations to include a 20 percent target for reduction in carbon intensity by 2030.

SB 375

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

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

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for SANDAG adopted in 2010 are a 7 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035; the targets are expressed as a percent change in per capita passenger vehicle GHG emissions relative to 2005.

In October 2015, SANDAG adopted *San Diego Forward: The Regional Plan*, which contains the region's current SCS. In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would

achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region. More specifically, as set forth in CARB Executive Order G-15-075, CARB determined that SANDAG's SCS would achieve a 15 percent per capita reduction by 2020 and a 21 percent per capita reduction by 2035.

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

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB, 2017). To improve air quality, CARB also has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that, in 2025, cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, also has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025 (California Air Resources Board, 2012).

The Zero Emission Vehicle (ZEV) program acts as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles (PHEVs) in the 2018 to 2025 model years (California Air Resources Board, 2017). PHEVs contain both an internal combustion engine and an electric motor, which is powered by batteries. As defined by CARB, ZEVs includes PHEVs, Battery Electric Vehicles (BEV) and Fuel Cell Electric Vehicles (FCEV). The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market. In the context of this report, "EV" is used to refer to all types of electric, and low- or zero-emission vehicles.

As of the publication date of this report, FCEVs are not common in the San Diego region due to limited refueling capabilities. Based on information obtained from the California Fuel Cell Partnership, only one hydrogen fuel station (located in the City of Del Mar) exists in San Diego County. At this time, one station is planned for construction in the City of San Diego sometime in the future. (California Fuel Cell Partnership, 2017). Therefore, for purposes of this analysis,

only BEVs and PHEVs are referenced when ZEVs are discussed. If FCEVs gain traction in San Diego, additional GHG reductions would be realized.

EO B-16-12

EO B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet. As of January 2018, the Governor has called for as many as 1.5 million EV by 2025 and up to five million EV by 2030 (Office of Governor Edmund G. Brown Jr., 2018).

SB 350

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

Renewable Energy Procurement

SB 1078

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

SB X1 2

SB X1 2 (2011) expanded the RPS by establishing that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste

conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350

SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030 be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency.

SB 100

SB 100 (2018) has further accelerated and expanded the RPS, requiring achievement of a 50 percent RPS by December 31, 2026 and a 60 percent RPS by December 31, 2030. SB 100 also established a new statewide policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100 percent of electricity retail sales and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

Water

EO B-29-15

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

Solid Waste

AB 939 and AB 341

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

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

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle, 2018). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

CEQA Guidelines

With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance based standards" (14 CCR 15064.4[a]). A lead agency may use a "model or methodology" to estimate greenhouse gas emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR 15064.4[b]):

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In addition, the CEQA Guidelines specify that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7[c]).

Governor's Office of Planning and Research Guidance

The Governor's Office of Planning and Research technical advisory titled, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR, 2008). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR, 2008).

Cumulative Nature of Climate Change

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project in the SDAB, such as the Project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change.

While the Project would result in emissions of GHGs during construction and operation, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally believed that an individual project is of insufficient magnitude by itself to influence climate

change or result in a substantial contribution to the global GHG inventory as scientific uncertainty regarding the significance a project's individual and cumulative effects on global climate change remains.

Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008). This approach is consistent with that recommended by the CNRA, which noted in its Public Notice for the proposed CEQA amendments (pursuant to SB97) that the evidence before it indicates that in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA, 2009). Similarly, the Final Statement of Reasons for Regulatory Action on the CEQA Amendments confirm that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA, 2009).

Approaches to Determining Significance

Neither the State of California nor the SDAPCD has adopted quantitative emission-based thresholds of significance for GHG emissions under CEQA. In the absence of any adopted numeric threshold, the significance of the Project's GHG emissions will be evaluated consistent with CEQA Guidelines Section 15064.4(b) by considering whether the Project complies with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

3.3 Local

City of Oceanside Climate Action Plan

The City of Oceanside's Climate Action Plan (CAP) seeks to align with state efforts to reduce greenhouse gas (GHG) emissions while balancing a variety of community interests: e.g., quality of life, economic development, and social equity. The CAP outlines several measures the Oceanside community will take to make progress towards meeting the State of California's 2050 GHG reduction goal. The CAP has been prepared as part of the City's General Plan and utilizes land use assumptions to estimate GHG inventories presented in the CAP. Therefore, a project would be required to conform to all General Plan policies.

California State laws governing GHG emissions within the state are generally written to conform to both the Global Warming Solutions Act of 2006 (AB 32) and Senate Bill 32 (SB 32). These laws were written to reduce GHG emissions within the state to meet goals set forth within the laws therein. The current goal for the State is to reduce GHG emissions by 40 percent below 1990 levels by 2030.

The CAP provides for a CAP Consistency Checklist, which offers an alternative to project-specific assessment and mitigation of GHG emissions impacts. Implementation of the checklist is contingent upon the adoption of several ordinances addressing renewable energy, electric vehicle charging facilities and preferential parking, transportation demand management (TDM) and tree canopy. In the interim, proposed projects must demonstrate that associated GHG emissions fall below one of two thresholds of significance, as described below. Projects that cannot comply with these thresholds of significance require an Environmental Impact Report and an associated statement of overriding considerations.

While many projects may otherwise be categorically exempt from CEQA review (e.g., infill development), those that generate mass greenhouse (GHG) emissions exceeding 900MT CO2e (the generally accepted "bright line" threshold of significance for GHG emissions) must assess project-induced emissions against CAP-aligned thresholds of significance.

Projects exceeding the 900 MT GHG screening threshold would be required to demonstrate that GHG emissions do not exceed efficiency/service population thresholds (City of Oceanside, 2019) which are identified below:

- Projects that will be implemented prior to 2020 must show that GHG emissions related to both construction and operation will not exceed 4.0 MT CO_2e/service population per year.
- Projects that will not be implemented prior to 2020 must show that GHG emissions related to both construction and operations will not exceed 3.5 MT CO_2e/service population per year.

Additionally, the project is predominately comprised of one bedroom units and is anticipated to have a lower population per unit as compared to the City's average of 2.92 (SANDAG, 2013). For this reason, it may be more appropriate to use a site specific household size of 2.39 persons/unit as identified in the Project Market and Fiscal Impact analysis (EPS, 2021). Based on that analysis, it's expected that only 280 units of the 295 units would be occupied at any given time and would have a project service population of 673 (EPS, 2021) for residential uses and 20 employees for the commercial use for a total service population of 693.

City of Oceanside General Plan

A project's adherence to the City's General Plan can be determined through demonstrating consistency with General Plan land use assumptions and policies. If a project would generate fewer GHG emissions than the maximum allowable buildout of the site under the General Plan land use designations, the project would have a less than significant GHG impact.

The City of Oceanside is currently undergoing a General Plan Update, Onward Oceanside, which consists of three plans: The General Plan Update, the Smart and Sustainable Corridors Plan, and the South Morro Hills Community Plan. The three plans are being prepared concurrently. An Environmental Impact Report on the plans will be prepared, and an update of the city's Climate Action Plan will also be undertaken.

Smart and Sustainable Corridors Plan

The project site is within the boundaries of a Smart and Sustainable Corridor. The Smart and Sustainable Corridors Plan (SCCP) will identify ways to facilitate infill and redevelopment along three key corridors, including Oceanside Boulevard. Through the SCCP, the City seeks to locate future housing and employment growth into the City's commercial corridors.

The plan will serve as the foundation for the General Plan update, supporting the City's ability to meet its Regional Housing Needs Allocation by maximizing housing development in existing corridors near the City's eight commuter rail stations and other transit stops. By enhancing access to the City's local and regional transit network, the SCCP Plan will seek to focus future development in existing commercial and industrial corridors to bring jobs close to where people live, support infrastructure that is efficient and pedestrian and bicycle friendly. More density of people and jobs along key transit corridors can support more frequent, more reliable transit, as well as walkable and bikeable communities and commutes.

4.0 METHODOLOGY

4.1 Construction CO_2e Emissions Calculation Methodology

Project construction dates were estimated based on a construction start date in 2023 with construction ending in 2025. CalEEMod was utilized for all construction calculations and has been manually updated to reflect SDAPCD Rule 67 VOC paint standards and PDFs identified in Section 1.4. Table 4.1 shows the expected timeframes for the construction of project infrastructure, facilities, and improvements, as well as the expected number of pieces of equipment. Also, it should be noted that this would be conservative in the event construction began/ended at a later date, as annual code updates and fleet improvements typically have the effect of restricting and limiting emissions on construction equipment over time.

Table 4.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Site Preparation	08/01/2023	08/28/2023	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	08/29/2023	10/30/2023	
Excavators			2
Graders			1
Rubber Tired Dozers			1
Scrapers			2
Tractors/Loaders/Backhoes			2
Paving	10/31/2023	12/18/2023	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	12/19/2023	8/25/2025	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	6/1/2025	8/25/2025	
Air Compressors			1
This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions provided by the project applicant.			

GHG impacts related to construction are calculated using the latest CalEEMod 2020.4.0 model which was developed by BREEZE Software for South Coast Air Quality Management District (SCAQMD). CalEEMod is the state-wide accepted modeling software for preparing such air quality analysis throughout California and is sensitive to project-specific input including project location, construction schedule, and proposed uses. When project-specific information is not

available or known, CalEEMod includes built in default values which are industry-accepted standards to appropriately model and estimate emissions. CalEEMod incorporates emission factors from the EMFAC2017 model for on-road vehicle emissions and the OFFROAD2011 model for off-road vehicle emissions. The CalEEMod file is provided as ***Attachment A*** to this report.

Because impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively minimal portion of the overall lifetime project GHG emissions. To adequately include GHG emission from construction in the lifetime/operational GHG estimates, construction emissions are amortized over a 30-year project lifetime (SCAQMD, 2008). During construction, grading activities will remove mostly disturbed vegetation and soils. New vegetation, including trees and other landscaping, planted during building construction would ultimately sequester more carbon during operations than existing, disturbed vegetation. GHG reductions from new sequestration were not taken in this analysis, thus, the project would likely result in fewer MT CO_2e annually than reported in this analysis.

4.2 Operational Emissions Calculation Methodology

Operational GHG sources for the project would include area sources such as landscaping and architectural coatings during maintenance; energy sources from electrical usage; mobile sources from vehicular traffic including trucks and passenger vehicles; solid waste from trash generation and decomposition at landfills; and emissions generated through the conveyance and treatment of water. PDFs as defined in Section 1.4 have been included within the analysis.

GHG emissions for energy, water, and solid waste source emissions were estimated based on default inputs with the exception of mobile source emissions. The proposed project was modeled using the latest traffic study which assumes the project is fully operational in the year 2026 (Urban Systems Associates, Inc., 2021). It should be noted that the traffic study assumed that the commercial/retail use could be used for fast-food without a drive through which generates the highest number of trips for this use. The model was also updated to reflect the VMT projections for residential uses at 15.57 miles per resident and 13.8 miles per employee or a total VMT of 3,913,510 miles annually. It should be noted that the Project Traffic Engineer accounted for the VMT reductions from the nearby Sprinter rail access and no additional reductions would be calculated.

Energy Intensities as recommended by CalEEMod inputs were assumed within this report. Title 24 efficiencies as modeled within CalEEMod 2020.4.0 utilize Title 24 (2016) as defaults, though the project will comply with Title 24 (2019) which would further improve building efficiencies.

Electrical energy-intensity factors were updated in CalEEMod 2020.4.0 to reflect San Diego Gas and Electric's (SDG&E) latest emissions rates. CalEEMod 2016.3.2 (the model prior to 2020.4.0) was based on default emissions from 2009 which included a 10.5% RPS factor (California Public Utilities Commission, 2016). For SDG&E CalEEMod 2020.4.0 updated the emissions as if a 33% RPS was achieved or roughly 540 pounds per megawatt hour (lb/MWh). In accordance with SB 100, SDG&E will achieve an RPS of 60% in 2030. After correcting the emissions based on 2009 RPS achievements, the emission factors in 2026 are shown in Table 4.2.

Table 4.2: SDG&E Energy Intensity Factors

GHG	2009 Factors (lbs/MWh) w/10.5% RPS	Current RPS Factors 2020 33% Achieved (lbs/MWh)	Current RPS Factors 2026 49.2% Achieved (lbs/MWh)
Carbon Dioxide (CO_2)	720.49	539.98	409.42
Methane (CH_4)	0.029	0.033	0.0250
Nitrous Oxide (N_2O)	0.006	0.004	0.0030

Project-Installed Solar Panels

The CalEEMod model for the Project has been updated to implement design features identified in Section 1.4 of this analysis. For reduction calculations associated with the PV design feature, annual energy estimates were provided by the National Renewable Energy Laboratory (NREL, 2020) and shown as ***Attachment B*** to this report. Based on this, the Project solar (413 kW) would be estimated to generate 689,554 kilowatt hours (kWh) of annual electrical energy. Since this proposed Project would this energy with zero GHG emissions, the energy generated by the project would shift demand away from carbon based fuel sources.

It should be noted that the more solar produced within the state, the amount of non-renewable energy required for the grid is decreased and decreasing non-renewable energy does not decrease renewable sources equally. Given this, adding renewables would not offset or avoid GHGs from renewables. Therefore, it is more appropriate to calculate GHG reductions from renewables without consideration of the RPS achieved by the utility provider. A second CalEEMod file was prepared to demonstrate GHG reductions from solar and is provided as ***Attachment C*** to this report.

Electric Vehicle Charging Stations

The City of Oceanside has a goal to increase local Zero Emission Vehicle (ZEV) market share to 20 percent by 2030. The City has indicated that barriers to ZEV market penetration can be decreased through increasing charging infrastructure, incentives, and outreach. The city noted that Grid electricity consumed by ZEVs results in approximately 40 percent of the emissions of a traditional fossil fueled vehicle (City of Oceanside, 2019). To achieve this goal, the City adopted zoning ordinance 3048 (City of Oceanside, 2021) which requires shall reserve 15 percent of parking spaces for zero-emission vehicles and equip 50 percent of these reserved spaces with Level 2 electric vehicle charging facilities.

The project would install thirty five (35) 19.2 kW Level II chargers onsite. Following the methodology by CAPCOA Transportation Measure T-3.5: Install Electric Vehicle Charging Stations, it is assumed that each charger will be utilized 4 hours per occurrence and would be utilized at this rate for an average of 100 days per year conservatively. Given this, EV charging onsite would be utilized up to 14,000 hours yearly cumulatively.

To understand EV efficiency, it is important to understand how the relationship between energy and mileage is related. For a standard petroleum-based vehicle, miles per gallon (MPG) is used. For EVs, efficiency can be defined as a specific fixed quantity of energy per a distance. Typically, kilowatt hours per 100 miles traveled is used. To simplify this, the U.S. Department of Energy has developed a miles per gallon gasoline equivalent unit (MPGe) which is 0.337 kWh/100 miles traveled (US EPA, 2022). For many of the cars on the market today, this efficiency is over 100 MPGe (US EPA, 2022).

The common area EV chargers would consist of 35 - 220V Level 2 charging stations capable of providing 19.2 kW of power. Based on this, for a 100 MPGe vehicle, each hour of charging will provide 56.97 miles of driving storage. Given this, the project-delivered energy would provide 56.97 miles per hour of charge multiplied by the estimated 14,000 charging hours yearly or 797,600 VMT per year.

Additionally, it should be noted that energy required to charge vehicles would be provided by the Project which would be supplied by the Grid. The additional energy required for EV Charging was added to CalEEMod and is estimated by the product of the number of chargers the total charging time estimated and the charger size. Based on this, the expected energy consumption from EV Charging is 268,800 kWH.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CalEEMod inputs for the model as shown in Table 4.1 above, grading and construction of the project would generate approximately 1,407.39 MT CO_2e over the construction period. Based on SCAQMD methodology, it is recommended to average the construction emissions over the project life, which is assumed to be 30 years. Given this, the annual construction emission would be 46.91 MT CO_2e per year. A summary of the construction emissions is shown in Table 5.1 below. The analysis of GHG emissions generated during construction activities includes the application of the PDF to include the application of Tier 3 Diesel Equipment with Diesel Particulate Filters attached.

Table 5.1: Expected Construction CO_2e Emissions Summary MT/Year

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
2023	0.00	258.42	258.42	0.07	0.01	262.22
2024	0.00	678.24	678.24	0.08	0.03	688.45
2025	0.00	450.20	450.20	0.05	0.02	456.72
Total						**1,407.39**
Yearly Average Construction Emissions (Metric Tons/year over 30 years)						**46.91**
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 4.1 above.						

5.2 Project-Related Operational Emissions

As previously discussed, emissions generated from area, energy, mobile, solid waste and water uses are calculated within CalEEMod. These settings which are automatically populated throughout the model are based on the inputted land use and intensities expected at the Project site. Unless stated within this report, default values generated within CalEEMod were used. The calculated operational emissions for 2026 are identified in Table 5.2.

As part of the City's Housing Element the CC zoning use allows for a density of up to 29 Units per gross acre and estimates that the project could be developed with as many as 305 units (City of Oceanside, 2013). The project site has been designed to have a density of 22.9 units per acre with some retail. Since the proposed project would construct only 295 of the projected 305 units within the housing element, the project would be less intense than was

otherwise foreseen within the housing element. The project would also include 3,000 SF of retail though this use would be consistent with the commercial zoning of the site. The project proposes a Mixed Use Development Plan and a Condition Use Permit. Given this, the project would be consistent with the General Plan and Zoning Ordinance.

Specific reductions from PDF 6 and 7 require separate modeling and calculations. PDF 6 will reduce annual operational emissions through the addition of 413 kW of PV which would generate 689,554 kWh annually. PV is considered 100 percent renewable and once installed would offset GHG emissions generated from non-renewable energy sources. Based on CalEEMod outputs, the GHG emission reductions from solar are expected to be 226.14 MT CO_2e annually.

PDF 7 would include the installation of 35 EV chargers and, based on estimates presented in Section 4.2 of this analysis, the project EV would provide charge for up to 797,600 VMT per year. Based on the CalEEMod files for this project (as shown in ***Attachment A***) typical vehicles generate roughly 0.000334 MT CO_2e per VMT. Since the 797,600 VMT of the project would be from EV, mobile emissions would be reduced by as much as 266.41 MT CO_2e for the project. Electrical requirements for this onsite charging is estimated at 268,800 kWh annually. Similarly, based on the CalEEMod output in ***Attachment A***, the electrical energy used onsite generates 0.000186 MT CO_2e per kWH. Based on this, the electrical energy consumed for charging would generate 50.10 MT CO_2e and would therefore have a total avoidance of 216.31 MT CO_2e (266.41-50.10). Given this, the ratio of GHGs avoided from EV Cars to GHGs generated from electrical consumption of chargers is 5.3 to 1. Therefore, should the project charge more frequently than estimated in this analysis a GHG reduction from EV chargers would be over 5 times greater than the GHGs required to supply electricity to the charger.

Alternatively, the City's CAP indicates that through the installation of EV chargers under CAP measure TL2 the City would increase ZEV market share by 20% in 2030 and Grid electricity consumed by ZEVs results in approximately 40 percent of the emissions of a traditional fossil fueled vehicle (City of Oceanside, 2019) or a 60 percent avoidance of GHG emissions.

Using the City's CAP assumption, 20% of the Project's 3,913,510 VMT is 782,702 VMT which is slightly less than predicted above generates a 60% avoidance in GHG emissions compared to a traditional fossil fuel vehicle or 0.0002 MT CO_2e per VMT (0.4x0.000334 MT CO_2e per VMT). Given this, a 156.85 MT avoidance would be expected from the EV Charging stations. Based on this conservative approach, EV charging is assumed to avoid 156.85 MT CO_2e. It should be note that this calculation includes Grid electricity GHG emissions.

Based on the CalEEMod analysis, the proposed project buildout with annualized construction emissions would generate 1,894.46 MT CO_2e annually, which is shown in Table 5.2. These

emissions include PDFs 1-5 shown above. PDFs 6 and 7 reduce emissions by 382.99 MT CO_2e, reducing project emissions to 1,511.47 MT CO_2e after all quantifiable PDFs have been implemented. PDFs 8 through 16 are not quantified but would be expected to further reduce GHGs.

Table 5.2: Proposed Project Operational GHG emissions (MT/Year)

Source	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e (MT/Yr)
Area	0.00	3.58	3.58	0.00	0.00	3.67
Electrical Usage	0.00	206.00	206.00	0.01	0.00	206.77
Natural Gas	0.00	142.40	142.40	0.00	0.00	143.25
Mobile	0.00	1,281.05	1,281.05	0.13	0.08	1,306.76
Waste	34.56	0.00	34.56	2.04	0.00	85.62
Water	6.39	73.80	80.19	0.66	0.02	101.48
					Total includes reductions from PDFs 1-5	1,847.55
					Amortized Construction Emissions	46.91
					Project CalEEMod Estimated GHG Emissions	1,894.46
					PDF 6 Install 35 EV Charging Stations	-156.85
					PDF 7 413 kW Solar PV (50% of electrical consumption	-226.14
					Total	1,511.47
					Service Population - (EPS, 2021)	693
					MT/SP	**2.18**

*8 Assumes 5% vacancy rate
Data is presented in decimal format and may have rounding errors.

The Project would be required to generate fewer service population emission than 3.5 MT CO_2e in 2026. The Project was found to generate 1,511.47 MT CO_2e with both annualized construction and annual operation GHG emissions averaged over a Project population of 693 persons which is 673 residents and 20 commercial employees. Given this, the Project would have a projected GHG emission rate of 2.18 MT CO_2e per SP or (1,511.47 MT CO_2e/ 693 persons). Based on this, the proposed Project would generate fewer emissions than a City-specific localized efficiency metric of 3.5 MT CO_2e per SP. Given this, the Project would be found to generate a less than significant impact.

5.3 CAP Checklist Consistency

As mentioned above, the CAP provides for a CAP Consistency Checklist, which offers an alternative to project-specific assessment and mitigation of GHG emissions impacts. The CAP Checklist is available to projects to streamline the CEQA process. However, as stated in the CAP, "The Checklist is not mandatory. As part of the CEQA process, applicants can choose to mitigate

significant GHG emissions impacts by other means. However, the City, as the lead agency for the CEQA process, reserves its discretion to determine if proposed mitigation measures are appropriate and adequate." The CAP provides that "applicants can choose to conduct project-specific GHG emissions analysis to demonstrate compliance with the City's significance threshold." As demonstrated above, the project would be below the City's efficient metric threshold of 3.5 MT CO2e per SP.

Because the proposed project is consistent with the City's General Plan, has implemented a number of design features (PDFs 1-16 identified in section 1.4 above), is located within a Smart Growth Opportunity Area consistent with the SANDAG RTP/SCS – The Regional Plan, is located within a Smart and Sustainable Corridor, and is located adjacent to a high quality commuter transit center, and performed a project-specific analysis which demonstrates that the project would be well below the City's adopted screening threshold of 3.5 MT CO2e, the project would result in a less than significant impact to GHG emissions and no mitigation measures would be required. However, it is noted that the proposed project would comply with the CAP checklist as follows:

- Renewable Energy Facilities – the proposed project would comply with any and all applicable Title 24 requirements related to the provision of on-site solar photovoltaic (PV) energy. The Project is required to generate 50% of electrical demand. Based on CalEEMod and EV estimates, the project would require 1,378,084 kWh annually and will generate 689,554 kWh annually from the onsite solar.
- Electric Vehicle Parking and Charing Facilities – the proposed project would comply with any and all applicable Title 24 requirements related to the provision of EV charging facilities. The project is required to install 35 EV charging stations.
- Recycled Water Infrastructure if available at the site.
- Transportation Demand Management – the project site is located directly across S. Oceanside Boulevard from the Crouch Street Sprinter Station. The project is in a high-efficiency VMT zone per SANDAG's SB743 Map. In addition, the project would unbundle parking from apartment units and charge a monthly fee for each parking space, provide a Bike-share program for residents, provide transit pass subsidies for employees of the project in the retail/commercial area, new resident will receive information packets about VMT reductions and the project will have a TDM coordinator
- Urban Forestry – The proposed project landscape plan shows increased tree planting to create shade.
- Food Scraps Recycling Program – The project would participate in a Food Scraps Recycling Program.

6.0 REFERENCES

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ATTACHMENT A

CalEEMod 2020.4.0 (Project)

Jefferson Oceanside Mixed Use Developmment - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Jefferson Oceanside Mixed Use Developmment

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	375.00	Space	3.37	150,000.00	0
Fast Food Restaurant w/o Drive Thru	3.00	1000sqft	0.07	3,000.00	0
Apartments Mid Rise	295.00	Dwelling Unit	15.48	295,000.00	844

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2026
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	409.42	**CH4 Intensity (lb/MWhr)**	0.025	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2026

Land Use - Project Site is 18.85 acres - Developed Area is 9.91 Acres. Total Parking is 91 Garage Spaces within facility footprint and 375 parking space outside facility footprint made up of carports and surface parking

Construction Phase - Construction Schedule

Off-road Equipment -

Trips and VMT -

Grading -

Architectural Coating - Rule 67 Paint

Vehicle Trips - Trip Generation and VMT from Project Traffic Study.

Vehicle Emission Factors -

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No hearth options

Area Coating - Rule 67 Paint

Energy Use -

Solid Waste -

Construction Off-road Equipment Mitigation - T3 with DPF

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	100
tblAreaCoating	Area_EF_Residential_Interior	250	100
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	30.00	45.00
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	300.00	440.00
tblConstructionPhase	NumDays	20.00	61.00
tblFireplaces	NumberGas	162.25	0.00
tblFireplaces	NumberNoFireplace	29.50	0.00
tblFireplaces	NumberWood	103.25	0.00
tblGrading	MaterialExported	0.00	10,100.00
tblLandUse	LotAcreage	7.76	15.48
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.025
tblProjectCharacteristics	CO2IntensityFactor	539.98	409.42
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.003
tblVehicleTrips	CC_TL	7.30	0.13
tblVehicleTrips	CC_TTP	79.50	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	1.50	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	HO_TL	7.50	0.00
tblVehicleTrips	HO_TTP	39.60	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleTrips	HS_TL	7.30	0.00
tblVehicleTrips	HS_TTP	18.80	0.00
tblVehicleTrips	HW_TL	10.80	5.92
tblVehicleTrips	HW_TTP	41.60	100.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	ST_TR	4.91	6.00
tblVehicleTrips	ST_TR	696.00	700.00
tblVehicleTrips	SU_TR	4.09	6.00
tblVehicleTrips	SU_TR	500.00	700.00
tblVehicleTrips	WD_TR	5.44	6.00
tblVehicleTrips	WD_TR	346.23	700.00
tblWoodstoves	NumberCatalytic	14.75	0.00
tblWoodstoves	NumberNoncatalytic	14.75	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	0.1384	1.3960	1.2176	2.8800e-003	0.4340	0.0577	0.4917	0.1914	0.0531	0.2445	0.0000	258.4222	258.4222	0.0668	7.1500e-003	262.2230
2024	0.2935	2.1515	3.0081	7.4600e-003	0.3406	0.0838	0.4244	0.0916	0.0789	0.1705	0.0000	678.2413	678.2413	0.0827	0.0273	688.4529
2025	2.0668	1.3372	1.9906	4.9400e-003	0.2331	0.0484	0.2816	0.0627	0.0456	0.1083	0.0000	450.1985	450.1985	0.0535	0.0174	456.7154
Maximum	**2.0668**	**2.1515**	**3.0081**	**7.4600e-003**	**0.4340**	**0.0838**	**0.4917**	**0.1914**	**0.0789**	**0.2445**	**0.0000**	**678.2413**	**678.2413**	**0.0827**	**0.0273**	**688.4529**

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	0.0683	1.2280	1.5147	2.8800e-003	0.4340	8.8800e-003	0.4429	0.1914	8.8400e-003	0.2002	0.0000	258.4219	258.4219	0.0668	7.1500e-003	262.2228
2024	0.1890	2.2540	3.2317	7.4600e-003	0.3406	0.0213	0.3618	0.0916	0.0210	0.1127	0.0000	678.2409	678.2409	0.0827	0.0273	688.4525
2025	2.0048	1.4920	2.1425	4.9400e-003	0.2331	0.0142	0.2473	0.0627	0.0140	0.0767	0.0000	450.1982	450.1982	0.0535	0.0174	456.7152
Maximum	**2.0048**	**2.2540**	**3.2317**	**7.4600e-003**	**0.4340**	**0.0213**	**0.4429**	**0.1914**	**0.0210**	**0.2002**	**0.0000**	**678.2409**	**678.2409**	**0.0827**	**0.0273**	**688.4525**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	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	**9.47**	**-1.83**	**-10.82**	**0.00**	**0.00**	**76.68**	**12.16**	**0.00**	**75.28**	**25.56**	**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	**8-1-2023**	**10-31-2023**	1.2458	1.0016
2	**11-1-2023**	**1-31-2024**	0.4982	0.5039
3	**2-1-2024**	**4-30-2024**	0.6006	0.6001
4	**5-1-2024**	**7-31-2024**	0.6092	0.6087
5	**8-1-2024**	**10-31-2024**	0.6116	0.6111
6	**11-1-2024**	**1-31-2025**	0.6031	0.6145
7	**2-1-2025**	**4-30-2025**	0.5561	0.5899
8	**5-1-2025**	**7-31-2025**	1.9469	1.9840
9	**8-1-2025**	**9-30-2025**	0.7191	0.7295
		Highest	1.9469	1.9840

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.4276	0.0252	2.1918	1.2000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	3.5848	3.5848	3.4400e-003	0.0000	3.6709
Energy	0.0144	0.1245	0.0636	7.8000e-004		9.9400e-003	9.9400e-003		9.9400e-003	9.9400e-003	0.0000	383.6012	383.6012	0.0175	4.3800e-003	385.3423
Mobile	1.1839	0.9505	8.2557	0.0134	1.4639	0.0115	1.4754	0.3907	0.0108	0.4014	0.0000	1,281.0504	1,281.0504	0.1283	0.0755	1,306.7640
Waste						0.0000	0.0000		0.0000	0.0000	34.5612	0.0000	34.5612	2.0425	0.0000	85.6240
Water						0.0000	0.0000		0.0000	0.0000	6.3867	73.8000	80.1867	0.6605	0.0160	101.4754
Total	**2.6259**	**1.1002**	**10.5110**	**0.0143**	**1.4639**	**0.0336**	**1.4975**	**0.3907**	**0.0328**	**0.4235**	**40.9479**	**1,742.0364**	**1,782.9843**	**2.8522**	**0.0959**	**1,882.8765**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	1.4276	0.0252	2.1918	1.2000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	3.5848	3.5848	3.4400e-003	0.0000	3.6709
Energy	0.0144	0.1245	0.0636	7.8000e-004		9.9400e-003	9.9400e-003		9.9400e-003	9.9400e-003	0.0000	348.4060	348.4060	0.0153	4.1200e-003	350.0165
Mobile	1.1839	0.9505	8.2557	0.0134	1.4639	0.0115	1.4754	0.3907	0.0108	0.4014	0.0000	1,281.0504	1,281.0504	0.1283	0.0755	1,306.7640
Waste						0.0000	0.0000		0.0000	0.0000	17.2806	0.0000	17.2806	1.0213	0.0000	42.8120
Water						0.0000	0.0000		0.0000	0.0000	5.1093	59.0400	64.1494	0.5284	0.0128	81.1804
Total	**2.6259**	**1.1002**	**10.5110**	**0.0143**	**1.4639**	**0.0336**	**1.4975**	**0.3907**	**0.0328**	**0.4235**	**22.3899**	**1,692.0812**	**1,714.4711**	**1.6967**	**0.0925**	**1,784.4437**

	ROG	NOx	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**	**45.32**	**2.87**	**3.84**	**40.51**	**3.62**	**5.23**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2023	8/28/2023	5	20	
2	Grading	Grading	8/29/2023	10/30/2023	5	45	
3	Paving	Paving	10/31/2023	12/18/2023	5	35	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	12/19/2023	8/25/2025	5	440	
5	Architectural Coating	Architectural Coating	6/1/2025	8/25/2025	5	61	

Acres of Grading (Site Preparation Phase): 30

Acres of Grading (Grading Phase): 135

Acres of Paving: 3.37

Residential Indoor: 597,375; Residential Outdoor: 199,125; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area: 9,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	1,263.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	277.00	57.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	55.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 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					0.1966	0.0000	0.1966	0.1010	0.0000	0.1010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.2752	0.1824	3.8000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	33.4507	33.4507	0.0108	0.0000	33.7212
Total	**0.0266**	**0.2752**	**0.1824**	**3.8000e-004**	**0.1966**	**0.0127**	**0.2092**	**0.1010**	**0.0117**	**0.1127**	**0.0000**	**33.4507**	**33.4507**	**0.0108**	**0.0000**	**33.7212**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9000e-004	3.4000e-004	4.1100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1565	1.1565	3.0000e-005	3.0000e-005	1.1669
Total	**4.9000e-004**	**3.4000e-004**	**4.1100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1565**	**1.1565**	**3.0000e-005**	**3.0000e-005**	**1.1669**

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					0.1966	0.0000	0.1966	0.1010	0.0000	0.1010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.1907	0.2296	3.8000e-004		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	33.4507	33.4507	0.0108	0.0000	33.7211
Total	**9.3100e-003**	**0.1907**	**0.2296**	**3.8000e-004**	**0.1966**	**1.4200e-003**	**0.1980**	**0.1010**	**1.4200e-003**	**0.1024**	**0.0000**	**33.4507**	**33.4507**	**0.0108**	**0.0000**	**33.7211**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.9000e-004	3.4000e-004	4.1100e-003	1.0000e-005	1.4400e-003	1.0000e-005	1.4500e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1565	1.1565	3.0000e-005	3.0000e-005	1.1669
Total	**4.9000e-004**	**3.4000e-004**	**4.1100e-003**	**1.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4500e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1565**	**1.1565**	**3.0000e-005**	**3.0000e-005**	**1.1669**

3.3 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					0.2078	0.0000	0.2078	0.0823	0.0000	0.0823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0747	0.7766	0.6312	1.4000e-003		0.0321	0.0321		0.0295	0.0295	0.0000	122.7042	122.7042	0.0397	0.0000	123.6964
Total	**0.0747**	**0.7766**	**0.6312**	**1.4000e-003**	**0.2078**	**0.0321**	**0.2398**	**0.0823**	**0.0295**	**0.1118**	**0.0000**	**122.7042**	**122.7042**	**0.0397**	**0.0000**	**123.6964**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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	1.3900e-003	0.0857	0.0228	3.8000e-004	0.0108	7.0000e-004	0.0115	2.9700e-003	6.7000e-004	3.6400e-003	0.0000	37.8992	37.8992	1.9100e-003	6.0300e-003	39.7430
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	1.2200e-003	8.4000e-004	0.0103	3.0000e-005	3.6100e-003	2.0000e-005	3.6300e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.8913	2.8913	8.0000e-005	8.0000e-005	2.9171
Total	**2.6100e-003**	**0.0866**	**0.0331**	**4.1000e-004**	**0.0144**	**7.2000e-004**	**0.0152**	**3.9300e-003**	**6.9000e-004**	**4.6200e-003**	**0.0000**	**40.7904**	**40.7904**	**1.9900e-003**	**6.1100e-003**	**42.6601**

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					0.2078	0.0000	0.2078	0.0823	0.0000	0.0823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0343	0.6745	0.8263	1.4000e-003		4.3900e-003	4.3900e-003		4.3900e-003	4.3900e-003	0.0000	122.7041	122.7041	0.0397	0.0000	123.6962
Total	**0.0343**	**0.6745**	**0.8263**	**1.4000e-003**	**0.2078**	**4.3900e-003**	**0.2122**	**0.0823**	**4.3900e-003**	**0.0867**	**0.0000**	**122.7041**	**122.7041**	**0.0397**	**0.0000**	**123.6962**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2023

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	1.3900e-003	0.0857	0.0228	3.8000e-004	0.0108	7.0000e-004	0.0115	2.9700e-003	6.7000e-004	3.6400e-003	0.0000	37.8992	37.8992	1.9100e-003	6.0300e-003	39.7430
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	1.2200e-003	8.4000e-004	0.0103	3.0000e-005	3.6100e-003	2.0000e-005	3.6300e-003	9.6000e-004	2.0000e-005	9.8000e-004	0.0000	2.8913	2.8913	8.0000e-005	8.0000e-005	2.9171
Total	**2.6100e-003**	**0.0866**	**0.0331**	**4.1000e-004**	**0.0144**	**7.2000e-004**	**0.0152**	**3.9300e-003**	**6.9000e-004**	**4.6200e-003**	**0.0000**	**40.7904**	**40.7904**	**1.9900e-003**	**6.1100e-003**	**42.6601**

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	0.0181	0.1784	0.2552	4.0000e-004		8.9300e-003	8.9300e-003		8.2100e-003	8.2100e-003	0.0000	35.0470	35.0470	0.0113	0.0000	35.3304
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0225**	**0.1784**	**0.2552**	**4.0000e-004**		**8.9300e-003**	**8.9300e-003**		**8.2100e-003**	**8.2100e-003**	**0.0000**	**35.0470**	**35.0470**	**0.0113**	**0.0000**	**35.3304**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Paving - 2023

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	7.1000e-004	4.9000e-004	6.0000e-003	2.0000e-005	2.1100e-003	1.0000e-005	2.1200e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.6866	1.6866	5.0000e-005	5.0000e-005	1.7017
Total	**7.1000e-004**	**4.9000e-004**	**6.0000e-003**	**2.0000e-005**	**2.1100e-003**	**1.0000e-005**	**2.1200e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.6866**	**1.6866**	**5.0000e-005**	**5.0000e-005**	**1.7017**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8200e-003	0.1977	0.3027	4.0000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003	0.0000	35.0470	35.0470	0.0113	0.0000	35.3304
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0142**	**0.1977**	**0.3027**	**4.0000e-004**		**1.6000e-003**	**1.6000e-003**		**1.6000e-003**	**1.6000e-003**	**0.0000**	**35.0470**	**35.0470**	**0.0113**	**0.0000**	**35.3304**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Paving - 2023

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	7.1000e-004	4.9000e-004	6.0000e-003	2.0000e-005	2.1100e-003	1.0000e-005	2.1200e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.6866	1.6866	5.0000e-005	5.0000e-005	1.7017
Total	**7.1000e-004**	**4.9000e-004**	**6.0000e-003**	**2.0000e-005**	**2.1100e-003**	**1.0000e-005**	**2.1200e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.6866**	**1.6866**	**5.0000e-005**	**5.0000e-005**	**1.7017**

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	7.0800e-003	0.0647	0.0731	1.2000e-004		3.1500e-003	3.1500e-003		2.9600e-003	2.9600e-003	0.0000	10.4312	10.4312	2.4800e-003	0.0000	10.4933
Total	**7.0800e-003**	**0.0647**	**0.0731**	**1.2000e-004**		**3.1500e-003**	**3.1500e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**10.4312**	**10.4312**	**2.4800e-003**	**0.0000**	**10.4933**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

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	3.0000e-004	0.0114	4.0200e-003	5.0000e-005	1.7000e-003	7.0000e-005	1.7700e-003	4.9000e-004	6.0000e-005	5.6000e-004	0.0000	5.1467	5.1467	1.6000e-004	7.5000e-004	5.3728
Worker	3.3700e-003	2.3300e-003	0.0285	9.0000e-005	0.0100	6.0000e-005	0.0101	2.6600e-003	5.0000e-005	2.7100e-003	0.0000	8.0088	8.0088	2.3000e-004	2.2000e-004	8.0805
Total	**3.6700e-003**	**0.0137**	**0.0325**	**1.4000e-004**	**0.0117**	**1.3000e-004**	**0.0118**	**3.1500e-003**	**1.1000e-004**	**3.2700e-003**	**0.0000**	**13.1555**	**13.1555**	**3.9000e-004**	**9.7000e-004**	**13.4533**

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	3.0300e-003	0.0640	0.0804	1.2000e-004		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	10.4312	10.4312	2.4800e-003	0.0000	10.4932
Total	**3.0300e-003**	**0.0640**	**0.0804**	**1.2000e-004**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**10.4312**	**10.4312**	**2.4800e-003**	**0.0000**	**10.4932**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

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	3.0000e-004	0.0114	4.0200e-003	5.0000e-005	1.7000e-003	7.0000e-005	1.7700e-003	4.9000e-004	6.0000e-005	5.6000e-004	0.0000	5.1467	5.1467	1.6000e-004	7.5000e-004	5.3728
Worker	3.3700e-003	2.3300e-003	0.0285	9.0000e-005	0.0100	6.0000e-005	0.0101	2.6600e-003	5.0000e-005	2.7100e-003	0.0000	8.0088	8.0088	2.3000e-004	2.2000e-004	8.0805
Total	**3.6700e-003**	**0.0137**	**0.0325**	**1.4000e-004**	**0.0117**	**1.3000e-004**	**0.0118**	**3.1500e-003**	**1.1000e-004**	**3.2700e-003**	**0.0000**	**13.1555**	**13.1555**	**3.9000e-004**	**9.7000e-004**	**13.4533**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

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	8.4300e-003	0.3292	0.1142	1.5000e-003	0.0496	1.9600e-003	0.0516	0.0143	1.8800e-003	0.0162	0.0000	147.2160	147.2160	4.6300e-003	0.0213	153.6878
Worker	0.0923	0.0611	0.7760	2.4300e-003	0.2910	1.5300e-003	0.2925	0.0773	1.4100e-003	0.0787	0.0000	227.3029	227.3029	6.2200e-003	6.0000e-003	229.2472
Total	**0.1007**	**0.3904**	**0.8902**	**3.9300e-003**	**0.3406**	**3.4900e-003**	**0.3441**	**0.0916**	**3.2900e-003**	**0.0949**	**0.0000**	**374.5189**	**374.5189**	**0.0109**	**0.0273**	**382.9350**

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	0.0883	1.8636	2.3415	3.5300e-003		0.0178	0.0178		0.0178	0.0178	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.0883**	**1.8636**	**2.3415**	**3.5300e-003**		**0.0178**	**0.0178**		**0.0178**	**0.0178**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2024

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	8.4300e-003	0.3292	0.1142	1.5000e-003	0.0496	1.9600e-003	0.0516	0.0143	1.8800e-003	0.0162	0.0000	147.2160	147.2160	4.6300e-003	0.0213	153.6878
Worker	0.0923	0.0611	0.7760	2.4300e-003	0.2910	1.5300e-003	0.2925	0.0773	1.4100e-003	0.0787	0.0000	227.3029	227.3029	6.2200e-003	6.0000e-003	229.2472
Total	**0.1007**	**0.3904**	**0.8902**	**3.9300e-003**	**0.3406**	**3.4900e-003**	**0.3441**	**0.0916**	**3.2900e-003**	**0.0949**	**0.0000**	**374.5189**	**374.5189**	**0.0109**	**0.0273**	**382.9350**

3.5 Building Construction - 2025

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	0.1155	1.0537	1.3592	2.2800e-003		0.0446	0.0446		0.0419	0.0419	0.0000	195.9719	195.9719	0.0461	0.0000	197.1236
Total	**0.1155**	**1.0537**	**1.3592**	**2.2800e-003**		**0.0446**	**0.0446**		**0.0419**	**0.0419**	**0.0000**	**195.9719**	**195.9719**	**0.0461**	**0.0000**	**197.1236**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2025

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	5.2700e-003	0.2103	0.0725	9.5000e-004	0.0320	1.2600e-003	0.0333	9.2300e-003	1.2100e-003	0.0104	0.0000	93.1498	93.1498	3.0600e-003	0.0135	97.2460
Worker	0.0561	0.0357	0.4701	1.5100e-003	0.1877	9.4000e-004	0.1886	0.0499	8.7000e-004	0.0508	0.0000	143.0380	143.0380	3.6600e-003	3.6300e-003	144.2124
Total	**0.0614**	**0.2460**	**0.5426**	**2.4600e-003**	**0.2197**	**2.2000e-003**	**0.2219**	**0.0591**	**2.0800e-003**	**0.0612**	**0.0000**	**236.1878**	**236.1878**	**6.7200e-003**	**0.0171**	**241.4583**

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	0.0569	1.2021	1.5103	2.2800e-003		0.0115	0.0115		0.0115	0.0115	0.0000	195.9717	195.9717	0.0461	0.0000	197.1234
Total	**0.0569**	**1.2021**	**1.5103**	**2.2800e-003**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**195.9717**	**195.9717**	**0.0461**	**0.0000**	**197.1234**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2025

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	5.2700e-003	0.2103	0.0725	9.5000e-004	0.0320	1.2600e-003	0.0333	9.2300e-003	1.2100e-003	0.0104	0.0000	93.1498	93.1498	3.0600e-003	0.0135	97.2460
Worker	0.0561	0.0357	0.4701	1.5100e-003	0.1877	9.4000e-004	0.1886	0.0499	8.7000e-004	0.0508	0.0000	143.0380	143.0380	3.6600e-003	3.6300e-003	144.2124
Total	**0.0614**	**0.2460**	**0.5426**	**2.4600e-003**	**0.2197**	**2.2000e-003**	**0.2219**	**0.0591**	**2.0800e-003**	**0.0612**	**0.0000**	**236.1878**	**236.1878**	**6.7200e-003**	**0.0171**	**241.4583**

3.6 Architectural Coating - 2025

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	1.8807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2100e-003	0.0349	0.0552	9.0000e-005		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	7.7874	7.7874	4.2000e-004	0.0000	7.7980
Total	**1.8859**	**0.0349**	**0.0552**	**9.0000e-005**		**1.5700e-003**	**1.5700e-003**		**1.5700e-003**	**1.5700e-003**	**0.0000**	**7.7874**	**7.7874**	**4.2000e-004**	**0.0000**	**7.7980**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0200e-003	2.5600e-003	0.0337	1.1000e-004	0.0135	7.0000e-005	0.0135	3.5700e-003	6.0000e-005	3.6400e-003	0.0000	10.2513	10.2513	2.6000e-004	2.6000e-004	10.3354
Total	**4.0200e-003**	**2.5600e-003**	**0.0337**	**1.1000e-004**	**0.0135**	**7.0000e-005**	**0.0135**	**3.5700e-003**	**6.0000e-005**	**3.6400e-003**	**0.0000**	**10.2513**	**10.2513**	**2.6000e-004**	**2.6000e-004**	**10.3354**

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	1.8807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0414	0.0559	9.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	7.7874	7.7874	4.2000e-004	0.0000	7.7980
Total	**1.8825**	**0.0414**	**0.0559**	**9.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**7.7874**	**7.7874**	**4.2000e-004**	**0.0000**	**7.7980**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0200e-003	2.5600e-003	0.0337	1.1000e-004	0.0135	7.0000e-005	0.0135	3.5700e-003	6.0000e-005	3.6400e-003	0.0000	10.2513	10.2513	2.6000e-004	2.6000e-004	10.3354
Total	**4.0200e-003**	**2.5600e-003**	**0.0337**	**1.1000e-004**	**0.0135**	**7.0000e-005**	**0.0135**	**3.5700e-003**	**6.0000e-005**	**3.6400e-003**	**0.0000**	**10.2513**	**10.2513**	**2.6000e-004**	**2.6000e-004**	**10.3354**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1839	0.9505	8.2557	0.0134	1.4639	0.0115	1.4754	0.3907	0.0108	0.4014	0.0000	1,281.0504	1,281.0504	0.1283	0.0755	1,306.7640
Unmitigated	1.1839	0.9505	8.2557	0.0134	1.4639	0.0115	1.4754	0.3907	0.0108	0.4014	0.0000	1,281.0504	1,281.0504	0.1283	0.0755	1,306.7640

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,770.00	1,770.00	1770.00	3,814,138	3,814,138
Fast Food Restaurant w/o Drive Thru	2,100.00	2,100.00	2100.00	99,372	99,372
Parking Lot	0.00	0.00	0.00		
Total	3,870.00	3,870.00	3,870.00	3,913,510	3,913,510

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	5.92	0.00	0.00	100.00	0.00	0.00	100	0	0
Fast Food Restaurant w/o Drive	0.00	0.13	0.00	0.00	100.00	0.00	100	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.565387	0.062253	0.175474	0.116234	0.023574	0.006359	0.009156	0.006316	0.000699	0.000586	0.028465	0.000937	0.004559
Fast Food Restaurant w/o Drive Thru	0.565387	0.062253	0.175474	0.116234	0.023574	0.006359	0.009156	0.006316	0.000699	0.000586	0.028465	0.000937	0.004559

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Parking Lot	0.565387	0.062253	0.175474	0.116234	0.023574	0.006359	0.009156	0.006316	0.000699	0.000586	0.028465	0.000937	0.004559

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	206.0049	206.0049	0.0126	1.5100e-003	206.7692
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	241.2001	241.2001	0.0147	1.7700e-003	242.0950
NaturalGas Mitigated	0.0144	0.1245	0.0636	7.8000e-004		9.9400e-003	9.9400e-003		9.9400e-003	9.9400e-003	0.0000	142.4010	142.4010	2.7300e-003	2.6100e-003	143.2473
NaturalGas Unmitigated	0.0144	0.1245	0.0636	7.8000e-004		9.9400e-003	9.9400e-003		9.9400e-003	9.9400e-003	0.0000	142.4010	142.4010	2.7300e-003	2.6100e-003	143.2473

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Apartments Mid Rise	2.14643e+006	0.0116	0.0989	0.0421	6.3000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	114.5419	114.5419	2.2000e-003	2.1000e-003	115.2226
Fast Food Restaurant w/o Drive Thru	522060	2.8200e-003	0.0256	0.0215	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.8591	27.8591	5.3000e-004	5.1000e-004	28.0247
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0144**	**0.1245**	**0.0636**	**7.8000e-004**		**9.9400e-003**	**9.9400e-003**		**9.9400e-003**	**9.9400e-003**	**0.0000**	**142.4010**	**142.4010**	**2.7300e-003**	**2.6100e-003**	**143.2473**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.14643e+006	0.0116	0.0989	0.0421	6.3000e-004		8.0000e-003	8.0000e-003		8.0000e-003	8.0000e-003	0.0000	114.5419	114.5419	2.2000e-003	2.1000e-003	115.2226
Fast Food Restaurant w/o Drive Thru	522060	2.8200e-003	0.0256	0.0215	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.8591	27.8591	5.3000e-004	5.1000e-004	28.0247
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0144**	**0.1245**	**0.0636**	**7.8000e-004**		**9.9400e-003**	**9.9400e-003**		**9.9400e-003**	**9.9400e-003**	**0.0000**	**142.4010**	**142.4010**	**2.7300e-003**	**2.6100e-003**	**143.2473**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.13284e+006	210.3797	0.0129	1.5400e-003	211.1603
Fast Food Restaurant w/o Drive Thru	113460	21.0706	1.2900e-003	1.5000e-004	21.1488
Parking Lot	52500	9.7498	6.0000e-004	7.0000e-005	9.7859
Total		**241.2001**	**0.0147**	**1.7600e-003**	**242.0950**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	990670	183.9772	0.0112	1.3500e-003	184.6597
Fast Food Restaurant w/o Drive Thru	100239	18.6154	1.1400e-003	1.4000e-004	18.6844
Parking Lot	18375	3.4124	2.1000e-004	3.0000e-005	3.4251
Total		**206.0049**	**0.0126**	**1.5200e-003**	**206.7692**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4276	0.0252	2.1918	1.2000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	3.5848	3.5848	3.4400e-003	0.0000	3.6709
Unmitigated	1.4276	0.0252	2.1918	1.2000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	3.5848	3.5848	3.4400e-003	0.0000	3.6709

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	0.1881					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0660	0.0252	2.1918	1.2000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	3.5848	3.5848	3.4400e-003	0.0000	3.6709
Total	**1.4276**	**0.0252**	**2.1918**	**1.2000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**	**0.0000**	**3.5848**	**3.5848**	**3.4400e-003**	**0.0000**	**3.6709**

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	0.1881					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0660	0.0252	2.1918	1.2000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	3.5848	3.5848	3.4400e-003	0.0000	3.6709
Total	**1.4276**	**0.0252**	**2.1918**	**1.2000e-004**		**0.0122**	**0.0122**		**0.0122**	**0.0122**	**0.0000**	**3.5848**	**3.5848**	**3.4400e-003**	**0.0000**	**3.6709**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	64.1494	0.5284	0.0128	81.1804
Unmitigated	80.1867	0.6605	0.0160	101.4754

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	19.2204 / 12.1172	77.5759	0.6307	0.0153	97.9055
Fast Food Restaurant w/o Drive Thru	0.910601 / 0.0581235	2.6108	0.0298	7.2000e-004	3.5700
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**80.1867**	**0.6605**	**0.0160**	**101.4754**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	15.3764 / 9.69379	62.0607	0.5045	0.0123	78.3244
Fast Food Restaurant w/o Drive Thru	0.728481 / 0.0464988	2.0886	0.0239	5.7000e-004	2.8560
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**64.1494**	**0.5284**	**0.0128**	**81.1804**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.2806	1.0213	0.0000	42.8120
Unmitigated	34.5612	2.0425	0.0000	85.6240

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	135.7	27.5459	1.6279	0.0000	68.2437
Fast Food Restaurant w/o Drive Thru	34.56	7.0154	0.4146	0.0000	17.3803
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**34.5612**	**2.0425**	**0.0000**	**85.6240**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	67.85	13.7729	0.8140	0.0000	34.1219
Fast Food Restaurant w/o Drive Thru	17.28	3.5077	0.2073	0.0000	8.6901
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**17.2806**	**1.0213**	**0.0000**	**42.8120**

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

ATTACHMENT B

NREL PV Watts 413 kW Solar

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

The energy output range is based on analysis of 30 years of historical weather data for nearby, and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

689,554 kWh/Year*

System output may range from 662,799 to 693,898 kWh per year near this location.

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)	Value ($)
January	4.58	45,316	7,409
February	5.18	46,735	7,641
March	6.15	61,604	10,072
April	6.87	64,785	10,592
May	6.61	64,556	10,555
June	6.91	64,469	10,541
July	7.02	67,256	10,996
August	7.08	67,699	11,069
September	6.52	60,280	9,856
October	5.65	54,827	8,964
November	5.02	48,186	7,878
December	4.37	43,841	7,168
Annual	**6.00**	**689,554**	**$ 112,741**

Location and Station Identification

Requested Location	oceanside
Weather Data Source	Lat, Lon: 33.21, -117.38 1.0 mi
Latitude	33.21° N
Longitude	117.38° W

PV System Specifications *(Residential)*

DC System Size	413 kW
Module Type	Premium
Array Type	Fixed (roof mount)
Array Tilt	20°
Array Azimuth	180°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.164 $/kWh

Performance Metrics

Capacity Factor	19.1%

ATTACHMENT C

CalEEMod 2020.4.0 (413 kW Solar)

413KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

413KW Solar

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2026
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would install 413 kw solar. Solar genertated by the project site does not offset solar provided by SDGE but rather power generated from non-renewable sources.

Land Use - Rooftop Solar

Construction Phase -

Off-road Equipment -

Off-road Equipment - zero hours

Trips and VMT - zero

Grading -

Architectural Coating -

Vehicle Trips -

Vehicle Emission Factors -

Vehicle Emission Factors -

413KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Emission Factors - emisisons include safe

Woodstoves - asdf

Area Coating -

Landscape Equipment - zero

Energy Use -

Water And Wastewater -

Area Mitigation -

Energy Mitigation - Based on PVWatts, 413 kw of solar would generate 689554 kWh per year.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.029
tblProjectCharacteristics	CO2IntensityFactor	539.98	720.49
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.006
tblTripsAndVMT	WorkerTripNumber	3.00	0.00

2.0 Emissions Summary

413KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	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**	**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)

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

		Highest		

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-225.3523	-225.3523	-0.0091	-0.0019	-226.1383
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**-225.3523**	**-225.3523**	**-0.0091**	**-0.0019**	**-226.1383**

	ROG	NOx	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**	**0.00**	**1,126,761, 450.00**	**1,126,761, 450.00**	**0.00**	**0.00**	**1,130,691, 500.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/2/2019	5/2/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; 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
Site Preparation	Graders	1	0.00	187	0.41

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
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

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

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.565387	0.062253	0.175474	0.116234	0.023574	0.006359	0.009156	0.006316	0.000699	0.000586	0.028465	0.000937	0.004559

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	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	-225.3523	-225.3523	-0.0091	-0.0019	-226.1383
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	-689554	-225.3523	-0.0091	-0.0019	-226.1383
Total		**-225.3523**	**-0.0091**	**-0.0019**	**-226.1383**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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