

Greenhouse Gas Assessment
Highland Mixed Use Development
City of Highland, CA

Prepared By:

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

Prepared For:

Woodcrest Real Estate Ventures
P.O. Box 823
Ramona, CA 92065

May 13, 2021

TABLE OF CONTENTS

TABLE OF CONTENTS.....	II
LIST OF FIGURES.....	III
LIST OF TABLES.....	III
APPENDIX	III
EXECUTIVE SUMMARY	IV
1.0 INTRODUCTION.....	1
1.1 PURPOSE OF THIS STUDY	1
1.2 PROJECT LOCATION	1
1.3 PROJECT DESCRIPTION	1
1.4 PROJECT DESIGN FEATURES	4
2.0 EXISTING SETTING	5
2.1 UNDERSTANDING GREENHOUSE GASSES.....	5
2.2 CLIMATE AND METEOROLOGY	5
3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT	6
3.1 STATE GREENHOUSE GAS TARGETS	6
3.2 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS OF SIGNIFICANCE	16
4.0 METHODOLOGY	17
4.1 CONSTRUCTION CO ₂ E EMISSIONS CALCULATION METHODOLOGY.....	17
4.2 OPERATIONAL EMISSIONS CALCULATION METHODOLOGY	18
5.0 FINDINGS.....	21
5.1 PROJECT RELATED CONSTRUCTION EMISSIONS.....	21
5.2 PROJECT RELATED OPERATIONAL EMISSIONS/CONCLUSIONS	21
6.0 REFERENCES	23

List of Figures

FIGURE 1-A: PROJECT VICINITY MAP	1
FIGURE 1-B: SITE PLAN MAP	ERROR! BOOKMARK NOT DEFINED.

List of Tables

TABLE 4.1: EXPECTED CONSTRUCTION EQUIPMENT	17
TABLE 4.2: SCE ENERGY INTENSITY FACTORS	18
TABLE 5.1: EXPECTED ANNUAL CONSTRUCTION CO ₂ E EMISSIONS SUMMARY MT/YEAR	21
TABLE 5.2: EXPECTED OPERATIONAL EMISSIONS SUMMARY MT/YEAR	22

Appendix

CALEEMOD 2016.3.2 (PROJECT BUILDOUT EMISSIONS).....	24
EMFAC 2014 VMT/TRIP (2023)	72
NREL PV WATTS ESTIMATED POWER PRODUCTION	74
CALEEMOD 2016.3.2 (SOLAR GHG REDUCTIONS)	76

EXECUTIVE SUMMARY

This analysis has been completed in order to quantify Greenhouse Gas (GHG) emissions from the project site and was prepared according to guidelines established within the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32), Senate Bill 97 (SB97), SB 32 and the California Environmental Quality Act (CEQA). Greenhouse Gases analyzed in this study are Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O). To simplify greenhouse gas calculations, both CH₄ and N₂O are converted to equivalent amounts of CO₂ and are identified as CO₂e.

The proposed Project site is located within the City of Highland. The Project proposes to construct 38,940 square foot (SF) Tractor Supply Site store, 28,037 SF of retail space and 6,540 SF fast food restaurant with drive through. In addition, the project seeks to add 15 multi-family units and tow single family units. Project access is planned along Base Line, Church Avenue, and Foster Avenue. It's expected that the project would start construction early 2022 and be completed in about one year. The project would be fully operational in the year 2023. The project would implement a nine specific Project Design Features (PDF) within this project with the intention of reducing air quality and greenhouse gas emissions which are specifically identified in Section 1.4 of this report.

The proposed project will emit GHGs directly through burning of carbon-based fuels such as gasoline and natural gas as well as indirectly through usage of electricity, water and from the anaerobic bacterial breakdown of organic solid waste.

Based on the this analysis, the proposed project buildout with annualized construction emissions would generate 2,841.26 MT CO₂e annually, which is shown in Table 5.2. These emissions include PDFs 1-9 as shown in Section 1.4 below. Based on this, the proposed project would generate fewer emissions than the requisite 3,000 MT CO₂e per year screening threshold and would have a less than significant GHG impact under CEQA. In addition, because the project generates fewer emissions than the applicable screening threshold, the project would not conflict with any local or state plans, policies, or regulations and would be consistent with SCAQMD's requirements.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Green House Gas Assessment (GHG) is to show conformance to the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32), SB 32 and SB97. Should impacts be determined, the intent of this study would be to recommend suitable design measures to bring the project to a level considered less than significant.

1.2 Project Location

The proposed development is located in the City of Highland which is located within the boundaries of the County of San Bernardino California within the South Coast Air Basin (SCAB). The project site is located at the N/W corner of Base Line Road and Church Avenue in the City of Highland, San Bernardino County, California. The overall property consists of two legal parcels, APNs 1200-381-05-0-000 and 1200-381-43-0-000; Parcel "05" is zoned Mixed Use (MU) and Parcel "43" has split zoning Mixed Use (MU) and Residential Single Family (R1). A general project vicinity map is shown in Figure 1-A.

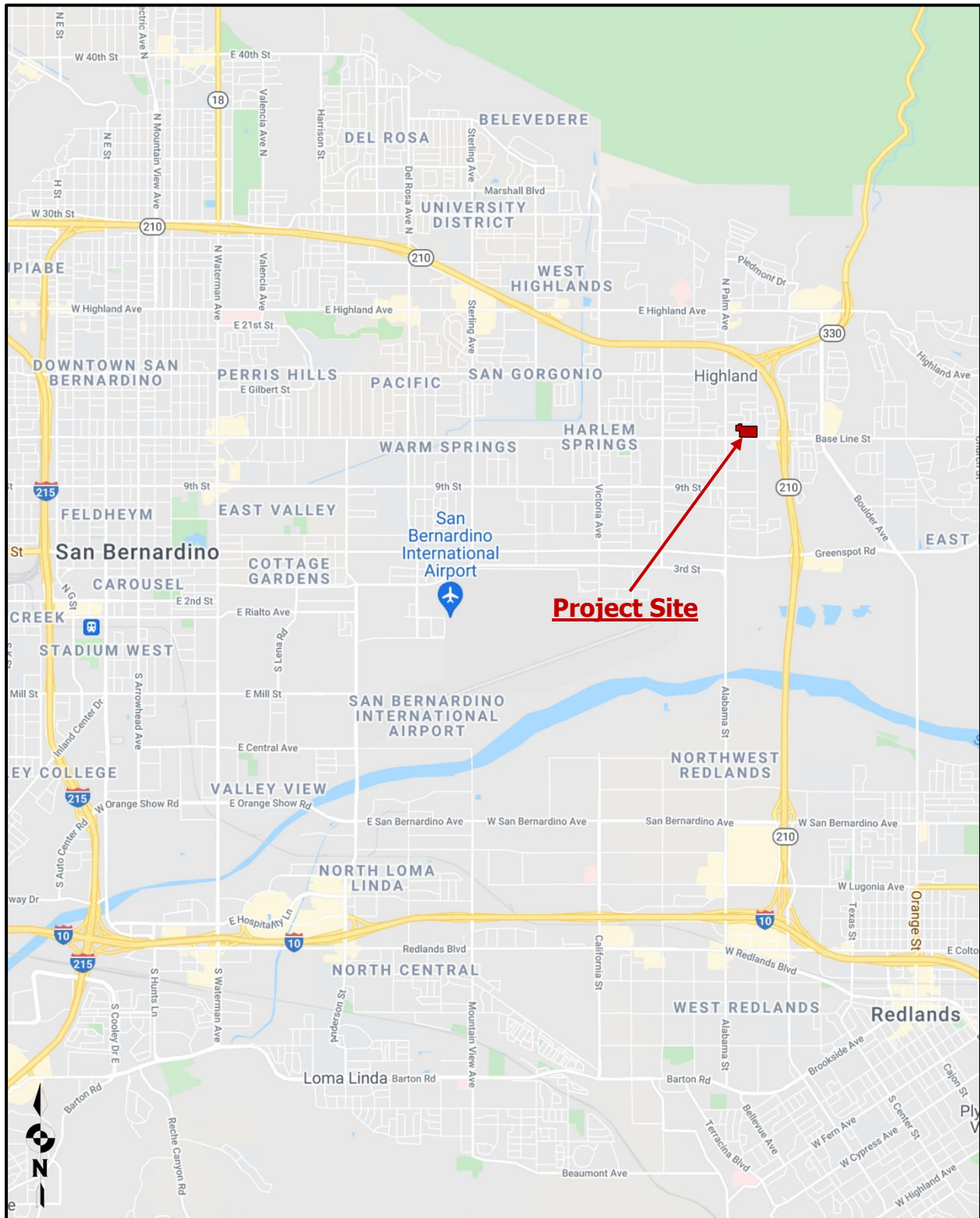
1.3 Project Description

The Applicant proposes to construct a Mixed-Use development which would consist of a 38,940 square foot (SF) Tractor Supply Site, 28,037 SF of retail space and 6,540 SF fast food restaurant. In addition, the project would construct a residential development which would consist of a 15-unit multi-family residential building, and two single family residences on approximately 9.06 acres.

Access for the commercial portion of the project will be taken via two newly constructed driveways along Base Line Road and Church Avenue, connection to Foster Avenue, and shared access (pending legal approval) with parcel 1200-381-42-0-000 (Family Dollar) contiguous on the West side of Parcel "43". The overall property consists of two legal parcels, APNs 1200-381-05-0-000 and 1200-381-43-0-000; Parcel "05" is zoned Mixed Use (MU) and Parcel "43" has split zoning Mixed Use (MU) and Residential Single Family (R1). The proposed project land use will not require a zone change or General Plan amendment.

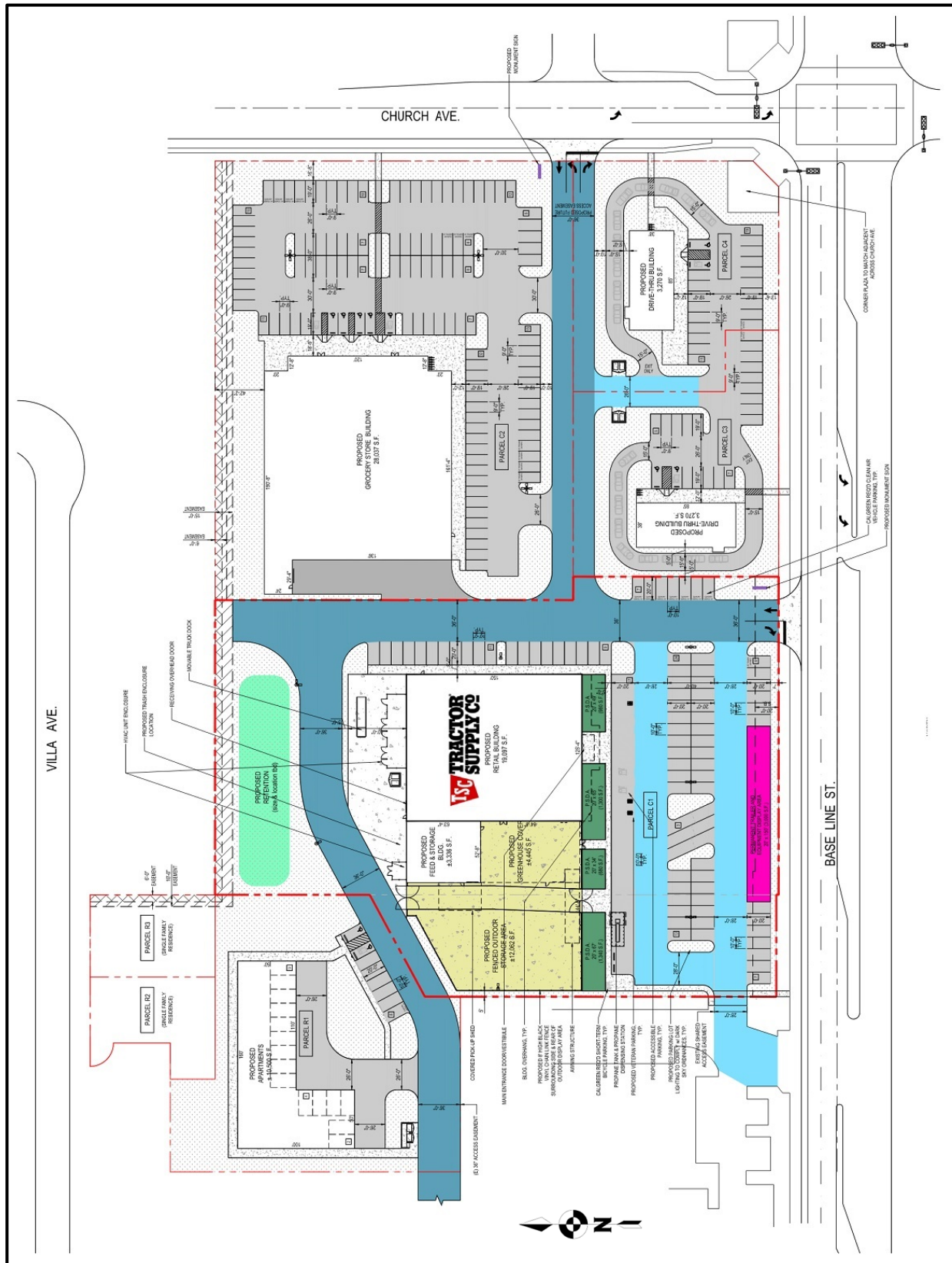
Construction would begin early 2022 and be completed roughly one year later. A site development plan is shown in Figure 1-B.

Figure 1-A: Project Vicinity Map



Source: (Google, 2021)

Figure 1-B: Site Plan Map



Source: (MPA Architects Inc., 2020)

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 of Highland:

1. In accordance with SCAQMDs Rule 403. All soil will be wetted twice daily during earthwork activities.
2. The project would install low flow water fixtures in all residential units and retail areas.
3. All lighting within the project will be designed using LED technology for both indoor and outdoor areas.
4. 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 for both retail and residential uses. 100% of all green waste will be diverted from landfills and recycled as mulch and used onsite.
5. The project would not install hearth (fireplace) options within multi-family residential units.
6. The project would install Natural Gas hearth units within the single-family residential units.
7. The project shall install water efficient/drought tolerant and/or native landscape, use smart evapotranspiration controllers and would limit conventional turf.
8. The project would meet all solar development requirements for solar and would offset residential electrical energy usage. The project would install 51 kilowatts (kW) of solar or roughly 162 (315 Watt) solar panels.
9. The project would install eight (8) Electric Vehicle (EV) Charging Stations within the retail areas of the project.

2.0 EXISTING SETTING

2.1 Understanding Greenhouse Gasses

Greenhouse gases 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 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 CO₂ and to a much lesser extent CO. Additionally, over the years scientist have measured this rise in Carbon Dioxide and fear that it may be heating the planet too. Additionally, it is thought that other greenhouse gases such as Methane and Nitrous Oxide are to blame.

Greenhouse Gasses of concern as analyzed in this study are Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O). To simplify greenhouse gas calculations, both CH₄ and N₂O can be converted to an equivalent amount of CO₂ or CO₂e. CO₂e is calculated by multiplying the calculated levels of CH₄ and N₂O by a Global Warming Potential (GWP). The U.S. Environmental Protection Agency publishes GWPs for various GHGs and reports that the GWP for CH₄ and N₂O is 21 and 310, respectively.

2.2 Climate and Meteorology

Climate within the SCAB area often varies dramatically over short geographical distances due to the size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps Highland 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.

It is common for inversion layers to develop within high-pressure areas, which mostly define pressure patterns over the SCAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning. Daytime temperature highs within the City of Highland typically range between 63 °F in the winter to approximately 95 °F in the summer with the month of August usually being the hottest month. Jurupa Valley usually receives an average seasonal precipitation of 13 inches of rain per year with the months of February and March usually being the wettest months of the year (City Data, 2021)

3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT

3.1 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 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) CO₂E). 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 (2008 Scoping Plan)* in accordance with Health and Safety Code Section 38561. The *2008 Scoping Plan* established an overall framework for the measures to 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 Team¹ 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:

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
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 *2008 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. 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

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.

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, 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 CO₂e) 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 the 2030 target in terms of MMT CO₂e. 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

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.

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 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 2016 Title 24 standards, which went into effect on January 1, 2017. 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 percent and 15 percent less electricity under the 2016 standards, respectively. Similarly, implementation of the 2016 standards is expected to reduce natural gas consumption by 21 percent in single-family homes and 31 percent in multi-family homes. Newly constructed non-residential buildings are estimated to achieve a 5 percent 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. This will likely 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 initially 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 EV 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 CALGreen standards were again updated in 2019 which includes mandatory measures for planning and design, energy efficiency, water and conservation efficiency, material and resource conservation as well as Environmental Quality. A thorough checklist is provided by California's Housing and Community Development Department (Housing and Community Development, 2019). The project would be required to utilize the latest CalGreen standards (International Code Council, 2019).

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 CO₂ 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 the state board 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.

EO S-1-07

Issued in January 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO₂E 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.

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 within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy 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 Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. 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.

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.

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

AB 939 (1989), 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, 2020). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO₂ and CH₄) 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.

3.2 South Coast Air Quality Management District Thresholds of Significance

The City of Highland does not have specific City defined GHG thresholds of significance; however, the City does suggest that GHG thresholds recommended by SCAQMD should be followed. Within SCAQMD, the district has followed Tier 3 screening standards. Under this methodology, Tier 3 screening values are established at 3,000 MT/year CO₂e for residential/commercial mixed uses (South Coast Air Quality Management District, 2013).

4.0 METHODOLOGY

4.1 Construction CO₂e Emissions Calculation Methodology

The Project construction dates were estimated based on an estimated construction kickoff starting in early 2022 and completing roughly 14 months later. Table 4.1 shows the expected timeframes for the construction processes as well as the expected number of pieces of equipment to complete the project.

Table 4.1: Expected Construction Equipment

Equipment Identification	Start Dates	Completion Dates	Quantity
Site Preparation	01/02/2022	01/14/2022	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	01/15/2022	02/11/2022	
Excavators			1
Graders			1
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			3
Building Construction	02/12/2022	12/30/2022	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Paving	12/31/2022	01/27/2023	
Pavers			2
Paving Equipment			2
Rollers			2
Architectural Coating	01/28/2023	02/24/2023	
Air Compressors			1
This equipment list is based upon equipment inventory within CALLEEMOD 2016.3.2. The quantity and types are based upon discussions with the project applicant.			

GHG impacts related to construction will be calculated using the latest CalEEMod 2016.3.2 air quality model which was developed by Breeze Software for the South Coast Air Quality Management District (SCAQMD). CalEEMod incorporates emission factors from the EMFAC2014 model for on-road vehicle emissions and the OFFROAD2011 model for off-road vehicle emissions. Because CO₂ emissions from construction only occur at the beginning of a project, emissions will be averaged over a 30-year period. This recommendation was based on proposals from South Coast Air Quality Management District in 2008. CalEEMod emission outputs are shown in **Attachment A** to this report.

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. The CalEEMod operational model is provided as **Attachment A** to this report.

GHG emissions for energy, water, and solid waste source emissions were estimated based on default inputs with the exception of mobile source emissions. Trip Generation for the project was estimated by the Project Traffic Engineer and was estimated to be 4,978 total trips (TJW Engineering, Inc., 2020).. Typical trip distances estimated by EMFAC were used within this analysis and are shown in **Attachment B** to this report.

Energy intensities as recommended by CalEEMod inputs were assumed within this report. Title 24 efficiencies as modeled within CalEEMod 2016.3.2 utilize Title 24 (2016) as defaults, though the project will comply with Title 24 (2019) which would further improve upon building efficiency requirements.

Regarding the project's energy intensity factors, CalEEMod's default rates from 2009 were updated to reflect project operational year intensity factors for 2023. In 2009, Southern California Edison (SCE) achieved 16.7 percent procurement of renewable energy (California Public Utilities Commission, 2016) and in 2030 will have up to 60 percent in place per requirements of SB 100. Given this, SCE energy-intensity factors for 2023 were calculated and were modeled as such within CalEEMod as shown in Table 4.2.

Table 4.2: SCE Energy Intensity Factors

GHG	2009 Factors (lbs/MWh) w/ 16.7% RPS	2023 Factors – 47.7% Renewables (lbs/MWh)
Carbon Dioxide (CO ₂)	702.44	441.03
Methane (CH ₄)	0.029	0.0204
Nitrous Oxide (N ₂ O)	0.006	0.0042

As a design feature, the project will exclusively utilize high-efficiency indoor and outdoor lighting in all buildings. One example of high-efficiency lighting is light-emitting diode (LED) lighting. LED indoor lighting is 75-90% more efficient than standard lighting. For example: a

10 watt LED bulb replaces a 60 watt standard bulb, which would be 83% more efficient. A typical 15 watt LED bulb has an equivalent rating of a 100 watt standard bulb.

High-efficiency lighting is addressed by both the 2013 Title 24 standards (CEC, 2012) and the 2016 Title 24 standards (CEC, 2015); these standards specifically call out lighting power density requirements for non-residential land uses. However, the lighting power density requirements do not change across the two sets of Title 24 standards. Rather, as illustrated by Table 140.6-B within the 2013 and 2016 Title 24 standards, the applicable requirement is 0.60 watts per ft². Of note, the default parameters of the version of CalEEMod used in this analysis (along with its predecessor versions) do not account for high-efficiency lighting technologies or the 2016 Title 24. For purposes of this analysis, the design feature to utilize 100% high-efficiency lighting would reduce energy usage from combined indoor and outdoor lighting by at least 75% which modified the intensity within CalEEMod directly. It should be noted that the project will likely be required to utilize Title 24 (2019) standards which may provide fewer emissions than estimated within this report, though no further reductions are estimated within this analysis.

Project-Installed Solar Panels

The project would implement design features identified in Section 1.4 of this analysis. CalEEMod was updated to include these project-specific design features which would reduce emissions, as described below. 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 C** to this report. Based on this, the project solar commitment (51 kW) would be estimated to generate 86,670 kWh of annual electrical energy. It should be noted that the more solar produced by the project reduces the amount of non-renewable energy added to the grid by offsite utilities. Given this, offsite generation from renewables would not be offset from onsite renewables. Instead, it is assumed that non-renewable generation is offset at 100%. Therefore, default GHG intensities or those assumed within CalEEMod are used to determine GHG reductions and are shown in **Attachment D** to this report.

Electric Vehicle Charging Stations

The project would also install eight (8) 19.2 KW Level II chargers in the common parking areas for patrons to utilize. For purposes of this analysis, it is assumed that each charger will be utilized 3 hours per occurrence, and would be utilized 50 percent of the year, or roughly 183 days per year conservatively. Given this, the guest EV charging stations would be utilized up to 4,392 hours yearly.

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 (Department of Energy, 2000). For many of the cars on the market today, this efficiency is over 100 MPGe.

The common area EV chargers would consist of 8 - 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 4,392 charging hours yearly or 250,212 VMT per year.³

³ It should be noted that drivers using these chargers would receive power directly from the project so VMT reductions from the entire charge would be applied to the project.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CalEEMod inputs for the model as shown in Table 4.1 above, we find that grading and construction of the project will produce approximately 509.37 Metric Tons of CO₂e over the construction life of the project. Given the fact that the total emissions will ultimately contribute to yearly emission levels, it is acceptable to average the total construction emission over a 30-year period (Source: SCAQMD 2008) which would be 16.98 MT per year. A summary of the construction emissions is shown in Table 5.1 below.

Table 5.1: Expected Annual Construction CO₂e Emissions Summary MT/Year

Year	Bio-CO ₂	NBio-CO ₂	Total CO ₂	CH ₄	N ₂ O	CO ₂ e
2022	0.00	481.86	481.86	0.09	0.00	484.00
2023	0.00	25.20	25.20	0.01	0.00	25.36
Total						509.37
Yearly Average Construction Emissions (Metric Tons/year over 30 years)						16.98
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/Conclusions

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 2023 are identified in Table 5.2 on the following page and include PDFs 1-7 which have reductions internal to CalEEMod.

Specific reductions from PDF 8 and 9 require separate modeling and calculations. PDF 8 will reduce annual operational emissions through the addition of 51 kW of PV which would generate 86,670 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 27.71 MT CO₂e annually.

PDF 9 would include the installation of 8 EV chargers and, based on findings in Section 4.2 of this analysis, the project EV would produce 250,212 VMT from EV per year. Based on the CalEEMod files for this project (as shown in Attachment A) emissions from a single VMT is roughly 0.000598 MT CO₂e per VMT. Given this, the project would offset roughly 149.69 MT CO₂e per year.

Based on the CalEEMod analysis, the proposed project buildout with annualized construction emissions would generate 2,841.26 MT CO₂e annually, which is shown in Table 5.2. These emissions include PDFs 1-9 as identified in Section 1.4 of this report. Based on this, the proposed project would generate fewer emissions than the requisite 3,000 MT CO₂e per year screening threshold and would therefore have a less than significant GHG impact under CEQA. In addition, because the project generates fewer emissions than the applicable screening threshold, the project would not conflict with any local or state plans, policies, or regulations and would be consistent with SCAQMD's requirements.

These PDFs assumed within this analysis and modeled results assume the PDFs are implemented. Based on this, all PDFs will be a condition for approval by the City of Highland.

Table 5.2: Expected Operational Emissions Summary MT/Year

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Area	0.00	0.78	0.78	0.00	0.00	0.79
Energy	0.00	303.82	303.82	0.01	0.00	305.24
Mobile	0.00	2589.74	2589.74	0.19	0.00	2594.49
Waste	27.71	0.00	27.71	1.64	0.00	68.64
Water	2.04	23.66	25.70	0.21	0.01	32.52
Amortized Construction Emissions (Table 5.1 above)						16.98
51 KW Solar						-27.71
8 EV Charging Stations						-149.69
Total Operations						2,841.26
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 1 above. Data is presented in decimal format and may have rounding errors.						

6.0 REFERENCES

- California Energy Commission. (2015, June 3). Retrieved from http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/15-day_language/impact_analysis/2016_Impact_Analysis_2015-06-03.pdf
- California Energy Commission. (2017). *Docket Log 17-BSTD-01 - Rooftop Solar PV System Report (11-16-2017)*. Retrieved from <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-BSTD-01>
- California Public Utilities Commission. (2016). *Biennial RPS Program Update - In Compliance with Public Utilities Code Section 913.6*. Retrieved from http://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Reports_and_White_Papers/FINAL12302015Section913_6Report.pdf
- CalRecycle. (2020). <https://www.calrecycle.ca.gov>. Retrieved from <https://www.calrecycle.ca.gov/Climate/>
- CARB. (2017). *California's 2017 Climate Change Scoping Plan*. Retrieved from https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf
- CEC. (2012). *T24 Standards (2013)*. Retrieved from <http://www.energy.ca.gov/2012publications/CEC-400-2012-004/CEC-400-2012-004-CMF-REV2.pdf>
- CEC. (2015). *T24 Standards (2016)*. Retrieved from <http://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf>
- City Data. (2021). <http://www.city-data.com>. Retrieved from <http://www.city-data.com/city/Highland-California.html>
- Google. (2018). Retrieved from www.maps.google.com
- Housing and Community Development. (2019). *2019 Residential Occupancies Application Checklist*. Retrieved from <https://www.hcd.ca.gov/building-standards/calgreen/docs/hcdshl615c.pdf>
- International Code Council. (2019). *2019 California Green Building Standards Code - Title 24, Part 11*. Retrieved from <https://codes.iccsafe.org/content/CAGBSC2019/cover>
- MPA Architects Inc. (2020). *Tractor Supply Co. - Baseline St. near Church Ave.*
- NREL. (2020). <https://pvwatts.nrel.gov/>. Retrieved from <https://pvwatts.nrel.gov/>
- South Coast Air Quality Management District. (2013, October 15). *Minutes for the GHG CEQA Significance Threshold*. Retrieved from [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf?sfvrsn=2)
- TJW Engineering, Inc. (2020). *Tractor Supply Store - Preliminary Traffic Analysis*.

ATTACHMENT A

CalEEMod 2016.3.2 (Project Buildout Emissions)

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Highland Commercial Tractor Supply

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	261.00	Space	2.35	104,400.00	0
Fast Food Restaurant with Drive Thru	6.54	1000sqft	0.15	6,540.00	0
Apartments Mid Rise	15.00	Dwelling Unit	0.39	15,000.00	43
Single Family Housing	2.00	Dwelling Unit	0.65	3,600.00	6
Hardware/Paint Store	38.94	1000sqft	4.88	38,940.00	0
Strip Mall	28.04	1000sqft	0.64	28,040.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	32
Climate Zone	10			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	441.03	CH4 Intensity (lb/MWhr)	0.02	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Project Characteristics - RPS 2023 47.7%

Land Use - 9.06 acres

Construction Phase - CS

Vehicle Trips - Trips based on Traffic Study. VMT/trip 5.55 per EMFAC

Woodstoves - MF no hearth options

SF has NG hearth options only

Energy Use -

Construction Off-road Equipment Mitigation -

Water Mitigation -

Waste Mitigation -

Landscape Equipment -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	12.75	0.00
tblFireplaces	NumberGas	1.70	2.00
tblFireplaces	NumberNoFireplace	1.50	15.00
tblFireplaces	NumberNoFireplace	0.20	0.00
tblFireplaces	NumberWood	0.75	0.00
tblFireplaces	NumberWood	0.10	0.00
tblLandUse	LotAcreage	0.89	4.88
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.02
tblProjectCharacteristics	CO2IntensityFactor	702.44	441.03
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	CC_TL	8.40	5.55
tblVehicleTrips	CC_TL	8.40	5.55
tblVehicleTrips	CC_TL	8.40	5.55

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

tblVehicleTrips	CC_TL	8.40	5.55
tblVehicleTrips	CNW_TL	6.90	5.55
tblVehicleTrips	CNW_TL	6.90	5.55
tblVehicleTrips	CNW_TL	6.90	5.55
tblVehicleTrips	CNW_TL	6.90	5.55
tblVehicleTrips	CW_TL	16.60	5.55
tblVehicleTrips	CW_TL	16.60	5.55
tblVehicleTrips	CW_TL	16.60	5.55
tblVehicleTrips	CW_TL	16.60	5.55
tblVehicleTrips	HO_TL	8.70	5.55
tblVehicleTrips	HO_TL	8.70	5.55
tblVehicleTrips	HO_TTP	40.60	40.00
tblVehicleTrips	HO_TTP	40.60	40.00
tblVehicleTrips	HS_TL	5.90	5.55
tblVehicleTrips	HS_TL	5.90	5.55
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TL	14.70	5.55
tblVehicleTrips	HW_TL	14.70	5.55
tblVehicleTrips	HW_TTP	40.20	41.00
tblVehicleTrips	HW_TTP	40.20	41.00
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	722.03	470.95
tblVehicleTrips	ST_TR	82.52	18.99
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	ST_TR	42.04	37.75
tblVehicleTrips	SU_TR	5.86	5.44

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

tblVehicleTrips	SU_TR	542.72	470.95
tblVehicleTrips	SU_TR	68.65	18.99
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	SU_TR	20.43	37.75
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	51.29	18.99
tblVehicleTrips	WD_TR	9.52	9.44
tblVehicleTrips	WD_TR	44.32	37.75
tblWoodstoves	NumberCatalytic	0.75	0.00
tblWoodstoves	NumberCatalytic	0.10	0.00
tblWoodstoves	NumberNoncatalytic	0.75	0.00
tblWoodstoves	NumberNoncatalytic	0.10	0.00

2.0 Emissions Summary

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2810	2.5278	2.5068	5.4400e-003	0.2818	0.1117	0.3935	0.1173	0.1047	0.2220	0.0000	481.8584	481.8584	0.0857	0.0000	484.0015
2023	0.4301	0.1158	0.1732	2.9000e-004	3.4000e-003	5.8300e-003	9.2300e-003	9.0000e-004	5.4200e-003	6.3200e-003	0.0000	25.1971	25.1971	6.6900e-003	0.0000	25.3644
Maximum	0.4301	2.5278	2.5068	5.4400e-003	0.2818	0.1117	0.3935	0.1173	0.1047	0.2220	0.0000	481.8584	481.8584	0.0857	0.0000	484.0015

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2810	2.5278	2.5068	5.4400e-003	0.1961	0.1117	0.3078	0.0715	0.1047	0.1762	0.0000	481.8581	481.8581	0.0857	0.0000	484.0012
2023	0.4301	0.1158	0.1732	2.9000e-004	3.4000e-003	5.8300e-003	9.2300e-003	9.0000e-004	5.4200e-003	6.3200e-003	0.0000	25.1971	25.1971	6.6900e-003	0.0000	25.3644
Maximum	0.4301	2.5278	2.5068	5.4400e-003	0.1961	0.1117	0.3078	0.0715	0.1047	0.1762	0.0000	481.8581	481.8581	0.0857	0.0000	484.0012

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	30.05	0.00	21.28	38.78	0.00	20.07	0.00	0.00	0.00	0.00	0.00	0.00

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2022	4-1-2022	0.7626	0.7626
2	4-2-2022	7-1-2022	0.6772	0.6772
3	7-2-2022	10-1-2022	0.6847	0.6847
4	10-2-2022	1-1-2023	0.6780	0.6780
5	1-2-2023	4-1-2023	0.5376	0.5376
		Highest	0.7626	0.7626

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	0.3867	2.4700e-003	0.1798	1.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	0.7750	0.7750	3.1000e-004	1.0000e-005	0.7852
Energy	0.0120	0.1080	0.0853	6.5000e-004		8.2700e-003	8.2700e-003		8.2700e-003	8.2700e-003	0.0000	374.3271	374.3271	0.0139	4.4900e-003	376.0127
Mobile	1.0213	6.8441	7.5199	0.0278	1.6515	0.0163	1.6678	0.4426	0.0152	0.4578	0.0000	2,589.7421	2,589.7421	0.1897	0.0000	2,594.4851
Waste						0.0000	0.0000		0.0000	0.0000	110.8209	0.0000	110.8209	6.5493	0.0000	274.5541
Water						0.0000	0.0000		0.0000	0.0000	2.5552	29.5715	32.1267	0.2638	6.4700e-003	40.6479
Total	1.4200	6.9546	7.7850	0.0284	1.6515	0.0256	1.6771	0.4426	0.0245	0.4671	113.3761	2,994.4155	3,107.7916	7.0170	0.0110	3,286.4849

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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	0.3867	2.4700e-003	0.1798	1.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	0.7750	0.7750	3.1000e-004	1.0000e-005	0.7852
Energy	0.0120	0.1080	0.0853	6.5000e-004		8.2700e-003	8.2700e-003		8.2700e-003	8.2700e-003	0.0000	303.8204	303.8204	0.0107	3.8500e-003	305.2355
Mobile	1.0213	6.8441	7.5199	0.0278	1.6515	0.0163	1.6678	0.4426	0.0152	0.4578	0.0000	2,589.742 1	2,589.742 1	0.1897	0.0000	2,594.485 1
Waste						0.0000	0.0000		0.0000	0.0000	27.7052	0.0000	27.7052	1.6373	0.0000	68.6385
Water						0.0000	0.0000		0.0000	0.0000	2.0442	23.6572	25.7013	0.2110	5.1700e-003	32.5183
Total	1.4200	6.9546	7.7850	0.0284	1.6515	0.0256	1.6771	0.4426	0.0245	0.4671	29.7494	2,917.994 6	2,947.744 0	2.0491	9.0300e-003	3,001.662 6

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.76	2.55	5.15	70.80	17.68	8.67

3.0 Construction Detail**Construction Phase**

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2022	1/14/2022	5	10	
2	Grading	Grading	1/15/2022	2/11/2022	5	20	
3	Building Construction	Building Construction	2/12/2022	12/30/2022	5	230	
4	Paving	Paving	12/31/2022	1/27/2023	5	20	
5	Architectural Coating	Architectural Coating	1/28/2023	2/24/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 2.35

Residential Indoor: 37,665; Residential Outdoor: 12,555; Non-Residential Indoor: 110,280; Non-Residential Outdoor: 36,760; Striped Parking Area: 6,264 (Architectural Coating – sqft)

OffRoad Equipment

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
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
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	80.00	31.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Water Exposed Area

3.2 Site Preparation - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	0.0159	0.1654	0.0985	1.9000e-004	0.0903	8.0600e-003	0.0984	0.0497	7.4200e-003	0.0571	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.8000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7894	0.7894	2.0000e-005	0.0000	0.7899
Total	3.9000e-004	2.8000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7894	0.7894	2.0000e-005	0.0000	0.7899

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.2 Site Preparation - 2022**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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	0.0159	0.1654	0.0985	1.9000e-004	0.0407	8.0600e-003	0.0487	0.0223	7.4200e-003	0.0298	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.8000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7894	0.7894	2.0000e-005	0.0000	0.7899
Total	3.9000e-004	2.8000e-004	2.9400e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7894	0.7894	2.0000e-005	0.0000	0.7899

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.3 Grading - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654
Total	0.0195	0.2086	0.1527	3.0000e-004	0.0655	9.4100e-003	0.0749	0.0337	8.6600e-003	0.0423	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.7000e-004	4.9000e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3157	1.3157	3.0000e-005	0.0000	1.3165
Total	6.5000e-004	4.7000e-004	4.9000e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3157	1.3157	3.0000e-005	0.0000	1.3165

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.3 Grading - 2022**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					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654
Total	0.0195	0.2086	0.1527	3.0000e-004	0.0295	9.4100e-003	0.0389	0.0152	8.6600e-003	0.0238	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.7000e-004	4.9000e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3157	1.3157	3.0000e-005	0.0000	1.3165
Total	6.5000e-004	4.7000e-004	4.9000e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3157	1.3157	3.0000e-005	0.0000	1.3165

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1962	1.7958	1.8818	3.1000e-003		0.0930	0.0930		0.0875	0.0875	0.0000	266.4840	266.4840	0.0638	0.0000	268.0801
Total	0.1962	1.7958	1.8818	3.1000e-003		0.0930	0.0930		0.0875	0.0875	0.0000	266.4840	266.4840	0.0638	0.0000	268.0801

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	8.8100e-003	0.3285	0.0653	9.4000e-004	0.0225	5.0000e-004	0.0230	6.4900e-003	4.8000e-004	6.9700e-003	0.0000	89.8004	89.8004	5.8900e-003	0.0000	89.9477
Worker	0.0396	0.0288	0.3006	8.9000e-004	0.1009	6.4000e-004	0.1015	0.0268	5.9000e-004	0.0274	0.0000	80.6945	80.6945	2.1000e-003	0.0000	80.7470
Total	0.0484	0.3573	0.3660	1.8300e-003	0.1234	1.1400e-003	0.1245	0.0333	1.0700e-003	0.0344	0.0000	170.4949	170.4949	7.9900e-003	0.0000	170.6947

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.4 Building Construction - 2022**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	0.1962	1.7958	1.8818	3.1000e-003		0.0930	0.0930		0.0875	0.0875	0.0000	266.4837	266.4837	0.0638	0.0000	268.0798
Total	0.1962	1.7958	1.8818	3.1000e-003		0.0930	0.0930		0.0875	0.0875	0.0000	266.4837	266.4837	0.0638	0.0000	268.0798

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	8.8100e-003	0.3285	0.0653	9.4000e-004	0.0225	5.0000e-004	0.0230	6.4900e-003	4.8000e-004	6.9700e-003	0.0000	89.8004	89.8004	5.8900e-003	0.0000	89.9477
Worker	0.0396	0.0288	0.3006	8.9000e-004	0.1009	6.4000e-004	0.1015	0.0268	5.9000e-004	0.0274	0.0000	80.6945	80.6945	2.1000e-003	0.0000	80.7470
Total	0.0484	0.3573	0.3660	1.8300e-003	0.1234	1.1400e-003	0.1245	0.0333	1.0700e-003	0.0344	0.0000	170.4949	170.4949	7.9900e-003	0.0000	170.6947

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.5 Paving - 2022

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.5 Paving - 2022

Mitigated Construction On-Site

[illegible]

Mitigated Construction Off-Site

[illegible]

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.5 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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	3.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0134	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670
Total	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.5 Paving - 2023**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	3.0800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0134	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670
Total	6.0000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2663	1.2663	3.0000e-005	0.0000	1.2670

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	0.4154	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	4.7900e-003	1.0000e-005	1.7500e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3507	1.3507	3.0000e-005	0.0000	1.3515
Total	6.5000e-004	4.5000e-004	4.7900e-003	1.0000e-005	1.7500e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3507	1.3507	3.0000e-005	0.0000	1.3515

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

3.6 Architectural Coating - 2023**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	0.4154	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	4.7900e-003	1.0000e-005	1.7500e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3507	1.3507	3.0000e-005	0.0000	1.3515
Total	6.5000e-004	4.5000e-004	4.7900e-003	1.0000e-005	1.7500e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3507	1.3507	3.0000e-005	0.0000	1.3515

4.0 Operational Detail - Mobile

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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	1.0213	6.8441	7.5199	0.0278	1.6515	0.0163	1.6678	0.4426	0.0152	0.4578	0.0000	2,589.742 1	2,589.742 1	0.1897	0.0000	2,594.485 1
Unmitigated	1.0213	6.8441	7.5199	0.0278	1.6515	0.0163	1.6678	0.4426	0.0152	0.4578	0.0000	2,589.742 1	2,589.742 1	0.1897	0.0000	2,594.485 1

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	81.60	81.60	81.60	146,392	146,392
Fast Food Restaurant with Drive Thru	3,080.01	3,080.01	3,080.01	2,187,174	2,187,174
Hardware/Paint Store	739.47	739.47	739.47	787,550	787,550
Parking Lot	0.00	0.00	0.00		
Single Family Housing	18.88	18.88	18.88	33,871	33,871
Strip Mall	1,058.51	1,058.51	1,058.51	1,181,901	1,181,901
Total	4,978.47	4,978.47	4,978.47	4,336,888	4,336,888

4.3 Trip Type Information

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	5.55	5.55	5.55	41.00	19.00	40.00	86	11	3
Fast Food Restaurant with Drive Thru	5.55	5.55	5.55	2.20	78.80	19.00	29	21	50
Hardware/Paint Store	5.55	5.55	5.55	13.60	67.40	19.00	45	29	26
Parking Lot	5.55	5.55	5.55	0.00	0.00	0.00	0	0	0
Single Family Housing	5.55	5.55	5.55	41.00	19.00	40.00	86	11	3
Strip Mall	5.55	5.55	5.55	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Fast Food Restaurant with Drive Thru	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Hardware/Paint Store	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Parking Lot	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Single Family Housing	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884
Strip Mall	0.555935	0.035798	0.180985	0.113549	0.015175	0.004939	0.018497	0.064736	0.001364	0.001528	0.005807	0.000803	0.000884

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

	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	185.3476	185.3476	8.4100e-003	1.6800e-003	186.0587
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	255.8542	255.8542	0.0116	2.3200e-003	256.8358
NaturalGas Mitigated	0.0120	0.1080	0.0853	6.5000e-004		8.2700e-003	8.2700e-003		8.2700e-003	8.2700e-003	0.0000	118.4728	118.4728	2.2700e-003	2.1700e-003	119.1768
NaturalGas Unmitigated	0.0120	0.1080	0.0853	6.5000e-004		8.2700e-003	8.2700e-003		8.2700e-003	8.2700e-003	0.0000	118.4728	118.4728	2.2700e-003	2.1700e-003	119.1768

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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	221911	1.2000e-003	0.0102	4.3500e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8420	11.8420	2.3000e-004	2.2000e-004	11.9124
Fast Food Restaurant with Drive Thru	1.7883e+006	9.6400e-003	0.0877	0.0736	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	95.4304	95.4304	1.8300e-003	1.7500e-003	95.9975
Hardware/Paint Store	86446.8	4.7000e-004	4.2400e-003	3.5600e-003	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	4.6131	4.6131	9.0000e-005	8.0000e-005	4.6405
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
Single Family Housing	61192.3	3.3000e-004	2.8200e-003	1.2000e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.2655	3.2655	6.0000e-005	6.0000e-005	3.2849
Strip Mall	62248.8	3.4000e-004	3.0500e-003	2.5600e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3218	3.3218	6.0000e-005	6.0000e-005	3.3416
Total		0.0120	0.1080	0.0853	6.7000e-004		8.2700e-003	8.2700e-003		8.2700e-003	8.2700e-003	0.0000	118.4728	118.4728	2.2700e-003	2.1700e-003	119.1768

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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	221911	1.2000e-003	0.0102	4.3500e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8420	11.8420	2.3000e-004	2.2000e-004	11.9124
Fast Food Restaurant with Drive Thru	1.7883e+006	9.6400e-003	0.0877	0.0736	5.3000e-004		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	95.4304	95.4304	1.8300e-003	1.7500e-003	95.9975
Hardware/Paint Store	86446.8	4.7000e-004	4.2400e-003	3.5600e-003	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	4.6131	4.6131	9.0000e-005	8.0000e-005	4.6405
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
Single Family Housing	61192.3	3.3000e-004	2.8200e-003	1.2000e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.2655	3.2655	6.0000e-005	6.0000e-005	3.2849
Strip Mall	62248.8	3.4000e-004	3.0500e-003	2.5600e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.3218	3.3218	6.0000e-005	6.0000e-005	3.3416
Total		0.0120	0.1080	0.0853	6.7000e-004		8.2700e-003	8.2700e-003		8.2700e-003	8.2700e-003	0.0000	118.4728	118.4728	2.2700e-003	2.1700e-003	119.1768

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	68515.6	13.7064	6.2000e-004	1.2000e-004	13.7590
Fast Food Restaurant with Drive Thru	310519	62.1187	2.8200e-003	5.6000e-004	62.3570
Hardware/Paint Store	491812	98.3860	4.4600e-003	8.9000e-004	98.7634
Parking Lot	36540	7.3098	3.3000e-004	7.0000e-005	7.3378
Single Family Housing	17433	3.4874	1.6000e-004	3.0000e-005	3.5008
Strip Mall	354145	70.8460	3.2100e-003	6.4000e-004	71.1178
Total		255.8542	0.0116	2.3100e-003	256.8358

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

5.3 Energy by Land Use - Electricity**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	60174.5	12.0378	5.5000e-004	1.1000e-004	12.0840
Fast Food Restaurant with Drive Thru	278048	55.6229	2.5200e-003	5.0000e-004	55.8363
Hardware/Paint Store	327972	65.6101	2.9800e-003	6.0000e-004	65.8618
Parking Lot	9135	1.8274	8.0000e-005	2.0000e-005	1.8345
Single Family Housing	15019.7	3.0047	1.4000e-004	3.0000e-005	3.0162
Strip Mall	236167	47.2447	2.1400e-003	4.3000e-004	47.4259
Total		185.3476	8.4100e-003	1.6900e-003	186.0587

6.0 Area Detail**6.1 Mitigation Measures Area**

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

	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	0.3867	2.4700e-003	0.1798	1.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	0.7750	0.7750	3.1000e-004	1.0000e-005	0.7852
Unmitigated	0.3867	2.4700e-003	0.1798	1.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	0.7750	0.7750	3.1000e-004	1.0000e-005	0.7852

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	0.0414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3396					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-005	4.1000e-004	1.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4803	0.4803	1.0000e-005	1.0000e-005	0.4831
Landscaping	5.6800e-003	2.0600e-003	0.1796	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2947	0.2947	3.0000e-004	0.0000	0.3021
Total	0.3867	2.4700e-003	0.1798	1.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	0.7750	0.7750	3.1000e-004	1.0000e-005	0.7852

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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	0.0414					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3396					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-005	4.1000e-004	1.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4803	0.4803	1.0000e-005	1.0000e-005	0.4831
Landscaping	5.6800e-003	2.0600e-003	0.1796	1.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	0.2947	0.2947	3.0000e-004	0.0000	0.3021
Total	0.3867	2.4700e-003	0.1798	1.0000e-005		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	0.7750	0.7750	3.1000e-004	1.0000e-005	0.7852

7.0 Water Detail**7.1 Mitigation Measures Water**

Apply Water Conservation Strategy

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	25.7013	0.2110	5.1700e-003	32.5183
Unmitigated	32.1267	0.2638	6.4700e-003	40.6479

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	0.97731 / 0.61613	4.2252	0.0320	7.9000e-004	5.2604
Fast Food Restaurant with Drive Thru	1.98511 / 0.126709	6.0823	0.0649	1.5800e-003	8.1755
Hardware/Paint Store	2.88438 / 1.76785	12.3575	0.0945	2.3200e-003	15.4124
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.130308 / 0.0821507	0.5634	4.2700e-003	1.0000e-004	0.7014
Strip Mall	2.07699 / 1.273	8.8984	0.0681	1.6700e-003	11.0982
Total		32.1267	0.2638	6.4600e-003	40.6479

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	0.781848 / 0.492904	3.3801	0.0256	6.3000e-004	4.2083
Fast Food Restaurant with Drive Thru	1.58809 / 0.101367	4.8658	0.0520	1.2600e-003	6.5404
Hardware/Paint Store	2.30751 / 1.41428	9.8860	0.0756	1.8600e-003	12.3299
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.104246 / 0.0657206	0.4507	3.4200e-003	8.0000e-005	0.5611
Strip Mall	1.66159 / 1.0184	7.1187	0.0544	1.3400e-003	8.8786
Total		25.7013	0.2110	5.1700e-003	32.5183

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Institute Recycling and Composting Services

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	27.7052	1.6373	0.0000	68.6385
Unmitigated	110.8209	6.5493	0.0000	274.5541

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	6.9	1.4006	0.0828	0.0000	3.4700
Fast Food Restaurant with Drive Thru	75.33	15.2913	0.9037	0.0000	37.8836
Hardware/Paint Store	431.81	87.6535	5.1802	0.0000	217.1579
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.46	0.4994	0.0295	0.0000	1.2371
Strip Mall	29.44	5.9761	0.3532	0.0000	14.8054
Total		110.8209	6.5493	0.0000	274.5541

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1.725	0.3502	0.0207	0.0000	0.8675
Fast Food Restaurant with Drive Thru	18.8325	3.8228	0.2259	0.0000	9.4709
Hardware/Paint Store	107.953	21.9134	1.2950	0.0000	54.2895
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.615	0.1248	7.3800e-003	0.0000	0.3093
Strip Mall	7.36	1.4940	0.0883	0.0000	3.7014
Total		27.7052	1.6373	0.0000	68.6385

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

Highland Commercial Tractor Supply - San Bernardino-South Coast County, Annual

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

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

ATTACHMENT B

EMFAC 2014 VMT/Trip (2023)

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Trips
South Coas	2023	HHDT	Aggregatec	Aggregatec	GAS	845.2226	107869.2013	16911.21355
South Coas	2023	HHDT	Aggregatec	Aggregatec	DSL	89548.02	12924496.33	0
South Coas	2023	LDA	Aggregatec	Aggregatec	GAS	6264982	209913843.8	39567465.25
South Coas	2023	LDA	Aggregatec	Aggregatec	DSL	68231.28	2395771.457	427576.5978
South Coas	2023	LDA	Aggregatec	Aggregatec	ELEC	309061	13422075.82	2011962.526
South Coas	2023	LDT1	Aggregatec	Aggregatec	GAS	524963.8	17443322.44	3198449.417
South Coas	2023	LDT1	Aggregatec	Aggregatec	DSL	566.9173	15079.56095	2949.350952
South Coas	2023	LDT1	Aggregatec	Aggregatec	ELEC	344.4233	10618.35479	2076.608731
South Coas	2023	LDT2	Aggregatec	Aggregatec	GAS	2280873	82643235.78	14458786.03
South Coas	2023	LDT2	Aggregatec	Aggregatec	DSL	4457.653	169032.7022	28615.43743
South Coas	2023	LHDT1	Aggregatec	Aggregatec	GAS	101835.8	2836538.916	1517202.381
South Coas	2023	LHDT1	Aggregatec	Aggregatec	DSL	96131.44	3321303.353	1209212.561
South Coas	2023	LHDT2	Aggregatec	Aggregatec	GAS	23131.97	792817.5726	344631.9309
South Coas	2023	LHDT2	Aggregatec	Aggregatec	DSL	42055.05	1595083.718	528999.5832
South Coas	2023	MCY	Aggregatec	Aggregatec	GAS	308501.6	1969480.034	616941.5939
South Coas	2023	MDV	Aggregatec	Aggregatec	GAS	1435218	46739844.42	8932873.614
South Coas	2023	MDV	Aggregatec	Aggregatec	DSL	27835.22	1018901.6	178160.7584
South Coas	2023	MH	Aggregatec	Aggregatec	GAS	34406.25	277627.0723	3442.001487
South Coas	2023	MH	Aggregatec	Aggregatec	DSL	9347.503	77260.38527	934.7502709
South Coas	2023	MHDT	Aggregatec	Aggregatec	GAS	19258.5	928087.5087	385324.0418
South Coas	2023	MHDT	Aggregatec	Aggregatec	DSL	141128.4	7930885.451	0
South Coas	2023	OBUS	Aggregatec	Aggregatec	GAS	8907.143	391252.705	178214.1228
South Coas	2023	OBUS	Aggregatec	Aggregatec	DSL	5611.089	470678.6888	0
South Coas	2023	SBUS	Aggregatec	Aggregatec	GAS	2552.006	93077.74203	10208.026
South Coas	2023	SBUS	Aggregatec	Aggregatec	DSL	5195.767	196760.975	0
South Coas	2023	UBUS	Aggregatec	Aggregatec	GAS	2458.623	269036.4331	9834.492986
South Coas	2023	UBUS	Aggregatec	Aggregatec	DSL	4123.342	453343.6808	16493.36771
Total							408407325.7	73647265.66
VMT/Trip							5.55	

ATTACHMENT C

NREL PV Watts Estimated Power Production



Cautio: 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.

Disclaimer: The PVWatts® Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

The names DOE/NREL/ALLIANCE shall not be used in any representation, advertising, publicity or other manner whatsoever to endorse or promote any entity that adopts or uses the Model. DOE/NREL/ALLIANCE shall not provide

any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

YOU AGREE TO INDEMNIFY DOE/NREL/ALLIANCE, AND ITS AFFILIATES, OFFICERS, AGENTS, AND EMPLOYEES AGAINST ANY CLAIM OR DEMAND, INCLUDING REASONABLE ATTORNEYS' FEES, RELATED TO YOUR USE, RELIANCE, OR ADOPTION OF THE MODEL FOR ANY PURPOSE WHATSOEVER. THE MODEL IS PROVIDED BY DOE/NREL/ALLIANCE "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL DOE/NREL/ALLIANCE BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM ANY ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE MODEL.

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

86,670 kWh/Year*

System output may range from 82,622 to 87,753 kWh per year near this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	4.39	5,451	871
February	4.50	5,076	811
March	6.06	7,444	1,190
April	6.47	7,592	1,213
May	7.10	8,466	1,353
June	7.77	8,802	1,407
July	7.70	8,905	1,423
August	7.70	8,891	1,421
September	6.95	7,866	1,257
October	5.86	7,038	1,125
November	4.96	5,889	941
December	4.19	5,248	839
Annual	6.14	86,668	\$ 13,851

Location and Station Identification

Requested Location	highland ca
Weather Data Source	Lat, Lon: 34.13, -117.18 1.3 mi
Latitude	34.13° N
Longitude	117.18° W

PV System Specifications (Residential)

DC System Size	51 kW
Module Type	Premium
Array Type	Fixed (open rack)
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	0.160 \$/kWh
---------------------------------	--------------

Performance Metrics

Capacity Factor	19.4%
-----------------	-------

ATTACHMENT D

CalEEMod 2016.3.2 (Solar GHG Reductions)

Highland 51KW Solar - San Diego County, Annual

Highland 51KW 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	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Highland 51KW Solar - San Diego County, Annual

Project Characteristics -

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 -

Vehicle Emission Factors -

Woodstoves - asdf

Area Coating -

Landscape Equipment - zero

Energy Use - E=Energy (kWh) = $189 \times 5.95 \times .8 \times 365 = 328,368.6 \text{ kWh}$

Water And Wastewater -

Energy Mitigation - 86,670 kWh per year per NREL PVWATTS

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	0
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00

2.0 Emissions Summary

Highland 51KW Solar - San Diego County, Annual

2.1 Overall Construction

Unmitigated Construction

[illegible]

Mitigated Construction

[illegible]

Highland 51KW Solar - San Diego County, Annual

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

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

Highland 51KW Solar - San Diego County, Annual

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	-27.6149	-27.6149	-0.0011	-0.0002	-27.7137
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	-27.6149	-27.6149	-0.0011	-0.0002	-27.7137

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	138,074,600.00	138,074,600.00	0.00	0.00	138,568,550.00

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	7/2/2021	7/2/2021	5	1	

Acres of Grading (Site Preparation Phase): 0

Highland 51KW Solar - San Diego County, Annual

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	174	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

Highland 51KW Solar - San Diego County, Annual

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

[illegible]

Unmitigated Construction Off-Site

[illegible]

Highland 51KW Solar - San Diego County, Annual

3.2 Site Preparation - 2021**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

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

4.0 Operational Detail - Mobile

Highland 51KW Solar - San Diego County, Annual

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	0.602700	0.040134	0.179939	0.104242	0.014985	0.005435	0.016642	0.024350	0.001934	0.001888	0.005938	0.000757	0.001056

Highland 51KW Solar - San Diego County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

[illegible]

Highland 51KW Solar - San Diego County, Annual

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

Highland 51KW Solar - San Diego County, Annual

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	-86670	-27.6149	-0.0011	-0.0002	-27.7137
Total		-27.6149	-0.0011	-0.0002	-27.7137

6.0 Area Detail**6.1 Mitigation Measures Area**

Highland 51KW Solar - San Diego County, Annual

	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

Highland 51KW Solar - San Diego County, Annual

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**

Highland 51KW Solar - San Diego County, Annual

	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

Highland 51KW Solar - San Diego County, Annual

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

Highland 51KW Solar - San Diego County, Annual

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
----------------	--------	-----------	-----------	-------------	-------------	-----------

Highland 51KW Solar - San Diego County, Annual

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
