APPLE VALLEY 84

GREENHOUSE GAS ANALYSIS

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LIST OF ABBREVIATED TERMS

%	Percent
°C	Degrees Celsius
°F	Degrees Fahrenheit
(1)	Reference
2017 Scoping Plan	*Final 2017 Scoping Plan Update*
AB	Assembly Bill
AB 32	Global Warming Solutions Act of 2006
AB 1493	Pavley Fuel Efficiency Standards
AB 1881	California Water Conservation Landscaping Act of 2006
Annex I	Industrialized Nations
AQIA	*Apple Valley 84 Air Quality Impact Analysis*
BAU	Business as Usual
C_2F_6	Hexafluoroethane
C_2H_6	Ethane
$C_2H_2F_4$	Tetrafluroethane
$C_2H_4F_2$	Ethylidene Fluoride
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGAPS	California LBNL GHG Analysis of Policies Spreadsheet
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CEQA Guidelines	*CEQA Statute and Guidelines*
CDFA	California Department of Food and Agriculture
CF_4	Tetrafluoromethane
CFC	Chlorofluorocarbons
CFC-113	Trichlorotrifluoroethane
CH_4	Methane
CNRA	California Natural Resources Agency
CNRA 2009	*2009 California Climate Adaptation Strategy*
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Convention	United Nation's Framework Convention on Climate Change
COP	Conference of the Parties
City	Town of Apple Valley
CPUC	California Public Utilities Commission
DWR	Department of Water Resources

EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
EV	Electric Vehicle
GCC	Global Climate Change
Gg	Gigagram
GHGA	Greenhouse Gas Analysis
gpd	Gallons Per Day
gpm	Gallons Per Minute
GWP	Global Warming Potential
H_2O	Water
HEPA	High Efficiency Particulate Air
HFC	Hydrofluorocarbons
HFC-23	Fluoroform
HFC-134a	1,1,1,2-tetrafluoroethane
HFC-152a	1,1-difluoroethane
hp	Horsepower
IPCC	Intergovernmental Panel on Climate Change
ISO	Independent System Operator
ITE	Institute of Transportation Engineers
kWh	Kilowatt Hours
lbs	Pounds
LBNL	Lawrence Berkeley National Laboratory
LCD	Liquid Crystal Display
LCFS	Low Carbon Fuel Standard or Executive Order S-01-07
LEV III	Low-Emission Vehicle
LULUCF	Land-Use, Land-Use Change and Forestry
MCY	Motorcycles
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
mpg	Miles Per Gallon
MPOs	Metropolitan Planning Organizations
$MMTCO_2e/yr$	Million Metric Ton of Carbon Dioxide Equivalent Per Year
MT/yr	Metric Tons Per Year
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
$MTCO_2e/yr$	Metric Ton of Carbon Dioxide Equivalent Per Year
MW	Megawatts
MWh	Megawatts Per Hour
MWELO	California Department of Water Resources' Model Water Efficient
N_2O	Nitrous Oxide
NDC	Nationally Determined Contributions
NF_3	Nitrogen Trifluoride
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health

NO_X	Nitrogen Oxides
Non-Annex I	Developing Nations
OAL	Office of Administrative Law
OPR	Office of Planning and Research
PFC	Perfluorocarbons
ppb	Parts Per Billion
ppm	Parts Per Million
ppt	Parts Per Trillion
Project	Apple Valley 84
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient Vehicles Rule
SB	Senate Bill
SB 32	California Global Warming Solutions Act of 2006
SB 375	Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies
SB 1078	Renewable Portfolio Standards
SB 1368	Statewide Retail Provider Emissions Performance Standards
SCAG	Southern California Association of Governments
Scoping Plan	California Air Resources Board Climate Change Scoping Plan
SCS	Sustainable Communities Strategy
sf	Square Feet
SF_6	Sulfur Hexaflouride
SLPS	Short-Lived Climate Pollutant Strategy
SP	Service Population
TDM	Transportation Demand Measures
Title 20	Appliance Energy Efficiency Standards
Title 24	California Building Code
TRU	Transport Refrigeration Units
U.N.	United Nations
U.S.	United States
UNFCCC	United Nations' Framework Convention on Climate Change
VICS	Voluntary Interindustry Commerce Solutions
VMT	Vehicle Miles Traveled
WCI	Western Climate Initiative
WRI	World Resources Institute
ZE/NZE	Zero and Near-Zero Emissions
ZEV	Zero-Emissions Vehicles

EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this Apple Valley 84 Greenhouse Gas Analysis (GHGA) are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines) (1). Table ES-1 shows the findings of significance for potential greenhouse gas (GHG) impacts under the California Environmental Quality Act (CEQA).

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: Would the Project generate GHG emissions either directly or indirectly, that may have a significant impact on the environment?	3.6	*Potentially Significant*	*Significant and Unavoidable*
GHG Impact #2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?	3.6	*Potentially Significant*	*Significant and Unavoidable*

ES.2 REGULATORY REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California, the Mojave Desert Air Quality Management District (MDAQMD), and the Town of Apple Valley aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of GHG emissions include.

- Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (Senate Bill [SB] 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- California Building Code (Title 24 California Code of Regulations [CCR]). Establishes energy efficiency requirements for new construction (5).
- Appliance Energy Efficiency Standards (Title 20 CCR). Establishes energy efficiency requirements for appliances (6).
- Low Carbon Fuel Standard (LCFS). Requires carbon content of fuel sold in California to be 10 percent (%) less by 2020 (7).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (8).
- Renewable Portfolio Standards (RPS). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20% by 2010 and 33% by

2020. SB 350 mandated a 50% RPS by 2030. SB 100 increased the RPS requirements to 60% by 2030 with new interim targets of 44% by 2024 and 52% by 2027 (9).

- California Global Warming Solutions Act of 2006 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (10).

Promulgated regulations that would affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, AB 1493, LCFS, and RPS are accounted for in the Project's emission calculations.

ES.3 Operational-Source MMs

Unmitigated Project operational-source GHG emissions would exceed the applicable MDAQMD regional significance thresholds. The predominance of the Project's operational-source emissions are generated by passenger cars and trucks accessing the Project. Neither the Project Applicant nor the Town have regulatory authority to control tailpipe emissions, and no feasible MMs beyond the measures identified herein exist that would reduce Project operational-source GHG emissions to levels that are less-than-significant. Therefore, Project operational-source GHG emissions impacts are therefore considered significant and unavoidable.

Mitigation Measures GHG-1 through MM GHG-19 can reduce operational emissions; however, the reductions associated with these measures are not easily quantified. Therefore, as a conservative measure, emission credits or reductions from the implementation of these measures are not presented in this report.

MM GHG-1

The Project shall implement the following measure in order to reduce operational energy source GHG emissions to the extent feasible:

- Commit to on-site solar generation sufficient to meet at least 75% of the Project's total operational energy requirements from within the building envelope.
- Install Energy Star-rated heating, cooling, lighting, and appliances.
- Provide information on energy efficiency, energy-efficient lighting and lighting control systems, energy management, and existing energy incentive programs to future tenants of the Project.
- Structures shall be equipped with outdoor electric outlets in the front and rear of the structures to facilitate use of electrical lawn and garden equipment.

MM GHG-2

In order to reduce the amount of waste disposed at landfills, the Project would implement a 75% waste diversion program. Prior to the issuance of building permits for the Project, the Project applicant shall provide building plans that include the following solid waste reduction measures:

- Provide storage areas for recyclables and green waste in new construction, and food waste storage, if a pick-up service is available.
- Evaluate the potential for onsite composting.

MM GHG-3

To reduce water demands and associated energy use, subsequent development proposals within the Project site would be required to implement a Water Conservation Strategy and demonstrate a minimum 20% reduction in indoor and outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy). Prior to the issuance of building permits for the Project, the Project applicant shall provide building plans that include the following water conservation measures:

- Install low-water use appliances and fixtures.
- Restrict the use of water for cleaning outdoor surfaces and prohibit systems that apply water to non-vegetated surfaces.
- Implement water-sensitive urban design practices in new construction.
- Install rainwater collection systems where feasible

MM GHG-4

The Project Applicant or successor in interest shall implement the following measures:

- The Project's landscape plan shall incorporate drought-tolerant plants and use water-efficient irrigation techniques.
- All appliance fixtures shall be Energy Star-rated.
- All fixtures installed in restrooms and employee break areas shall be U.S. Environmental Protection Agency (U.S. EPA) WaterSense certified or equivalent.

MM GHG-5

As a condition of certificates of occupancy, all on-site cargo handling equipment (including yard trucks, hostlers, yard goats, pallet jacks, forklifts, and other on-site equipment) shall be required to be powered by electricity.

MM GHG-6

Electrical Infrastructure for Electric Equipment and Vehicles. The Project shall be designed to include electrical infrastructure to accommodate the required number of electric vehicle (EV) charging stations, the anticipated number charging stations for electric cargo handling equipment, and the potential installation of additional automobile and truck EV charging stations per Title 24, Part 11: California Green Building Standards Code (CALGreen). Electrical conduit shall be installed within reasonable locations (e.g., parking areas, at or near dock doors) at the time of building construction to satisfy this requirement. The Project's electrical rooms shall be of sufficient size to accommodate the upsizing of electrical equipment to accommodate potential future electrical loads.

MM GHG-7

EV Charging Stations. Prior to issuance of a Certificate of Occupancy, Level 2 (or faster) EV charging stations shall be installed on-site for employees for the percentage of employee parking spaces commensurate with CALGreen requirements in effect at the time of building permit issuance plus additional charging stations equal to 5% of the total employee parking spaces in the building permit, whichever is greater.

MM GHG-8

Sustainable Energy, Waste, and Water Design Measures. The Project Applicant or successor in interest shall implement the following measures:

- Structures shall be equipped with outdoor electric outlets in the front and rear of the structures to facilitate use of electrical lawn and garden equipment.
- Storage areas shall be provided for recyclables and green waste, as well as food waste storage if a pick-up service is available.
- The roof shall provide R-19 insulation to decrease overall energy consumption and increase occupant comfort.
- A timer system for lighting to ensure that lights shall be switched off during times of non-operation shall be installed on the Project site.

MM GHG-9

Design of Ingress/Egress Points. Entry gates into the loading dock/truck court areas shall be sufficiently positioned to ensure that all truck and other vehicles are contained on site and inside the property line. Queuing, or circling of vehicles, on public streets immediately pre- or post-entry to the Project shall be strictly prohibited unless queuing occurs in a deceleration lane or right turn lane exclusively serving the Project site.

MM GHG-10

Measures to Reduce the Urban Heat Island Effect. The following measures shall be implemented to reduce the urban heat island effect:

- The Project's roof structures shall be designed to include "cool roof" materials with a minimum aged reflectance and thermal emittance values that are equal to or greater than those specified in the current edition of CALGreen, Table A5.106.11.2.3 for Tier 1 standards.
- Sufficient shade trees shall be provided throughout the Project site so that at least 30% of the automobile parking areas will be shaded within 15 years after Project construction is complete (excluding the truck courts where trees cannot be planted due to interference with truck maneuvering).

MM GHG-11

Truck Requirements and Restrictions. The following measure shall be implemented during all ongoing business operations and shall be included as part of contractual lease agreement language to ensure that tenants and operators of the Project are informed of the following operational responsibility:

- Only haul trucks meeting California Air Resources Board (CARB) model year 2010 (or newer) engine emission standards shall be used for the on-road transport of materials to and from the Project site. In addition, tenants shall be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation, Periodic Smoke Inspection Program, and the Statewide Truck and Bus Regulation. The building manager or their designee shall be responsible for enforcing these requirements.

MM GHG-12

Idling Time Restriction. The following measure shall be implemented during all ongoing business operations and shall be included as part of contractual lease agreement language to ensure that tenants and operators of the Project are informed of the following operational responsibility:

- Upon commencement of operations, the tenant/operator of the Project shall be required to restrict truck idling on site to a maximum of 3 minutes, subject to exceptions defined by the CARB's commercial vehicle idling requirements. The building manager or their designee shall be responsible for enforcing this requirement.

MM GHG-13

Anti-Idling Implementation Measures. The following measures shall be implemented to reduce air pollutant emissions from idling:

- Signage. Legible, durable, weather-proof signs shall be placed at truck access gates, loading docks, and truck parking areas that identify the Project's three-minute idling restriction. At a minimum, each sign shall include: (1) instructions for truck drivers to shut off engines when not in use; (2) instructions for drivers of diesel trucks to restrict idling to no more than 3 minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; (3) telephone numbers of the building facilities manager and CARB to report violations; and (4) that penalties apply for violations. Prior to the issuance of an occupancy permit, the Town of Apple Valley shall conduct a site inspection to ensure that the signs are in place.
- Efficient Load Management. The facility operator(s) shall be required to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of trucks.
- Anti-Idling Training. Tenants and operators on the Project site shall ensure that site enforcement staff in charge of keeping the daily log and monitoring for excess idling will be trained/certified in diesel health effects and technologies, for example, by requiring attendance at CARB-approved courses (such as the free, one-day Course #512).

MM GHG-14

Truck Routing Plan. The Project Applicant or successor in interest shall establish and submit for approval to the Town of Apple Valley a Truck Routing Plan that provides for routes between the Project site and the State Highway System. The Truck Routing Plan shall include measures, such as signage, pavement markings, and enforcement, for preventing truck queuing, circling, stopping, and parking on public streets. The Truck Routing Plan shall make every effort to avoid passing sensitive receptors, to the greatest extent possible, unless otherwise superseded by an applicable truck routing ordinance adopted by the Town of Apple Valley. The tenant/operator of the Project shall be responsible for enforcement of the Truck Routing Plan. A revised plan shall be submitted to the Town of Apple Valley prior to a business license being issued by the Town of Apple Valley for any new tenant/operator of the Project site. The revised plan shall expand upon the original Truck Routing Plan and describe the operational characteristics of the use of the tenant/operator, including, but not limited to, hours of operations, types of items to be stored within the building, and whether any modifications to the Project's designated truck routes are necessary. The Town of Apple Valley shall have discretion to determine if changes to the Truck Routing Plan are necessary including any additional measures to alleviate truck routing and parking issues that may arise during the life of the

Project. Signs and drive aisle pavement markings shall clearly identify the on-site circulation pattern to minimize unnecessary on-site vehicular travel.

MM GHG-15

Transportation Demand Management Plan. For occupants with more than 250 employees, a Transportation Demand Management (TDM) program to reduce employee commute vehicle emissions shall be established, subject to review and approval by the Town of Apple Valley. The TDM plan shall apply to Project tenants through tenant leases. The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. Examples of trip reduction measures may include, but are not limited to:

- Transit passes
- Car-sharing programs
- Telecommuting and alternative work schedules
- Ride sharing programs

MM GHG-16

Yard Sweeping to Reduce Fugitive Dust. The following measure shall be implemented during all ongoing business operations and shall be included as part of contractual lease agreement language to ensure that tenants and operators of the Project are informed of the following operational responsibility:

- Yard and parking area sweeping shall be periodically conducted to minimize dust generation from the Project site. The building manager or their designee shall be responsible for enforcing this requirement.

MM GHG-17

Provision of Information Regarding Programs to Reduce Emissions from Trucks. Prior to tenant occupancy, the Project Applicant or successor in interest shall provide documentation to the Town of Apple Valley demonstrating that occupants/tenants of the Project site have been provided informational documentation regarding:

- Funding opportunities that provide incentives for using cleaner than-required engines and equipment, such as the Carl Moyer Program and Voucher Incentive Program. The U.S. EPA SmartWay Program, which assists freight shippers, carriers, logistics companies, and other stakeholder partner with the U.S. EPA to measure, benchmark, and improve logistics operations and reduce air pollutant emissions from transport of cargo.

MM GHG-18

Fire Pump Requirements. All diesel-fueled fire pump shall meet U.S. EPA-certified Tier 4 Interim emissions standards, at a minimum.

MM GHG-19

The Project Applicant/Developer/Owner shall require tenants to use zero-emission light- and medium-duty trucks as part of business operations, if such trucks are commercially available, as reasonably determined by the Lead Agency.

1 INTRODUCTION

This report presents the results of the GHGA prepared by Urban Crossroads, Inc., for the proposed Apple Valley 84 Project (Project). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of GHG impacts as a result of constructing and operating the Project.

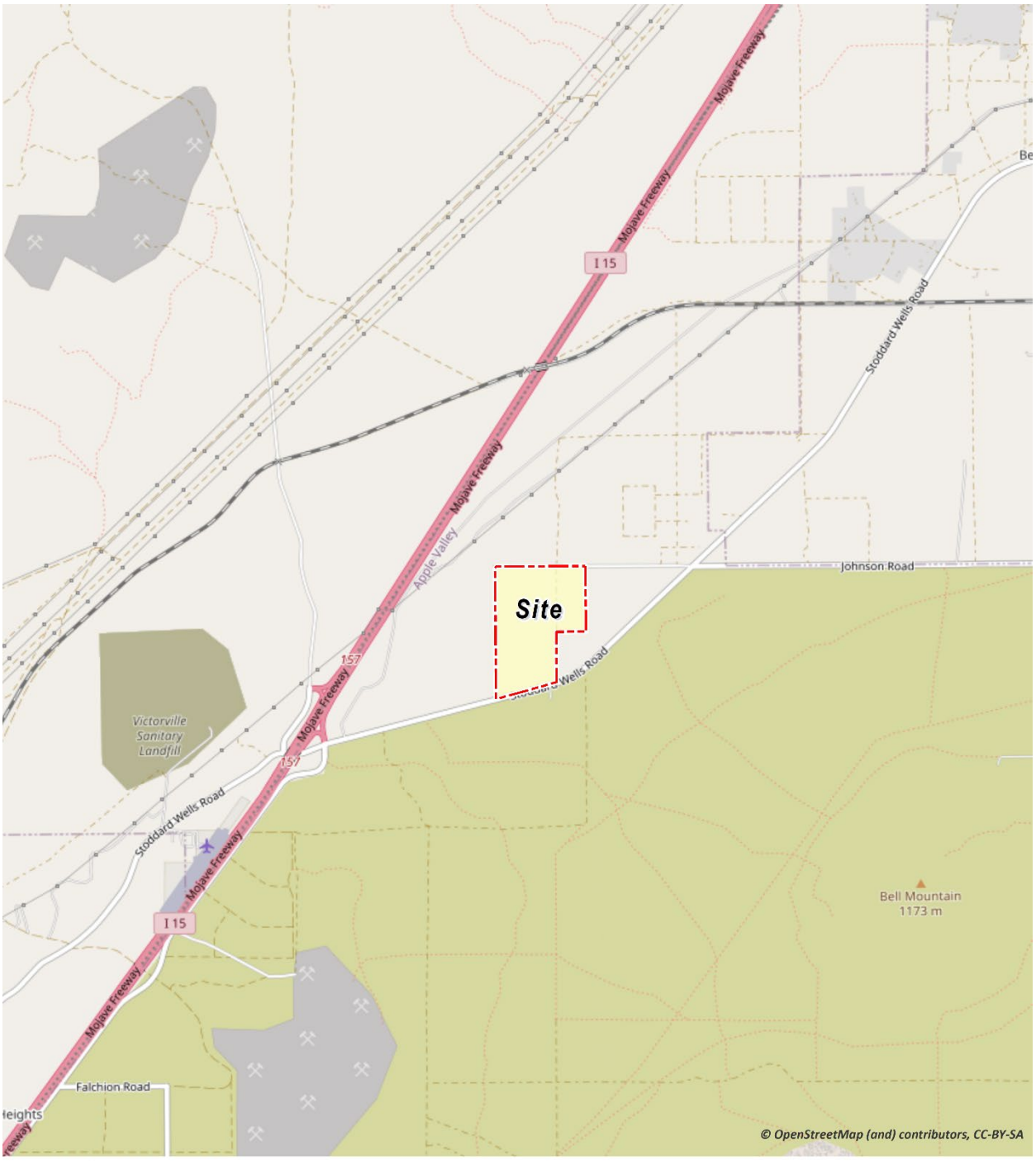
1.1 SITE LOCATION

The Project site is located north of Stoddard Wells Road and south of Johnson Road in the Town of Apple Valley, as shown in Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of the development of a single industrial warehouse and distribution building totaling 1,381,412 square feet. It is proposed that the Project mix will assume 10% General Light Industrial, 15% High-Cube Cold Storage Warehouse use and 75% High-Cube Fulfillment (Non-Sort) Center Warehouse use. The Project is anticipated to have an Opening Year of 2028. A preliminary site plan for the proposed Project is shown in Exhibit 1-B.

EXHIBIT 1-A: LOCATION MAP

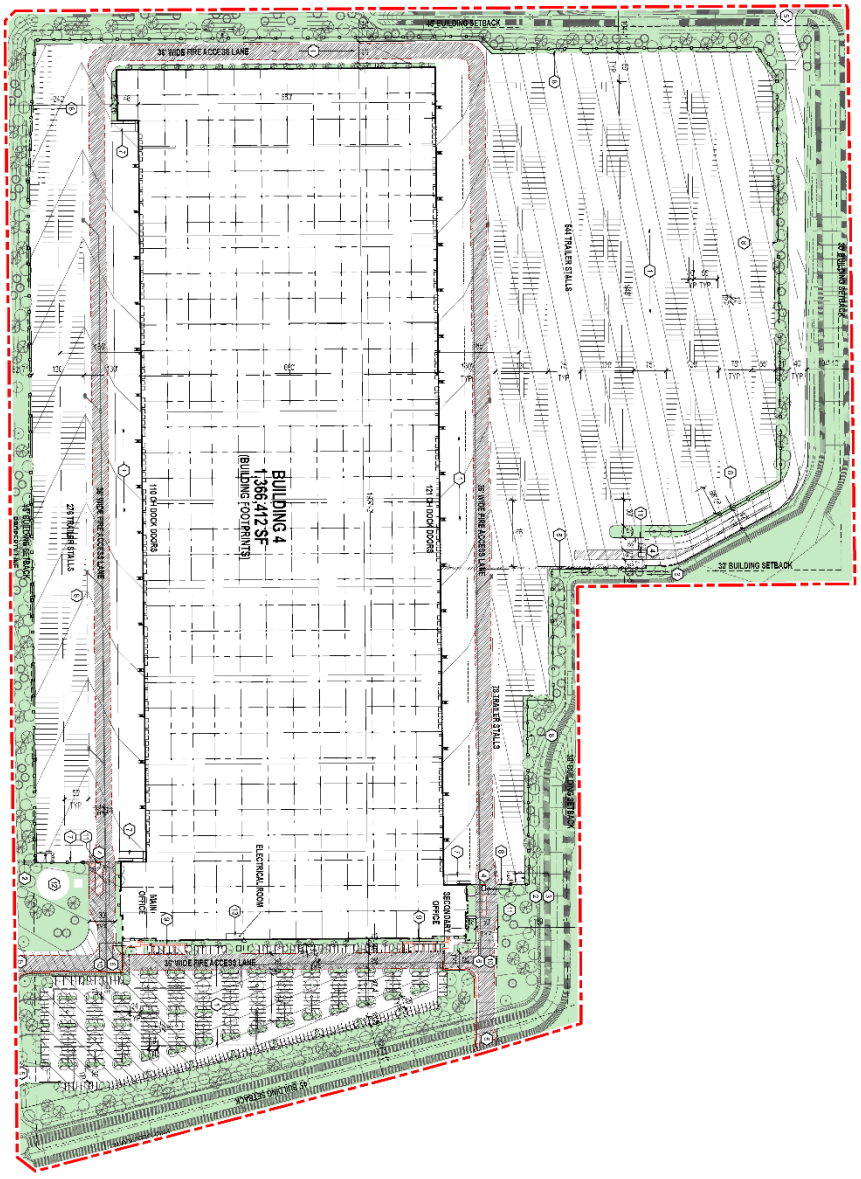


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LEGEND:

Site Boundary

EXHIBIT 1-B: SITE PLAN



LEGEND:

Site Boundary

2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE (GCC)

GCC is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project, like the Project evaluated in this GHGA, cannot generate enough GHG emissions to affect a discernible change in global climate. However, the Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3 will evaluate the potential for the Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation, and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radiative heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

2.3 GHGS

2.3.1 GHGs and Health Effects

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties as discussed in Table 2-1. For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated because these gases are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

TABLE 2-1: GHGS (1 OF 6)

GHGs	Description	Sources	Health Effects
Water	Water is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. Climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the earth, thus	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.	There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

TABLE 2-1: GHGS (2 OF 6)

GHGs	Description	Sources	Health Effects
Water (Continued)	further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop would continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it would eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (11).		
CO_2	CO_2 is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540	CO_2 is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO_2 is naturally removed from the air by photosynthesis, dissolution into	Outdoor levels of CO_2 are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO_2 can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO_2 in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference

TABLE 2-1: GHGS (3 OF 6)

GHGs	Description	Sources	Health Effects
CO_2 (Continued)	ppm by 2100 as a direct result of anthropogenic sources (12).	ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (13).	exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15-minute period (14).
CH_4	CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH_4 in the atmosphere is generated by many different sources, such as fossil fuel production, transport and use, from the decay of organic matter in wetlands, and as a byproduct of digestion by ruminant animals such as cows. Determining which specific sources are responsible for variations in annual increases of CH_4 is complex, but scientists estimate that fossil fuel production and use contributes roughly 30% of the total CH_4 emissions. These industrial sources of CH_4 are relatively simple to pinpoint and control using current technology (15).	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to elevated levels of CH_4 can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.

TABLE 2-1: GHGS (4 OF 6)

GHGs	Description	Sources	Health Effects
N_2O	N_2O, also known as laughing gas, is a colorless GHG. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (16).	N_2O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (16).
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine	CFCs have no natural source. They are found in aerosol	In confined indoor locations, working with CFC-113 or other CFCs is

TABLE 2-1: GHGS (5 OF 6)

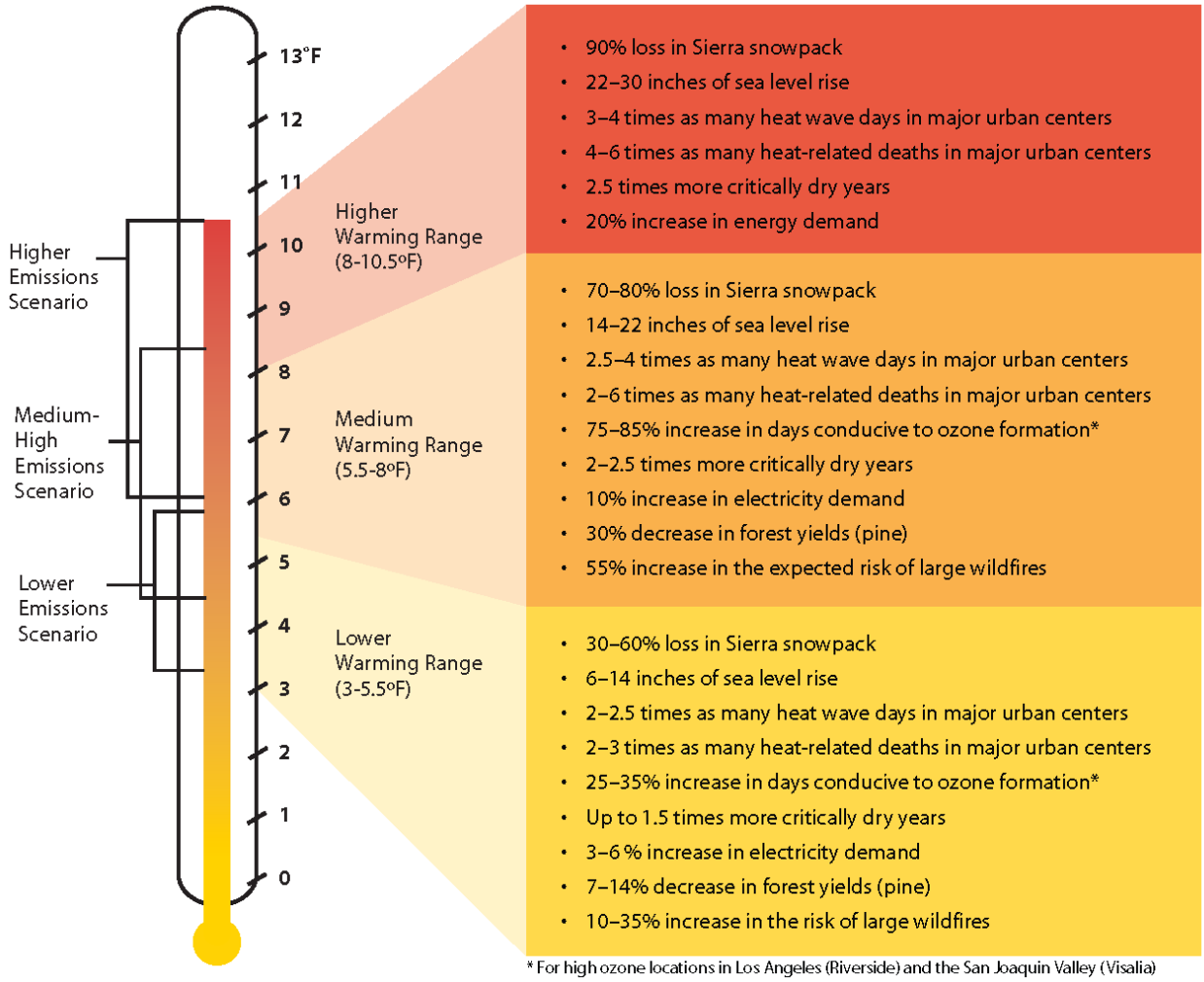
GHGs	Description	Sources	Health Effects
Chlorofluorocarbons (CFCs) (Continued)	and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	sprays, blowing agents for foams and packing materials, as solvents, and as refrigerants. (17).	thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), Fluoroform (HFC-23), 1,1,1,2-tetrafluoroethane (HFC-134a), and 1,1-difluoroethane (HFC-152a). Prior to 1990, the only significant emissions were of HFC-23. HCF-134a emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have exceptionally long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The EPA estimates that concentrations of CF_4 in the	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.

TABLE 2-1: GHGS (6 OF 6)

GHGs	Description	Sources	Health Effects
PFCs (Continued)	atmosphere are over 70 parts per trillion (ppt).		
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (18). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.
Nitrogen Trifluoride (NF_3)	NF_3 is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (19).	NF_3 is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display (LCD) panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (20).

The potential health effects related directly to the emissions of CO_2, CH_4, and N_2O as they relate to development projects, such as the Project, are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Exhibit 2-A presents the potential impacts of global warming (21).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Source: Barbara H. Allen-Diaz. "Climate change affects us all." *University of California, Agriculture and Natural Resources*, 2009.

2.4 GLOBAL WARMING POTENTIAL (GWP)

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas cause over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO_2 is utilized as the reference gas for GWP, and thus has a GWP of 1. CO_2 equivalent (CO_2e) is a term used for describing the different GHGs in a common unit. CO_2e signifies the amount of CO_2 which would have the equivalent GWP.

The Intergovernmental Panel on Climate Change (IPCC) is the international body for assessing the science related to climate change. IPCC Assessment Reports cover the full scientific, technical and socio-economic assessment of climate change. The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for the 2nd Assessment Report range from 1 for CO_2 to 23,900 for SF_6 and GWP for the 6th Assessment Report range from 1 for CO_2 to 25,200 for SF_6 (22).

TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	GWP (100-year time horizon)	
		2nd Assessment Report	6th Assessment Report
CO_2	Multiple	1	1
CH_4	11.8	21	28
N_2O	109	310	273
HFC-23	228	11,700	14,600
HFC-134a	14	1,300	1,526
HFC-152a	1.6	140	164
SF_6	3,200	23,900	25,200

Source: IPCC Second Assessment Report, 1995 and IPCC Sixth Assessment Report, 2023

2.5 GHG EMISSIONS INVENTORIES

2.5.1 Global

Worldwide anthropogenic GHG emissions are tracked by the IPCC for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2021. Based on the latest available data, the sum of these emissions totaled approximately 28,272,940 gigagram (Gg) CO_2e[1] (23) (24) as summarized on Table 2-3.

2.5.2 United States

As noted in Table 2-3, the United States, as a single country, was the number two producer of GHG emissions in 2021.

2.5.3 State of California

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls but is still a substantial contributor to the U.S. emissions inventory total (16). The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2024 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2022 GHG emissions period, California emitted an average 371.1 million metric tons of CO_2e per year ($MMTCO_2e/yr$) or 371,100 Gg CO_2e (5.85% of the total U.S. GHG emissions) (25). Based on data published by the U.S. Energy Information Administration, California's per capita (8.3 metric tons) GHG emissions are much less than the nationwide per capita (14.2 metric ton) average (26).

[1] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2021 data, the United Nations' Framework Convention on Climate Change (UNFCCC) data for the most recent year were used U.N. Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China and India are from 2014 and 2016, respectively.

TABLE 2-3: TOP GHG PRODUCING COUNTRIES AND THE EUROPEAN UNION

Emitting Countries	GHG Emissions (Gg CO_2e)
China	12,300,200
United States	6,340,228
European Union (27-member countries)	3,468,394
India	2,839,425
Russian Federation	2,156,599
Japan	1,168,094
Total	28,272,940

2.6 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

2.6.1 Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35% under the lower warming range to 75 to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. Based on *Our Changing Climate Assessing the Risks to California by the California Climate Change Center*, large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced (27).

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a significant increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

2.6.2 Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90%. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to

water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

2.6.3 Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25% of the water supply needed. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits, and nuts.

In addition, continued GCC could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued GCC could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

2.6.4 Forests and Landscapes

GCC has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks would not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90% due to decreased precipitation.

Moreover, continued GCC has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of GCC.

2.6.5 Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.7 Regulatory Setting

2.7.1 International

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

IPCC

In 1988, the United Nations (U.N.) and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nation's Framework Convention on Climate Change (UNFCCC)

On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the UNFCCC, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

International Climate Change Treaties

The Kyoto Protocol is an international agreement linked to the UNFCCC. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of 5% against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the UN Climate Change Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius (°C) above pre-industrial levels, subject to a review in 2015. The Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings gradually gained consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the U.N. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the UNFCCC reached a landmark agreement on December 12, 2015, in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties (COP) 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2°C, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they would "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly would not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (28).

Following President Biden's day one executive order, the United States officially rejoined the landmark Paris Agreement on February 19, 2021, positioning the country to once again be part of the global climate solution. Meanwhile, city, state, business, and civic leaders across the country and around the world have been ramping up efforts to drive the clean energy advances needed to meet the goals of the agreement and put the brakes on dangerous climate change.

2.7.2 National

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG Endangerment

In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the U.S. Supreme Court found that four GHGs, including CO_2, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act (CAA). The Supreme Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (29).

Clean Vehicles

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA, and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). In August 2012, the EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025. The new standards apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level

of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks (HDT) and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20% reduction in CO_2 emissions and fuel consumption by the 2018 model year. For HDT and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10% reduction for gasoline vehicles and a 15% reduction for diesel vehicles by the 2018 model year (12 and 17%, respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10% reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which declared that the MY 2022-2025 GHG standards are not appropriate and should be revised (30). This Final Determination serves to initiate a notice to further consider appropriate standards for MY 2022-2025 light-duty vehicles. On August 2, 2018, the NHTSA in conjunction with the EPA, released a notice of proposed rulemaking, the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). The SAFE Vehicles Rule was proposed to amend existing Corporate Average Fuel Economy (CAFE) and tailpipe CO_2 standards for passenger cars and light trucks and to establish new standards covering model years 2021 through 2026. As of March 31, 2020, the NHTSA and EPA finalized the SAFE Vehicle Rule which increased stringency of CAFE and CO_2 emissions standards by 1.5% each year through model year 2026 (31). On December 21, 2021, after reviewing all the public comments submitted on NHTSA's April 2021 Notice of Proposed Rulemaking, NHTSA finalizes the CAFE Preemption rulemaking to withdraw its portions of the so-called SAFE I Rule. The final rule concludes that the SAFE I Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. The final rule ensures that the SAFE I Rule will no longer form an improper barrier to states exploring creative solutions to address their local communities' environmental and public health challenges (32).

On March 31, 2022, NHTSA finalized CAFE standards for MY 2024-2026. The standards for passenger cars and light trucks for MYs 2024-2025 were increased at a rate of 8% per year and then increased at a rate of 10% per year for MY 2026 vehicles. NHTSA currently projects that the revised standards would require an industry fleet-wide average of roughly 49 mpg in MY 2026 and would reduce average fuel outlays over the lifetimes of affected vehicles that provide consumers hundreds of dollars in net savings. These standards are directly responsive to the agency's statutory mandate to improve energy conservation and reduce the nation's energy dependence on foreign sources (33).

Mandatory Reporting of GHGs

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000

metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

New Source Review

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities would be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> *"This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the CAA, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016."*

The EPA estimates that facilities responsible for nearly 70% of the national GHG emissions from stationary sources would be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for GHG Emissions for New Stationary Sources: Electric Utility Generating Units

As required by a settlement agreement, the EPA proposed new performance standards for emissions of CO_2 for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts (MW) would be required to meet an output-based standard of 1,000 pounds (lbs) of CO_2 per MW-hour (MWh), based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016, the Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO_2 standards. The Clean Power Plan was officially repealed on June 19, 2019, when the EPA issued the final Affordable Clean Energy rule (ACE). Under ACE, new state-specific emission guidelines were established that provided existing coal-fired electric utility generating units with achievable standards.

On January 19, 2021, the D.C. Circuit Court of Appeals ruled that the EPA's ACE Rule for GHG emissions from power plants rested on an erroneous interpretation of the CAA that barred EPA from considering measures beyond those that apply at and to an individual source. The court therefore vacated and remanded the ACE Rule and adopted a replacement rule which regulates CO_2 emissions from existing power plants, potentially again considering generation shifting and other measures to more aggressively target power sector emissions.

Cap-and-Trade

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the N_2O Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap-and-trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008 and has retained all participating states as of 2020.

The Western Climate Initiative (WCI) partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15% below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap-and-trade system January 1, 2014, and joint offset auctions took place in 2015. While the WCI has yet to publish whether it has successfully reached the 2020 emissions goal initiative set in 2007, SB 32 requires that California, a major partner in the WCI, adopt the goal of reducing statewide GHG emissions to 40% below the 1990 level by 2030.

Executive Order 13990

On January 20, 2021, Federal agencies were directed to immediately review, and take action to address, Federal regulations promulgated and other actions taken during the last 4 years that conflict with national objectives to improve public health and the environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce GHG emissions; bolster resilience to the impacts of climate change; restore and expand our national treasures and monuments; and prioritize both environmental justice and employment.

2.7.3 California

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

2.7.3.1 Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark AB 32, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 and Title 20 energy standards, were originally adopted for other purposes such as energy and water conservation but also provided GHG reductions. This section describes the major provisions of the legislation.

AB 1881

The Water Conservation in Landscaping Act of 2006 requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

SB 1368

California SB 1368 adds Sections 8340 and 8341 to the Public Utilities Code (effective January 1, 2007) with the intent "to prevent long-term investments in power plants with GHG emissions in excess of those produced by a combined-cycle natural gas power plant" with the aim of "reducing emissions of GHGs from the state's electricity consumption, not just the state's electricity production." SB 1368 provides a mechanism for reducing the GHG emissions of electricity providers, both in-state and out-of-state, thereby assisting CARB in meeting its mandate under AB 32, the Global Warming Solutions Act of 2006.

AB 32

The California State Legislature enacted AB 32, which required that GHGs emitted in California be reduced to 1990 levels by the year 2020 (this goal has been met[2]). GHGs, as defined under AB 32, include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, NF_3, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. Pursuant to AB 32, CARB adopted regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 states the following:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."*

SB 375

On September 30, 2008, SB 375 was signed by Governor Schwarzenegger. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California would not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations (MPOs) to include sustainable community strategies in their regional transportation plans for reducing GHG emissions; (2) aligns planning for transportation and housing; and (3) creates specified incentives for the implementation of the strategies.

[2] Based upon the 2024 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2022 GHG emissions period, California emitted an average 371.1 $MMTCO_2e$) (25). This is less than the 2020 emissions target of 431 $MMTCO_2e$. This is less than the 2020 emissions target of 431 $MMTCO_2e$.

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP) that guides growth while taking into account the transportation, housing, environmental, and economic needs of the region. SB 375 uses CEQA streamlining as an incentive to encourage residential projects, which help achieve AB 32 goals to reduce GHG emissions. Although SB 375 does not prevent CARB from adopting additional regulations, such actions are not anticipated in the foreseeable future.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the MMs required by an applicable prior environmental document.

AB 1493 - Pavley Fuel Efficiency Standards

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars (ACC) program. The ACC program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for MY 2017 through 2025. The regulation will reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid EV and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California. On March 9, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards for cars and light trucks, which other states can also adopt and enforce. With this authority restored, EPA will continue partnering with states to advance the next generation of clean vehicle technologies.

Clean Energy and Pollution Reduction Act of 2015 (SB 350)

In October 2015, the legislature approved, and Governor Jerry Brown signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for EV charging stations. Provisions for a 50% reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 45% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target would be achieved through the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.

- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which would facilitate the growth of renewable energy markets in the western United States.

SB 32

On September 8, 2016, Governor Brown signed SB 32 and its companion bill, AB 197. SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature (10).

2017 CARB Scoping Plan

In November 2017, CARB released the *Final 2017 Scoping Plan Update* (*2017 Scoping Plan*), which identifies the State's post-2020 reduction strategy. The *2017 Scoping Plan* reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the LCFS, and much cleaner cars, trucks, and freight movement, utilizing cleaner, renewable energy, and strategies to reduce CH_4 emissions from agricultural and other wastes.

The *2017 Scoping Plan* establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40% decrease in 1990 levels by 2030 (34).

California's climate strategy would require contributions from all sectors of the economy, including the land base, and would include enhanced focus on zero and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH_4, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries would further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the *2017 Scoping Plan* framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing zero-emission vehicles (ZEV) buses and trucks.
- LCFS, with an increased stringency (18% by 2030).
- Implementing SB 350, which expands the RPS to 50% RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH4 and HCF emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.
- Continued implementation of SB 375.

- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20% reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Note, however, that the *2017 Scoping Plan* acknowledges that:

> *"[a]chieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, 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."*

In addition to the statewide strategies listed above, the *2017 Scoping Plan* also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO_2e ($MTCO_2e$) or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidence-based bright-line numeric thresholds—consistent with the *2017 Scoping Plan* and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and MMs that avoid or minimize project emissions to the degree feasible; or a performance-based metric using a CAP or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory (LBNL) and supported by CARB, California, under its existing and proposed GHG reduction policies, could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$ per year ($MTCO_2e$/yr), indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40% below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State's 80% reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (35) (36).

Cap-and-Trade Program

The *2017 Scoping Plan* identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program would help put California on the path to meet its goal of achieving a 40% reduction in GHG emissions from 1990 levels by 2030. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap would be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from regulated entities by more than 16% between 2013 and 2020, and by an additional 40% by 2030. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production)

commenced in 2013 and would decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25,000 $MTCO_2e$/yr must comply with the Cap-and-Trade Program. Triggering of the 25,000 $MTCO_2e$/yr "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year's compliance obligation by November of each year (37).

The Cap-and-Trade Program provides a firm cap, which provides the highest certainty of achieving the 2030 target. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the *First Update to the Climate Change Scoping Plan*:

> *"The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative."* (38)

The Cap-and-Trade Program covers approximately 80% of California's GHG emissions (34). The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported.

2022 CARB Scoping Plan

On December 15, 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) (39). The 2022 Scoping Plan builds on the 2017 Scoping Plan as well as the requirements set forth by AB 1279, which directs the state to become carbon neutral no later than 2045. To achieve this statutory objective, the 2022 Scoping Plan lays out how California can reduce

GHG emissions by 85% below 1990 levels and achieve carbon neutrality by 2045. The Scoping Plan scenario to do this is to "deploy a broad portfolio of existing and emerging fossil fuel alternatives and clean technologies, and align with statutes, Executive Orders, Board direction, and direction from the governor." The 2022 Scoping Plan sets one of the most aggressive approaches to reach carbon neutrality in the world. Unlike the 2017 Scoping Plan, CARB no longer includes a numeric per capita threshold and instead advocates for compliance with a local GHG reduction strategy (CAP) consistent with *CEQA Guidelines* section 15183.5.

The key elements of the 2022 CARB Scoping Plan focus on transportation - the regulations that will impact this sector are adopted and enforced by CARB on vehicle manufacturers and outside the jurisdiction and control of local governments. As stated in the Plan's executive summary:

> *"The major element of this unprecedented transformation is the aggressive reduction of fossil fuels wherever they are currently used in California, building on and accelerating carbon reduction programs that have been in place for a decade and a half. That means rapidly moving to zero-emission transportation; electrifying the cars, buses, trains, and trucks that now constitute California's single largest source of planet-warming pollution."*
>
> *"[A]pproval of this plan catalyzes a number of efforts, including the development of new regulations as well as amendments to strengthen regulations and programs already in place, not just at CARB but across state agencies."*

Under the 2022 Scoping Plan, the State will lead efforts to meet the 2045 carbon neutrality goal through implementation of the following objectives:

- Reimagine roadway projects that increase VMT in a way that meets community needs and reduces the need to drive.
- Double local transit capacity and service frequencies by 2030.
- Complete the High-Speed Rail (HSR) System and other elements of the intercity rail network by 2040.
- Expand and complete planned networks of high-quality active transportation infrastructure.
- Increase availability and affordability of bikes, e-bikes, scooters, and other alternatives to light-duty vehicles, prioritizing needs of underserved communities.
- Shift revenue generation for transportation projects away from the gas tax into more durable sources by 2030.
- Authorize and implement roadway pricing strategies and reallocate revenues to equitably improve transit, bicycling, and other sustainable transportation choices.
- Prioritize addressing key transit bottlenecks and other infrastructure investments to improve transit operational efficiency over investments that increase VMT.
- Develop and implement a statewide transportation demand management (TDM) framework with VMT mitigation requirements for large employers and large developments.
- Prevent uncontrolled growth of autonomous vehicle (AV) VMT, particularly zero-passenger miles.
- Channel new mobility services towards pooled use models, transit complementarity, and lower VMT outcomes.
- Establish an integrated statewide system for trip planning, booking, payment, and user accounts that enables efficient and equitable multimodal systems.

- Provide financial support for low-income and disadvantaged Californians' use of transit and new mobility services.
- Expand universal design features for new mobility services.
- Accelerate infill development in existing transportation-efficient places and deploy strategic resources to create more transportation-efficient locations.
- Encourage alignment in land use, housing, transportation, and conservation planning in adopted regional plans (RTP/SCS and RHNA) and local plans (e.g., general plans, zoning, and local transportation plans).
- Accelerate production of affordable housing in forms and locations that reduce VMT and affirmatively further fair housing policy objectives.
- Reduce or eliminate parking requirements (and/or enact parking maximums, as appropriate) and promote redevelopment of excess parking, especially in infill locations.
- Preserve and protect existing affordable housing stock and protect existing residents and businesses from displacement and climate risk.

Included in the 2022 Scoping Plan is a set of Local Actions (Appendix D to the 2022 Scoping Plan) aimed at providing local jurisdictions with tools to reduce GHGs and assist the state in meeting the ambitious targets set forth in the 2022 Scoping Plan. Appendix D to the 2022 Scoping Plan includes a section on evaluating plan-level and project-level alignment with the State's Climate Goals in CEQA GHG analyses. In this section, CARB identifies several recommendations and strategies that should be considered for new development in order to determine consistency with the 2022 Scoping Plan. Notably, this section is focused on Residential and Mixed-Use Projects, in fact CARB states in Appendix D (page 4): "...focuses primarily on climate action plans (CAPs) and local authority over new residential development. It does not address other land use types (e.g., industrial) or air permitting."

Additionally on Page 21 in Appendix D, CARB states: "The recommendations outlined in this section apply only to residential and mixed-use development project types. California currently faces both a housing crisis and a climate crisis, which necessitates prioritizing recommendations for residential projects to address the housing crisis in a manner that simultaneously supports the State's GHG and regional air quality goals. CARB plans to continue to explore new approaches for other land use types in the future." As such, it would be inappropriate to apply the requirements contained in Appendix D of the 2022 Scoping Plan to any land use types other than residential or mixed-use residential development.

2.7.3.2 Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that would stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07 (LCFS)

Governor Schwarzenegger signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. CARB adopted the LCFS on April 23, 2009.

After a series of legal changes, in order to address the Court ruling, CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. On November 16, 2015, the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1, 2016.

In 2018, CARB approved amendments to the regulation, which included strengthening the carbon intensity benchmarks through 2030 in compliance with the SB 32 GHG emissions reduction target for 2030. The amendments included crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector (40).

Executive Order S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the *2009 California Climate Adaptation Strategy* (*CNRA 2009*) was adopted, which is the "…first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying, and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15

On April 29, 2015, Governor Brown issued an executive order to establish a California GHG reduction target of 40% below 1990 levels by 2030. The Governor's executive order aligned California's GHG reduction targets with those of leading international governments ahead of the U.N. Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40% below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80% below 1990 levels by 2050 and directs CARB to update the *2017 Scoping Plan* to express the 2030 target in terms of $MMTCO_2e$. The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable to local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

Executive Order B-55-18 and SB 100

SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25% of retail sales of electricity are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours (kWh) of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California EPA (CalEPA), the California Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

2.7.3.3 California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 CCR Sections 1601 et seq. – Appliance Efficiency Regulations

The Appliance Efficiency Regulations regulate the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles (RV) or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards and California Green Building Standards

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

The 2022 California Title 24 Energy Standards became effective on January 1, 2023, with updates for the 2025 standards set to take effect on January 1, 2026. As the Project is expected to be completed in 2030, it will need to comply with the Title 24 Energy Standards in effect at that time, which may include further updates beyond the 2025 version.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2025 California Green Building Code Standards that go into effect on January 1, 2026. The Project would be required to comply with the applicable standards in place at the time plan check submittals are made.

CARB Refrigerant Management Program

CARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, CCR. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

SB 97 and the CEQA Guidelines Update

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research (OPR) shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the OPR pursuant to subdivision (a)."

In 2012, Public Resources Code Section 21083.05 was amended to state:

> *"The Office of Planning and Research and the Natural Resources Agency shall periodically update the guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption, to incorporate new information or criteria established by the State Air Resources Board pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code."*

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the *CEQA Guidelines* for implementing CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing *CEQA Guidelines* to reference climate change.

Section 15064.4 was added to the *CEQA Guidelines* and states that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively insignificant compared to statewide, national, or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a

model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (41).

2.7.4 Local

Town of Apple Valley Climate Action Plan (CAP)

On May 2021, the Town of Apple Valley adopted the 2019 CAP Update, which was originally adopted in 2010. The CAP provides a framework for reducing GHG emissions and managing resources to best prepare for a changing climate (42). The CAP recommends GHG emissions targets that are consistent with the reduction targets of the State of California and presents a number of strategies that will make it possible for the Town to meet the recommended targets. Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the CAP would have a less than significant impact on climate change.

The 2010 CAP concluded that the Town of Apple Valley would need to reduce greenhouse gas emissions by a minimum of 112,337 $MTCO_2e$/yr by 2020 to meet a reduction target of 15% below 2005 levels. The 2019 CAP Update provides a revised 2030 target of 299,565 $MTCO_2e$/yr for greenhouse gas emissions or 40% below baseline emission levels. Greenhouse gas inventories emissions provided in the 2019 CAP Update show that emissions were approximately 597,681 $MTCO_2e$ per year, a 38,894 $MTCO_2e$/yr exceedance as compared to the 2020 target of 636,575 $MTCO_2e$. To achieve the 2030 target of 40% below baseline emissions, the Town of Apple Valley would need to reduce greenhouse gas emissions by 148,334 $MTCO_2e$/yr.

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3 PROJECT GHG IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant GHG impact. The significance of these potential impacts is described in the following sections.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State *CEQA Guidelines* (14 California Code of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (43):

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

The evaluation of an impact under CEQA requires measuring data from a project against both existing conditions and a "threshold of significance." For establishing significance thresholds, the Office of Planning and Research's amendments to the CEQA Guidelines Section 15064.7(c) state *"[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."*

CEQA Guidelines Section 15064.4(a) further states, *". . . A lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use . . .; or (2) Rely on a qualitative analysis or performance-based standards."*

CEQA Guidelines Section 15064.4 provides that a lead agency should consider the following factors, among others, in assessing the significance of impacts from greenhouse gas emissions:

- Consideration #1: The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- Consideration #2: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- Consideration #3: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

3.2.1 Thresholds of Significance

Based on the foregoing guidance, the Town of Apple Valley has elected to rely on compliance with a local air district threshold in the determination of significance of Project-related GHG emissions. Specifically, the city has selected the interim 3,000 $MTCO_2e$ per year threshold recommended by South Coast Air Quality Management District (SCAQMD) staff for residential and commercial sector projects against which to compare Project-related GHG emissions. Although the Project is not located within the SCAQMD's jurisdiction, the SCAQMD's recommended threshold of 3,000 $MTCO_2e$ per year is more restrictive than the MDAQMD's adopted significance threshold for GHGs of 100,000 tpy (90,719 $MTCO_2e$/yr). MDAQMD identifies that 100,000 tpy of GHG emissions from a single facility constitutes major sources that require a federal operating permit. As such, use of the EPAs determination of whether a Project is a major source and consequently has been used as a threshold.

The 3,000 MTCO2e per year threshold is based on a 90 percent emission "capture" rate methodology. Prior to its use by the SCAQMD, the 90 percent emissions capture approach was one of the options suggested by the California Air Pollution Control Officers Association (CAPCOA) in their CEQA & Climate Change white paper (2008). A 90 percent emission capture rate means that unmitigated GHG emissions from the top 90 percent of all GHG-producing projects within a geographic area – the SCAB in this instance – would be subject to a detailed analysis of potential environmental impacts from GHG emissions, while the bottom 10 percent of all GHG-producing projects would be excluded from detailed analysis. A GHG significance threshold based on a 90 percent emission capture rate is appropriate to address the long-term adverse impacts associated with global climate change because medium and large projects will be required to implement measures to reduce GHG emissions, while small projects, which are generally infill development projects that are not the focus of the State's GHG reduction targets, are allowed to proceed. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial proportion of future development projects and demonstrate that cumulative emissions reductions are being achieved while setting the emission threshold high enough to exclude small projects that will, in aggregate, contribute approximate 1 percent of projected statewide GHG emissions in the Year 2050 (44).

In setting the threshold at 3,000 MTCO2e per year, SCAQMD researched a database of projects kept by the Governor's Office of Planning and Research (OPR). That database contained 798 projects, 87 of which were removed because they were very large projects and/or outliers that would skew emissions values too high, leaving 711 as the sample population to use in determining the 90th percentile capture rate. The SCAQMD analysis of the 711 projects within the sample population combined commercial, residential, and mixed-use projects. It should be noted that the sample of projects included warehouses and other light industrial land uses but did not include industrial processes (i.e., oil refineries, heavy manufacturing, electric generating stations, mining operations, etc.). Emissions from each of these projects were calculated by SCAQMD to provide a consistent method of emissions calculations across the sample population and from projects within the sample population. In calculating the emissions, the SCAQMD analysis determined that the 90th percentile ranged between 2,983 to 3,143 MTCO2e per year. The SCAQMD set their significance threshold at the low-end value of the range when rounded to the nearest hundred tons of emissions (i.e., 3,000 MTCO2e per year) to define small projects that are considered less than significant and do not need to provide further analysis.

The City understands that the 3,000 MTCO2e per year threshold for residential/commercial uses was proposed by SCAQMD a decade ago and was adopted as an interim policy; however, no permanent, superseding policy or threshold has since been adopted. The 3,000 MTCO2e per year threshold was developed and recommended by SCAQMD, an expert agency, based on substantial evidence as provided in the *Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold* (2008) document and subsequent Working Group meetings (latest of which occurred in 2010). SCAQMD has not withdrawn its support of the interim threshold and all documentation supporting the interim threshold remains on the SCAQMD website on a page that provides guidance to CEQA practitioners for air quality analysis (and where all SCAQMD significance thresholds for regional and local criteria pollutants and toxic air contaminants also are listed). Further, as stated by SCAQMD, this threshold "uses the Executive Order S-3-05 goal [80 percent below 1990 levels by 2050] as the basis for deriving the screening level" and, thus, remains valid for use in 2022 (44). Lastly, this threshold has been used for hundreds, if not thousands of GHG analyses performed for projects located within the SCAQMD jurisdiction.

Thus, for purposes of analysis in this analysis, if Project-related GHG emissions do not exceed the 3,000 MTCO2e per year threshold, then Project-related GHG emissions would clearly have a less-than-significant impact pursuant to Threshold GHG-1. On the other hand, if Project-related GHG emissions exceed 3,000 MTCO2e per year, the Project would be considered a substantial source of GHG emissions.

3.3 Models Employed To Greenhouse Gases

3.3.1 CalEEMod

The California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including MDAQMD, released CalEEMod 2022 in May 2022. CalEEMod periodically releases updates, as such the latest version available at the time of this report has been utilized in this analysis. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (45). Accordingly, the latest version of CalEEMod has been used for this Project to determine GHG emissions. Output from the model runs for construction and operational activity for the Project is provided in Appendix 3.1. CalEEMod includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water, refrigerants, stationary, on-site cargo handling and TRU sources.

3.4 Construction Emissions

Project construction activities would generate CO_2 and CH_4 emissions. The *Apple Valley 84 Air Quality Impact Analysis* (AQIA) report contains detailed information regarding Project construction activities (46). As discussed in the AQIA, construction-related emissions are expected from the following activities.

- Demolition
- Site Preparation
- Grading
- Building Construction

- Paving
- Architectural Coating

3.4.1 Construction Duration

For purposes of analysis, construction of the Project is expected to commence in December 2026 and would last through November 2028. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[3] The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (47).

TABLE 3-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition	12/1/2026	12/7/2026	5
Site Preparation	12/8/2026	1/13/2027	27
Grading	1/14/2027	3/17/2027	45
Building Construction	3/18/2027	9/13/2028	390
Paving	9/14/2028	11/22/2028	50
Architectural Coating	9/14/2028	11/22/2028	50

3.4.2 Construction Equipment

Site specific construction fleet may vary due to specific project needs at the time of construction. The associated construction equipment was generally based on CalEEMod defaults. Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 3-2 is assumed to operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed.

[3] As shown in the CalEEMod User's Guide Version 2022, Appendix G "Table G-11. Statewide Average Annual Offoad Equipment Emission Factors" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment	Quantity	Hours
Demolition	Excavators	1	8
Site Preparation	Rubber Tired Dozers	2	8
	Crawler Tractors	3	8
Grading	Excavators	1	8
	Graders	2	8
	Rubber Tired Dozers	2	8
	Scrapers	6	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	5	8
	Generator Sets	2	8
	Tractors/Loaders/Backhoes	5	8
	Welders	2	8
Paving	Pavers	3	8
	Paving Equipment	3	8
	Rollers	3	8
Architectural Coating	Air Compressors	2	8

3.4.3 Construction Emissions Summary

For construction phase emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the MDAQMD recommends calculating the total GHG emissions for the construction activities, dividing it by a 30-year Project life then adding that number to the annual operational phase GHG emissions (48). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions. The amortized construction emissions from each phase are presented in Table 3-3.

TABLE 3-3: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS

Year	CO_2T	CH_4	N_2O	R	Total CO_2e
2026	34.66	0.00	0.00	0.01	34.93
2027	1,934.99	0.04	0.10	1.55	1,968.06
2028	1,461.23	0.03	0.09	1.27	1,488.87
Total	3,430.88	0.07	0.19	2.83	3,491.86
Amortized	114.36	0.00	0.01	0.09	116.40

Source: CalEEMod construction-source emissions are presented in Appendix 3.1.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the Project would result in emissions of CO_2, CH_4, N_2O, and Refrigerant emissions from the following primary sources:

- Mobile Source Emissions;
- Area Source Emissions;
- Energy Source Emissions;
- Water Supply, Treatment, and Distribution;
- Solid Waste;
- Refrigeration;
- Stationary Source Emissions;
- On-site Cargo Handling Equipment Emissions; and
- TRU Source Emissions

3.5.1 Mobile Source Emissions

The Project related operational air quality emissions derived primarily from vehicle trips generated by the Project. Trip characteristics available from the *Apple Valley 84 Traffic Analysis* were utilized in this analysis (49). Trip lengths for passenger vehicles were obtained from the San Bernardino Traffic Analysis Model (SBTAM) and trip lengths for trucks were obtained from the StreetLight™ Data available in the Apple Valley 84 *Vehicle Miles Traveled Analysis* (50).

Passenger Vehicles

To determine emissions from passenger vehicles for the proposed industrial uses, the analysis incorporated a trip length of 15.40 miles for 2 Light-Duty-Auto vehicles (LDA), Light-Duty-Trucks (LDT1[4] & LDT2[5]), Medium-Duty-Vehicles (MDV), and Motorcycles (MCY) vehicles taken from the San Bernardino Traffic Analysis Model (SBTAM) data available *Apple Valley 84 Vehicle Miles Traveled Analysis* with an assumption of 100% primary trips.

As mentioned previously, this analysis assumes that passenger cars include Light-Duty-Auto vehicles (LDA), Light-Duty-Trucks (LDT1[6] & LDT2[7]), Medium-Duty-Vehicles (MDV), and Motorcycles (MCY) vehicle types. To account for emissions generated by passenger cars, the following fleet mix was utilized in this analysis:

[4] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[5] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

[6] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[7] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

TABLE 3-4: PASSENGER CAR FLEET MIX

Land Use	% Vehicle Type				
	LDA	LDT1	LDT2	MDV	MCY
General Light Industrial High-Cube Cold Storage High-Cube Fulfillment (Non-Sort)	52.41	4.39	23.70	16.75	2.75

Note: The Project-specific passenger car fleet mix used in this analysis is based on a proportional split utilizing the default CalEEMod percentages assigned to LDA, LDT1, LDT2, MDV, and MCY vehicle types.

Trucks

To determine emissions from trucks for the proposed industrial uses, the analysis incorporated a trip length of 62.10 miles for 2-axle (LHDT1, LHDT2), 3-axle (MHDT) trucks and 4+-axle (HHDT) trucks taken from the StreetLight™ data available *Apple Valley 84 Vehicle Miles Traveled Analysis* with an assumption of 100% primary trips. This trip length assumption is higher than the CalEEMod defaults for trucks.

In order to be consistent with the *Proposed Apple Valley 84 Traffic Analysis*, trucks are broken down by truck type. The truck fleet mix is estimated by rationing the trip rates for each truck type based on information provided in the *Proposed Apple Valley 84 Traffic Analysis*. Heavy trucks are broken down by truck type (or axle type) and are categorized as either Light-Heavy-Duty Trucks (LHDT1[8] & LHDT2 [9])/2-axle, Medium-Heavy-Duty Trucks (MHDT)/3-axle, and Heavy-Heavy-Duty Trucks (HHDT)/4+-axle. To account for emissions generated by trucks, the following fleet mix was utilized in this analysis:

TABLE 3-5: TRUCK FLEET MIX

Land Use	% Vehicle Type			
	LHDT1	LHDT2	MHDT	HHDT
General Light Industrial	13.05	3.62	22.22	61.11
High-Cube Cold Storage	27.36	7.58	10.84	54.22
High-Cube Fulfillment (Non-Sort)	13.20	3.66	20.79	62.36

Note: Project-specific truck fleet mix is based on the number of trips generated by each truck type (LHDT1, LHDT2, MHDT, and HHDT) relative to the total number of truck trips.

3.5.2 Area Source Emissions

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. It should be noted that on October 9, 2021, Governor Gavin Newsom signed AB 1346. The bill aims to ban the sale of new gasoline-powered equipment under 25 gross

[8] Vehicles under the LHDT1 category have a GVWR of 8,501 to 10,000 lbs.

[9] Vehicles under the LHDT2 category have a GVWR of 10,001 to 14,000 lbs.

horsepower (known as small off-road engines [SOREs]) by January 1, 2024, which is now in effect. However, for purposes of analysis, the emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod, and do not incorporate the emissions reductions that would be realized from implementation of AB 1346.

3.5.3 Energy Source Emissions

Combustion Emissions Associated with Electricity and Natural Gas

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. The site is not expected to utilize natural gas for the building envelope and therefore would not generate any emissions from direct energy consumption.

3.5.4 Water Supply, Treatment, and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod default parameters were used.

3.5.5 Solid Waste

The proposed land uses would result in the generation and disposal of solid waste. A percentage of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated by CalEEMod using default parameters.

3.5.6 Refrigerants

Air conditioning (A/C) and refrigeration equipment associated with the building are anticipated to generate GHG emissions. CalEEMod automatically generates a default A/C and refrigeration equipment inventory for each project land use subtype based on industry data from the USEPA (2016b). CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate. Note that CalEEMod does not quantify emissions from the disposal of refrigeration and A/C equipment at the end of its lifetime. Per 17 CCR 95371, new facilities with refrigeration equipment containing more than 50 pounds of refrigerant are prohibited from utilizing refrigerants with a GWP of 150 or greater as of January 1, 2022. Additionally, beginning January 1, 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater. GHG emissions associated with refrigerants were calculated by CalEEMod using default parameters.

3.5.7 Stationary Source Emissions

The proposed Project was conservatively assumed to include installation of a 300 HP diesel-powered fire pump and a 700 HP diesel-powered emergency generator at each building. The fire pump and

emergency generator were each estimated to operate for up to 1 hour per day, 1 day per week for up to 50 hours per year for maintenance and testing purposes. Emissions associated with the stationary diesel-powered fire pump and emergency generator were calculated using CalEEMod.

3.5.8 On-Site Cargo Handling Equipment Emissions

It is common for industrial buildings to require the operation of exterior cargo handling equipment in the building's truck court areas. For this Project, on-site modeled operational equipment includes up to Five (5) 175 hp, natural gas-powered cargo handling equipment – port tractor operating 4 hours a day[10] for 365 days of the year.

3.5.9 TRU Emissions

In order to account for the possibility of refrigerated uses, trucks associated with the cold-storage land use are assumed to also have Transport Refrigeration Units (TRUs). For modeling purposes, 166 two-way truck trips with TRUs were modeled (e.g., all truck trips that would be associated with high-cube cold storage uses, as summarized in the *Apple Valley 84 Traffic Analysis*. TRUs are accounted for during on-site and off-site travel. The TRU calculations are based on the EMissions FACtor (EMFAC) Offroad Emissions model, developed by the CARB. EMFAC does not provide emission rates per hour or mile as with the on-road emission model and only provides emission inventories. Emission results are produced in tons per day while all activity, fuel consumption and horsepower hours were reported at annual levels. The emission inventory is based on specific assumptions including the average horsepower rating of specific types of equipment and the hours of operation annually. These assumptions are not always consistent with assumptions used in the modeling of project level emissions. Therefore, the emissions inventory was converted into emission rates to accurately calculate emissions from TRU operation associated with project level details. This was accomplished by converting the annual horsepower hours to daily operational characteristics and converting the daily emission levels into hourly emission rates based on the total emission of each criteria pollutant by equipment type and the average daily hours of operation. TRU emission calculations are provided in Appendix 3.2.

3.5.10 GHG Emissions Summary

Impacts Without Mitigation

The estimated Project-related GHG emissions are summarized in Table 3-6. Detailed operation model outputs for the Project are presented in Appendix 3.1. As shown in Table 3-6, construction and operation of the Project would generate approximately 18,176.56 $MTCO_2e$/yr.

[10] Based on Table II-3, Port and Rail Cargo Handling Equipment Demographics by Type, from CARB's Technology Assessment: Mobile Cargo Handling Equipment document, a single piece of equipment could operate up to 2 hours per day (Total Average Annual Activity divided by Total Number Pieces of Equipment). As such, the analysis conservatively assumes that the tractor/loader/backhoe would operate up to 4 hours per day.

TABLE 3-6: PROJECT GHG EMISSIONS

Source	Emissions (MT/yr)				
	CO_2T	CH_4	N_2O	R	Total CO_2e
Annual construction emissions amortized over 30 years	114.36	2.25E-03	6.32E-03	9.44E-02	116.40
Mobile	13,537.79	0.13	1.59	15.76	14,031.45
Area	20.17	0.00	0.00	0.00	20.24
Energy	1,764.75	0.17	0.02	0.00	1,775.03
Water	402.63	10.42	0.25	0.00	737.77
Waste	119.56	11.95	0.00	0.00	418.31
Refrigerants	0.00	0.00	0.00	37.11	37.11
Stationary	19.04	0.00	0.00	0.00	19.10
TRUs	0.00	0.00	0.00	0.00	784.33
On-Site Equipment	0.00	0.00	0.00	0.00	236.83
Total CO_2e (All Sources)	18,176.56				
Screening Threshold (CO_2e)	3,000				
Threshold Exceeded?	YES				

Source: CalEEMod operational-source (unmitigated) emissions are presented in Appendix 3.1.

3.6 GHG EMISSIONS FINDINGS AND RECOMMENDATIONS

3.6.1 GHG Impact 1

Potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.

As shown construction and operation of the Project would generate a total of approximately 18,176.56 $MTCO_2e$/yr, which would exceed the significance threshold of 3,000 $MTCO_2e$/yr; therefore, Project-related GHG emissions are considered potentially significant. The majority of the GHG emissions (83%) are associated with non-construction related mobile sources, as shown previously on Table 3-6. Emissions of motor vehicles are controlled by State and Federal standards, and the Project has no control over these emissions.

Level of Significance Before Mitigation

Potentially Significant.

GHG Mitigation Measures

While MM GHG-2 through MM GHG-19 are identified as part of the Project and are expected to contribute to reductions in operational emissions, as discussed in Section ES.3,however, the reductions associated with these measures are not easily quantified. Therefore, as a conservative measure, emission credits or reductions from the implementation of these measures are not presented in this report.

Level of Significance After Mitigation

Significant and Unavoidable.

3.6.2 GHG Impact 2

Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

As previously stated, pursuant to 15604.4 of the *CEQA Guidelines*, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions (51). As such, the Project's consistency with the 2022 Scoping Plan, is discussed below. It should be noted that the Project's consistency with the 2022 Scoping Plan also satisfies consistency with AB 32 since the 2022 Scoping Plan is based on the overall targets established by AB 32 and SB 32. Consistency with the 2008 and 2017 Scoping Plan is not necessary, since both of these plans have been superseded by the 2022 Scoping Plan.

2022 CARB Scoping Plan Consistency

The Project would not impede the State's progress towards carbon neutrality by 2045 under the 2022 Scoping Plan. The Project would be required to comply with applicable current and future regulatory requirements promulgated through the 2022 Scoping Plan. Some of the current transportation sector policies the Project will comply with (through vehicle manufacturer compliance) include: Advanced Clean Cars II, Advanced Clean Trucks, Advanced Clean Fleets, Zero Emission Forklifts, the Off-Road Zero-Emission Targeted Manufacturer rule, Clean Off-Road Fleet Recognition Program, In-use Off-Road Diesel-Fueled Fleets Regulation, carbon pricing through the Cap-and-Trade Program, and the Low Carbon Fuel Standard. Further, as previously stated, CARB recommends the use of a CAP to determine a project's impacts with respect to GHG and states that projects that are consistent with a CAP are presumed to be consistent with the 2022 Scoping Plan. As such, the Project would be consistent with the 2022 Scoping Plan.

Town of Apple Valley CAP

The Town of Apple Valley CAP includes several strategies aimed at helping the Town reduce GHG emissions consistent with State targets. As shown on Table 3-7, the proposed Project would be consistent with the applicable CAP measures with incorporation of project design features and mitigation measures.

It should be noted that although the Project would be consistent with the CAP, the Project would still exceed the 3,000 $MTCO_2e$/yr threshold and is therefore impacts are considered to be significant and unavoidable.

TABLE 3-7: PROJECT CAP CONSISTENCY REDUCTION MEASURES

CAP Reduction Measure	Consistency
ND-6: For projects within the North Apple Valley Industrial Specific Plan, develop employee housing within one mile of the industrial project.	Not Applicable: The Project is not within the North Apple Valley Industrial Specific Plan area, as such this measure is not applicable.
ND-12: Building and site plan designs shall ensure that the project energy efficiencies meet applicable California Title 24 Energy Efficiency Standards.	Consistent: The Project is consistent with Title 24 energy efficiency standards through multiple design and operational features. These include the uses as described in MM GHG-1, of Energy Star appliances, enhanced insulation (R-19), solar-ready construction with on-site generation, and energy-efficient lighting controls. The Project also includes infrastructure and charging for EVs in accordance with CALGreen requirements.
ND-20: Install common area electric vehicle charging station(s) and secure bicycle racks.	Consistent: The Project would install EV charging station(s) and a secure bicycle rack.
CO-2: Establish and enforce idling time limits for delivery vehicles. Idling shall not be permitted for more than 5 minutes.	Consistent: The Project includes a series of anti-idling measures which aims to reduce emissions from vehicles. Specifically, MM GHG-12 and MM GHG-13 require strict enforcement of a three-minute idling limit for all on-site trucks, along with tenant lease provisions, signage at key access points, and training for site personnel.
CO-17: Increase recycling by 20%. Currently, recycling is mandatory for businesses that generate four cubic yards or more of commercial solid waste per week and for multifamily residential dwellings of five units or more (Senate Bill 1018).	Consistent: MM GHG-2 and MM GHG-8 requires the provision of dedicated storage areas for recyclable and green waste, and food waste where a pick-up service is available. These facilities will ensure compliance with mandatory commercial recycling requirements. By incorporating infrastructure to support recycling and organic waste diversion, the Project contributes to reducing landfill-bound waste and supports the CAP's objective to increase recycling rates within the Town of Apple Valley.

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5 CERTIFICATION

The contents of this GHG study report represent an accurate depiction of the GHG impacts associated with the proposed Apple Valley 84 Project. The information contained in this GHG report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com.

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University of California, Irvine • June, 2006

Professional Affiliations

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

Professional Certifications

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – CARB • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

APPENDIX 3.1:

CALEEMOD EMISSIONS MODEL OUTPUTS

16408 - Bell Mountain Commerce Center Construction and Operations Detailed Report

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Data Field	Value
Project Name	16408 - Bell Mountain Commerce Center Construction and Operations
Construction Start Date	12/1/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.00
Precipitation (days)	12.4
Location	34.594764, -117.244659
County	San Bernardino-Mojave Desert
City	Apple Valley
Air District	Mojave Desert AQMD
Air Basin	Mojave Desert
TAZ	5160
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southwest Gas Corp.
App Version	2022.1.1.30

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	138	1000sqft	3.17	138,141	84,424	—	—	General Light Industrial

Refrigerated Warehouse-Rail	207	1000sqft	4.76	207,212	126,637	—	—	High-Cube Cold Storage PC
Unrefrigerated Warehouse-No Rail	1,036	1000sqft	23.8	1,036,059	633,185	—	—	High-Cube Fulfillment (Non-Sort)
Parking Lot	1,426	Space	15.7	0.00	0.00	—	—	—
Other Asphalt Surfaces	45.3	Acre	45.3	0.00	0.00	—	—	—
User Defined Industrial	1,381	User Defined Unit	0.00	0.00	0.00	—	—	PC Trips

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	148	148	22.9	65.6	0.08	0.61	9.04	9.65	0.57	2.18	2.75	—	17,172	17,172	0.26	0.99	37.4	17,511
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	148	148	64.7	64.2	0.16	2.81	9.04	9.65	2.59	2.22	4.81	—	18,408	18,408	0.68	1.01	0.97	18,537
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	22.6	22.3	21.9	39.8	0.07	0.72	5.99	6.72	0.67	1.54	2.21	—	11,687	11,687	0.25	0.62	9.39	11,887
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	4.12	4.07	4.00	7.26	0.01	0.13	1.09	1.23	0.12	0.28	0.40	—	1,935	1,935	0.04	0.10	1.55	1,968

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	5.16	4.50	22.9	65.6	0.08	0.61	9.04	9.65	0.57	2.18	2.75	—	17,172	17,172	0.26	0.99	37.4	17,511
2028	148	148	21.8	62.6	0.08	0.55	9.04	9.59	0.52	2.18	2.70	—	16,884	16,884	0.26	0.99	33.4	17,219
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.22	2.71	24.3	22.3	0.04	1.24	4.09	5.32	1.14	1.86	3.00	—	4,337	4,337	0.16	0.09	0.04	4,368
2027	8.93	7.51	64.7	64.2	0.16	2.81	9.04	9.65	2.59	2.22	4.81	—	18,408	18,408	0.68	1.01	0.97	18,537
2028	148	148	22.3	49.9	0.08	0.55	9.04	9.59	0.52	2.18	2.70	—	15,977	15,977	0.27	0.99	0.87	16,280
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.15	0.13	1.16	1.07	< 0.005	0.06	0.20	0.25	0.05	0.09	0.14	—	209	209	0.01	< 0.005	0.04	211
2027	3.95	3.38	21.9	39.8	0.07	0.72	5.99	6.72	0.67	1.54	2.21	—	11,687	11,687	0.25	0.62	9.39	11,887
2028	22.6	22.3	13.2	30.1	0.04	0.34	4.78	5.12	0.31	1.15	1.47	—	8,826	8,826	0.15	0.52	7.67	8,993
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03	0.02	0.21	0.19	< 0.005	0.01	0.04	0.05	0.01	0.02	0.03	—	34.7	34.7	< 0.005	< 0.005	0.01	34.9
2027	0.72	0.62	4.00	7.26	0.01	0.13	1.09	1.23	0.12	0.28	0.40	—	1,935	1,935	0.04	0.10	1.55	1,968
2028	4.12	4.07	2.40	5.49	0.01	0.06	0.87	0.93	0.06	0.21	0.27	—	1,461	1,461	0.03	0.09	1.27	1,489

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	57.3	55.0	92.4	199	1.10	2.27	54.1	56.3	2.15	14.1	16.2	1,334	127,444	128,778	137	14.7	526	137,123
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	45.7	44.2	96.7	111	1.07	2.16	54.1	56.2	2.07	14.1	16.2	1,334	124,538	125,873	137	14.8	232	133,939
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	46.2	44.8	69.2	114	0.79	1.49	39.2	40.7	1.41	10.2	11.6	1,334	94,485	95,819	137	11.3	319	102,916
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.43	8.18	12.6	20.7	0.14	0.27	7.16	7.43	0.26	1.87	2.12	221	15,643	15,864	22.7	1.86	52.9	17,039

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	13.1	11.7	87.3	135	1.09	1.92	54.1	56.0	1.83	14.1	15.9	—	113,879	113,879	1.01	13.1	301	118,104
Area	42.4	41.6	0.51	60.1	< 0.005	0.11	—	0.11	0.08	—	0.08	—	247	247	0.01	< 0.005	—	248
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	10,659	10,659	1.02	0.12	—	10,721
Water	—	—	—	—	—	—	—	—	—	—	—	612	1,820	2,432	62.9	1.51	—	4,456
Waste	—	—	—	—	—	—	—	—	—	—	—	722	0.00	722	72.2	0.00	—	2,527
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	224	224
Stationary	1.80	1.64	4.59	4.18	0.01	0.24	0.00	0.24	0.24	0.00	0.24	0.00	840	840	0.03	0.01	0.00	842
Total	57.3	55.0	92.4	199	1.10	2.27	54.1	56.3	2.15	14.1	16.2	1,334	127,444	128,778	137	14.7	526	137,123

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	12.2	10.9	92.1	107	1.07	1.92	54.1	56.0	1.83	14.1	15.9	—	111,220	111,220	1.04	13.1	7.82	115,169
Area	31.7	31.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	10,659	10,659	1.02	0.12	—	10,721
Water	—	—	—	—	—	—	—	—	—	—	—	612	1,820	2,432	62.9	1.51	—	4,456
Waste	—	—	—	—	—	—	—	—	—	—	—	722	0.00	722	72.2	0.00	—	2,527
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	224	224
Stationary	1.80	1.64	4.59	4.18	0.01	0.24	0.00	0.24	0.24	0.00	0.24	0.00	840	840	0.03	0.01	0.00	842
Total	45.7	44.2	96.7	111	1.07	2.16	54.1	56.2	2.07	14.1	16.2	1,334	124,538	125,873	137	14.8	232	133,939
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	8.96	8.00	68.3	83.5	0.78	1.40	39.2	40.6	1.34	10.2	11.6	—	81,769	81,769	0.77	9.62	95.2	84,751
Area	37.0	36.6	0.25	29.6	< 0.005	0.05	—	0.05	0.04	—	0.04	—	122	122	0.01	< 0.005	—	122
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	10,659	10,659	1.02	0.12	—	10,721
Water	—	—	—	—	—	—	—	—	—	—	—	612	1,820	2,432	62.9	1.51	—	4,456
Waste	—	—	—	—	—	—	—	—	—	—	—	722	0.00	722	72.2	0.00	—	2,527
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	224	224
Stationary	0.25	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	46.2	44.8	69.2	114	0.79	1.49	39.2	40.7	1.41	10.2	11.6	1,334	94,485	95,819	137	11.3	319	102,916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.64	1.46	12.5	15.2	0.14	0.26	7.16	7.42	0.24	1.87	2.11	—	13,538	13,538	0.13	1.59	15.8	14,031
Area	6.75	6.68	0.05	5.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.2	20.2	< 0.005	< 0.005	—	20.2
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	1,765	1,765	0.17	0.02	—	1,775
Water	—	—	—	—	—	—	—	—	—	—	—	101	301	403	10.4	0.25	—	738
Waste	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1

Stationa	0.05	0.04	0.11	0.10	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	19.0	19.0	< 0.005	< 0.005	0.00	19.1
Total	8.43	8.18	12.6	20.7	0.14	0.27	7.16	7.43	0.26	1.87	2.12	221	15,643	15,864	22.7	1.86	52.9	17,039

3. Construction Emissions Details

3.1. Demolition (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.82	1.02	< 0.005	0.02	—	0.02	0.02	—	0.02	—	142	142	0.01	< 0.005	—	142
Demolition	—	—	—	—	—	—	0.22	0.22	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.94	1.94	< 0.005	< 0.005	—	1.95
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.32	0.32	< 0.005	< 0.005	—	0.32
Demoliti on	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.6	31.6	< 0.005	< 0.005	< 0.005	32.0
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.5	62.5	< 0.005	0.01	< 0.005	65.1
Hauling	< 0.005	< 0.005	0.19	0.04	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	160	160	< 0.005	0.03	0.01	168
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.45	0.45	< 0.005	< 0.005	< 0.005	0.45
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.89
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.07	0.07	< 0.005	< 0.005	< 0.005	0.07
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.36	0.36	< 0.005	< 0.005	< 0.005	0.38

3.3. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.15	2.65	23.9	21.5	0.04	1.23	—	1.23	1.13	—	1.13	—	3,804	3,804	0.15	0.03	—	3,817
Dust From Material Movement	—	—	—	—	—	—	3.82	3.82	—	1.80	1.80	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.12	1.01	< 0.005	0.06	—	0.06	0.05	—	0.05	—	179	179	0.01	< 0.005	—	179
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	29.6	29.6	< 0.005	< 0.005	—	29.7
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—

Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.64	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	158	158	< 0.005	0.01	0.02	160
Vendor	0.01	0.01	0.40	0.16	< 0.005	0.01	0.10	0.11	0.01	0.03	0.03	—	375	375	< 0.005	0.05	0.02	391
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.65	7.65	< 0.005	< 0.005	0.01	7.75
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	17.6	17.6	< 0.005	< 0.005	0.02	18.3
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.28
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.92	2.92	< 0.005	< 0.005	< 0.005	3.04
Hauling	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	0.00

3.5. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	2.99	2.51	22.6	21.1	0.04	1.13	—	1.13	1.04	—	1.04	—	3,805	3,805	0.15	0.03	—	3,818
Dust From Material Movement	—	—	—	—	—	—	3.82	3.82	—	1.80	1.80	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.08	0.06	0.57	0.54	< 0.005	0.03	—	0.03	0.03	—	0.03	—	96.8	96.8	< 0.005	< 0.005	—	97.1
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.01	0.01	0.10	0.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	16.0	16.0	< 0.005	< 0.005	—	16.1
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.60	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	156	156	< 0.005	0.01	0.01	157
Vendor	0.01	0.01	0.38	0.16	< 0.005	0.01	0.10	0.11	0.01	0.03	0.03	—	367	367	< 0.005	0.05	0.02	382
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.07	4.07	< 0.005	< 0.005	0.01	4.13
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.33	9.33	< 0.005	< 0.005	0.01	9.71
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.68
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.54	1.54	< 0.005	< 0.005	< 0.005	1.61
Hauling	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	0.00

3.7. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.72	7.33	62.8	62.1	0.15	2.78	—	2.78	2.56	—	2.56	—	16,443	16,443	0.67	0.13	—	16,500

Dust From Material Movement	—	—	—	—	—	—	5.75	5.75	—	2.00	2.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.08	0.90	7.75	7.65	0.02	0.34	—	0.34	0.32	—	0.32	—	2,027	2,027	0.08	0.02	—	2,034
Dust From Material Movement	—	—	—	—	—	—	0.71	0.71	—	0.25	0.25	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.16	1.41	1.40	< 0.005	0.06	—	0.06	0.06	—	0.06	—	336	336	0.01	< 0.005	—	337
Dust From Material Movement	—	—	—	—	—	—	0.13	0.13	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.14	0.15	1.68	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	436	436	0.01	0.02	0.04	441

Vendor	0.02	0.02	0.64	0.26	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	612	612	< 0.005	0.08	0.04	636
Hauling	0.02	0.02	1.08	0.24	0.01	0.02	0.25	0.27	0.02	0.07	0.08	—	917	917	< 0.005	0.15	0.05	961
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.23	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.3	55.3	< 0.005	< 0.005	0.08	56.0
Vendor	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.4	75.4	< 0.005	0.01	0.07	78.4
Hauling	< 0.005	< 0.005	0.13	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	113	113	< 0.005	0.02	0.10	118
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.15	9.15	< 0.005	< 0.005	0.01	9.27
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.5	12.5	< 0.005	< 0.005	0.01	13.0
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.7	18.7	< 0.005	< 0.005	0.02	19.6

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.03	1.70	15.5	22.1	0.04	0.54	—	0.54	0.49	—	0.49	—	3,827	3,827	0.16	0.03	—	3,840
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.03	1.70	15.5	22.1	0.04	0.54	—	0.54	0.49	—	0.49	—	3,827	3,827	0.16	0.03	—	3,840

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.96	8.74	12.5	0.02	0.30	—	0.30	0.28	—	0.28	—	2,164	2,164	0.09	0.02	—	2,172
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.59	2.28	< 0.005	0.06	—	0.06	0.05	—	0.05	—	358	358	0.01	< 0.005	—	360
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.91	2.63	2.29	41.4	0.00	0.00	7.58	7.58	0.00	1.78	1.78	—	8,153	8,153	0.09	0.28	25.4	8,262
Vendor	0.23	0.17	5.13	2.14	0.04	0.08	1.45	1.53	0.08	0.40	0.48	—	5,193	5,193	0.01	0.68	12.0	5,409
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.65	2.37	2.55	27.8	0.00	0.00	7.58	7.58	0.00	1.78	1.78	—	7,221	7,221	0.12	0.29	0.66	7,310
Vendor	0.20	0.15	5.41	2.22	0.04	0.08	1.45	1.53	0.08	0.40	0.48	—	5,199	5,199	0.01	0.69	0.31	5,405
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.50	1.34	1.58	17.6	0.00	0.00	4.25	4.25	0.00	1.00	1.00	—	4,204	4,204	0.07	0.16	6.20	4,260
Vendor	0.12	0.09	3.06	1.24	0.02	0.04	0.82	0.86	0.04	0.23	0.27	—	2,939	2,939	0.01	0.39	2.92	3,057

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.24	0.29	3.21	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	696	696	0.01	0.03	1.03	705
Vendor	0.02	0.02	0.56	0.23	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	487	487	< 0.005	0.06	0.48	506
Hauling	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	0.00

3.11. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.95	1.63	14.8	22.1	0.04	0.48	—	0.48	0.44	—	0.44	—	3,827	3,827	0.16	0.03	—	3,840
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.95	1.63	14.8	22.1	0.04	0.48	—	0.48	0.44	—	0.44	—	3,827	3,827	0.16	0.03	—	3,840
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	7.43	11.1	0.02	0.24	—	0.24	0.22	—	0.22	—	1,925	1,925	0.08	0.02	—	1,931

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.36	2.03	< 0.005	0.04	—	0.04	0.04	—	0.04	—	319	319	0.01	< 0.005	—	320
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.82	2.55	2.03	38.5	0.00	0.00	7.58	7.58	0.00	1.78	1.78	—	7,998	7,998	0.09	0.28	22.8	8,105
Vendor	0.22	0.16	4.96	2.04	0.04	0.08	1.45	1.53	0.08	0.40	0.48	—	5,059	5,059	0.01	0.68	10.6	5,274
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	2.32	2.26	2.29	25.8	0.00	0.00	7.58	7.58	0.00	1.78	1.78	—	7,085	7,085	0.10	0.28	0.59	7,170
Vendor	0.20	0.15	5.24	2.08	0.04	0.08	1.45	1.53	0.08	0.40	0.48	—	5,065	5,065	0.01	0.68	0.27	5,269
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.18	1.15	1.28	14.5	0.00	0.00	3.78	3.78	0.00	0.89	0.89	—	3,668	3,668	0.05	0.14	4.97	3,715
Vendor	0.11	0.08	2.62	1.03	0.02	0.04	0.73	0.77	0.04	0.20	0.24	—	2,546	2,546	0.01	0.34	2.30	2,651
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.21	0.23	2.65	0.00	0.00	0.69	0.69	0.00	0.16	0.16	—	607	607	0.01	0.02	0.82	615
Vendor	0.02	0.01	0.48	0.19	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	421	421	< 0.005	0.06	0.38	439
Hauling	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	0.00

3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.03	9.94	14.9	0.02	0.38	—	0.38	0.35	—	0.35	—	2,267	2,267	0.09	0.02	—	2,274
Paving	3.20	3.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.03	9.94	14.9	0.02	0.38	—	0.38	0.35	—	0.35	—	2,267	2,267	0.09	0.02	—	2,274
Paving	3.20	3.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.36	2.04	< 0.005	0.05	—	0.05	0.05	—	0.05	—	310	310	0.01	< 0.005	—	312
Paving	0.44	0.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.03	0.03	0.25	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	51.4	51.4	< 0.005	< 0.005	—	51.6
Paving	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.08	1.49	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	310	310	< 0.005	0.01	0.89	314
Vendor	0.01	0.01	0.32	0.13	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	327	327	< 0.005	0.04	0.69	341
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.00	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	275	275	< 0.005	0.01	0.02	278
Vendor	0.01	0.01	0.34	0.13	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	328	328	< 0.005	0.04	0.02	341
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.7	38.7	< 0.005	< 0.005	0.05	39.2
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.9	44.9	< 0.005	0.01	0.04	46.7
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.41	6.41	< 0.005	< 0.005	0.01	6.50
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.43	7.43	< 0.005	< 0.005	0.01	7.73
Hauling	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	0.00

3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.16	2.98	< 0.005	0.04	—	0.04	0.04	—	0.04	—	356	356	0.01	< 0.005	—	357
Architectural Coatings	143	143	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.16	2.98	< 0.005	0.04	—	0.04	0.04	—	0.04	—	356	356	0.01	< 0.005	—	357
Architectural Coatings	143	143	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.30	0.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	48.8	48.8	< 0.005	< 0.005	—	48.9
Architectural Coatings	19.6	19.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.07	8.07	< 0.005	< 0.005	—	8.10
Architectural Coatings	3.57	3.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.51	0.41	7.70	0.00	0.00	1.52	1.52	0.00	0.36	0.36	—	1,600	1,600	0.02	0.06	4.57	1,621
Vendor	0.01	0.01	0.32	0.13	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	327	327	< 0.005	0.04	0.69	341
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.46	0.45	0.46	5.16	0.00	0.00	1.52	1.52	0.00	0.36	0.36	—	1,417	1,417	0.02	0.06	0.12	1,434
Vendor	0.01	0.01	0.34	0.13	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	328	328	< 0.005	0.04	0.02	341
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.07	0.79	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	200	200	< 0.005	0.01	0.27	202
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.9	44.9	< 0.005	0.01	0.04	46.7
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.1	33.1	< 0.005	< 0.005	0.04	33.5

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.43	7.43	< 0.005	< 0.005	0.01	7.73
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.15	0.13	5.26	1.30	0.06	0.12	1.94	2.06	0.11	0.52	0.63	—	5,945	5,945	0.01	0.84	14.9	6,209
Refrigerated Warehouse-Rail	0.88	0.74	24.1	8.26	0.23	0.53	9.00	9.52	0.50	2.41	2.91	—	24,409	24,409	0.07	3.38	74.3	25,491
Unrefrigerated Warehouse-No Rail	1.50	1.24	52.6	12.8	0.56	1.18	19.2	20.4	1.13	5.13	6.26	—	58,867	58,867	0.13	8.32	147	61,496
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	10.5	9.64	5.29	112	0.24	0.09	23.9	24.0	0.09	6.02	6.11	—	24,658	24,658	0.81	0.55	65.4	24,909
Total	13.1	11.7	87.3	135	1.09	1.92	54.1	56.0	1.83	14.1	15.9	—	113,879	113,879	1.01	13.1	301	118,104

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.15	0.12	5.54	1.29	0.06	0.12	1.94	2.06	0.11	0.52	0.63	—	5,946	5,946	0.01	0.84	0.39	6,196
Refrigerated Warehouse-Rail	0.86	0.72	25.4	8.19	0.23	0.53	9.00	9.52	0.50	2.41	2.91	—	24,414	24,414	0.06	3.38	1.93	25,425
Unrefrigerated Warehouse-No Rail	1.45	1.20	55.3	12.8	0.56	1.18	19.2	20.4	1.13	5.13	6.26	—	58,881	58,881	0.12	8.33	3.81	61,370
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	9.72	8.83	5.87	84.4	0.22	0.09	23.9	24.0	0.09	6.02	6.11	—	21,978	21,978	0.84	0.59	1.70	22,177
Total	12.2	10.9	92.1	107	1.07	1.92	54.1	56.0	1.83	14.1	15.9	—	111,220	111,220	1.04	13.1	7.82	115,169
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.02	0.02	0.75	0.17	0.01	0.02	0.26	0.27	0.02	0.07	0.08	—	720	720	< 0.005	0.10	0.78	751
Refrigerated Warehouse-Rail	0.12	0.10	3.43	1.09	0.03	0.07	1.19	1.26	0.07	0.32	0.39	—	2,955	2,955	0.01	0.41	3.89	3,081
Unrefrigerated Warehouse-No Rail	0.20	0.16	7.47	1.69	0.07	0.16	2.55	2.71	0.15	0.68	0.83	—	7,128	7,128	0.02	1.01	7.67	7,437

Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	1.30	1.18	0.82	12.3	0.03	0.01	3.16	3.18	0.01	0.80	0.81	—	2,735	2,735	0.10	0.07	3.42	2,763
Total	1.64	1.46	12.5	15.2	0.14	0.26	7.16	7.42	0.24	1.87	2.11	—	13,538	13,538	0.13	1.59	15.8	14,031

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,250	1,250	0.12	0.01	—	1,257
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	4,303	4,303	0.41	0.05	—	4,328
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	4,539	4,539	0.43	0.05	—	4,565
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	568	568	0.05	0.01	—	571
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	10,659	10,659	1.02	0.12	—	10,721
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	1,250	1,250	0.12	0.01	—	1,257
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	4,303	4,303	0.41	0.05	—	4,328
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	4,539	4,539	0.43	0.05	—	4,565
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	568	568	0.05	0.01	—	571
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	10,659	10,659	1.02	0.12	—	10,721
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	207	207	0.02	< 0.005	—	208
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	712	712	0.07	0.01	—	717

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	—	751	751	0.07	0.01	—	756
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	94.0	94.0	0.01	< 0.005	—	94.5
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,765	1,765	0.17	0.02	—	1,775

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Refrigerated Warehouse-Rail	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
Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
Other Asphalt Surfaces	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

User Defined Industrial	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
Total	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Refrigerated Warehouse-Rail	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
Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	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
Refrigerated Warehouse-Rail	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

Unrefrigerated	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
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	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

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	29.8	29.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.96	1.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	10.7	9.87	0.51	60.1	< 0.005	0.11	—	0.11	0.08	—	0.08	—	247	247	0.01	< 0.005	—	248
Total	42.4	41.6	0.51	60.1	< 0.005	0.11	—	0.11	0.08	—	0.08	—	247	247	0.01	< 0.005	—	248

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	29.8	29.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.96	1.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	31.7	31.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	5.43	5.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.36	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.89	0.05	5.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.2	20.2	< 0.005	< 0.005	—	20.2
Total	6.75	6.68	0.05	5.41	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.2	20.2	< 0.005	< 0.005	—	20.2

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	61.2	182	243	6.29	0.15	—	446
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	91.8	273	365	9.44	0.23	—	668
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	459	1,365	1,824	47.2	1.13	—	3,342
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	612	1,820	2,432	62.9	1.51	—	4,456
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	61.2	182	243	6.29	0.15	—	446
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	91.8	273	365	9.44	0.23	—	668
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	459	1,365	1,824	47.2	1.13	—	3,342
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	612	1,820	2,432	62.9	1.51	—	4,456
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	10.1	30.1	40.3	1.04	0.03	—	73.8
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	15.2	45.2	60.4	1.56	0.04	—	111
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	76.0	226	302	7.82	0.19	—	553
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	101	301	403	10.4	0.25	—	738

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	92.3	0.00	92.3	9.23	0.00	—	323
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	105	0.00	105	10.5	0.00	—	367
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	525	0.00	525	52.5	0.00	—	1,836
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	722	0.00	722	72.2	0.00	—	2,527
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	92.3	0.00	92.3	9.23	0.00	—	323
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	105	0.00	105	10.5	0.00	—	367

Unrefrigerated Wareho Rail	—	—	—	—	—	—	—	—	—	—	—	525	0.00	525	52.5	0.00	—	1,836
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	722	0.00	722	72.2	0.00	—	2,527
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	15.3	0.00	15.3	1.53	0.00	—	53.5
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	17.4	0.00	17.4	1.74	0.00	—	60.8
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	86.9	0.00	86.9	8.69	0.00	—	304
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	211	211
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.9	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	224	224
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	211	211
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12.9	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	224	224
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Refrigerated Warehouse-Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35.0	35.0
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.14	2.14

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fire Pump	0.54	0.49	1.38	1.26	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	252	252	0.01	< 0.005	0.00	253

Emergency	1.26	1.15	3.21	2.93	0.01	0.17	0.00	0.17	0.17	0.00	0.17	0.00	588	588	0.02	< 0.005	0.00	590
Total	1.80	1.64	4.59	4.18	0.01	0.24	0.00	0.24	0.24	0.00	0.24	0.00	840	840	0.03	0.01	0.00	842
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fire Pump	0.54	0.49	1.38	1.26	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	252	252	0.01	< 0.005	0.00	253
Emergency Generator	1.26	1.15	3.21	2.93	0.01	0.17	0.00	0.17	0.17	0.00	0.17	0.00	588	588	0.02	< 0.005	0.00	590
Total	1.80	1.64	4.59	4.18	0.01	0.24	0.00	0.24	0.24	0.00	0.24	0.00	840	840	0.03	0.01	0.00	842
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fire Pump	0.01	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	5.71	5.71	< 0.005	< 0.005	0.00	5.73
Emergency Generator	0.03	0.03	0.08	0.07	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	13.3	13.3	< 0.005	< 0.005	0.00	13.4
Total	0.05	0.04	0.11	0.10	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	19.0	19.0	< 0.005	< 0.005	0.00	19.1

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	12/1/2026	12/7/2026	5.00	5.00	—
Site Preparation	Site Preparation	12/8/2026	1/13/2027	5.00	27.0	—
Grading	Grading	1/14/2027	3/17/2027	5.00	45.0	—
Building Construction	Building Construction	3/18/2027	9/13/2028	5.00	390	—
Paving	Paving	9/14/2028	11/22/2028	5.00	50.0	—
Architectural Coating	Architectural Coating	9/14/2028	11/22/2028	5.00	50.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Site Preparation	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	2.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Grading	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	5.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	2.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	3.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	3.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	2.50	18.5	LDA,LDT1,LDT2
Demolition	Vendor	2.00	10.2	HHDT,MHDT
Demolition	Hauling	2.40	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—

Site Preparation	Worker	12.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	12.0	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	35.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	20.0	10.2	HHDT,MHDT
Grading	Hauling	14.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	580	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	170	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	22.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	11.0	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	116	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	11.0	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	2,072,118	690,706	159,456

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,040	—
Site Preparation	—	—	67.5	0.00	—
Grading	5,056	—	428	0.00	—
Paving	0.00	0.00	0.00	0.00	61.0

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%
Refrigerated Warehouse-Rail	0.00	0%
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	15.7	100%
Other Asphalt Surfaces	45.3	100%
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	346	0.03	< 0.005
2027	0.00	346	0.03	< 0.005
2028	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	36.1	3.04	1.24	9,623	2,239	189	77.2	597,607
Refrigerated Warehouse-Rail	166	14.1	5.59	44,299	10,307	875	347	2,750,966
Unrefrigerated Warehouse-No Rail	356	30.0	12.4	95,135	22,133	1,866	772	5,907,861
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	2,241	189	76.0	597,999	34,506	2,915	1,170	9,209,191

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	2,072,118	690,706	159,456

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,317,551	346	0.0330	0.0040	0.00
Refrigerated Warehouse-Rail	4,536,998	346	0.0330	0.0040	0.00
Unrefrigerated Warehouse-No Rail	4,785,249	346	0.0330	0.0040	0.00
Parking Lot	598,326	346	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	346	0.0330	0.0040	0.00
User Defined Industrial	0.00	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	31,945,106	1,869,024
Refrigerated Warehouse-Rail	47,917,775	2,803,558
Unrefrigerated Warehouse-No Rail	239,588,644	14,017,789

Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	171	—
Refrigerated Warehouse-Rail	195	—
Unrefrigerated Warehouse-No Rail	974	—
Parking Lot	0.00	—
Other Asphalt Surfaces	0.00	—
User Defined Industrial	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Refrigerated Warehouse-Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0
General Heavy Industry	Other commercial A/C and heat pumps	User Defined	750	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Fire Pump	Diesel	1.00	1.00	50.0	300	0.73
Emergency Generator	Diesel	1.00	1.00	50.0	700	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	34.1	annual days of extreme heat
Extreme Precipitation	0.90	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.80	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A

Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	7.52
AQ-DPM	21.9
Drinking Water	34.9
Lead Risk Housing	27.7
Pesticides	0.00
Toxic Releases	37.1
Traffic	59.7
Effect Indicators	—
CleanUp Sites	52.1
Groundwater	44.8
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	51.2
Solid Waste	84.7
Sensitive Population	—
Asthma	88.0
Cardio-vascular	89.5
Low Birth Weights	91.9
Socioeconomic Factor Indicators	—
Education	26.9
Housing	11.6
Linguistic	—
Poverty	52.5
Unemployment	90.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	44.97626075
Employed	30.46323624
Median HI	35.0442705
Education	—
Bachelor's or higher	42.93596818
High school enrollment	100
Preschool enrollment	39.79212113
Transportation	—
Auto Access	85.40998332
Active commuting	24.00872578
Social	—
2-parent households	51.18696266
Voting	75.34967278
Neighborhood	—
Alcohol availability	88.37418196
Park access	16.65597331
Retail density	8.469138971
Supermarket access	2.399589375
Tree canopy	0.71859361
Housing	—
Homeownership	62.60746824
Housing habitability	64.39112024
Low-inc homeowner severe housing cost burden	17.8108559
Low-inc renter severe housing cost burden	77.19748492

Uncrowded housing	68.66418581
Health Outcomes	—
Insured adults	64.22430386
Arthritis	4.4
Asthma ER Admissions	7.6
High Blood Pressure	8.9
Cancer (excluding skin)	9.1
Asthma	30.0
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	13.3
Diagnosed Diabetes	35.6
Life Expectancy at Birth	34.2
Cognitively Disabled	41.3
Physically Disabled	11.3
Heart Attack ER Admissions	2.7
Mental Health Not Good	48.5
Chronic Kidney Disease	20.1
Obesity	46.5
Pedestrian Injuries	48.3
Physical Health Not Good	39.9
Stroke	15.1
Health Risk Behaviors	—
Binge Drinking	57.0
Current Smoker	46.7
No Leisure Time for Physical Activity	58.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	58.1
Elderly	16.8
English Speaking	81.5
Foreign-born	11.0
Outdoor Workers	47.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.2
Traffic Density	37.9
Traffic Access	23.0
Other Indices	—
Hardship	32.7
Other Decision Support	—
2016 Voting	75.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	65.0
Healthy Places Index Score for Project Location (b)	46.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on 2028 OY and provided construction start and end dates. (end of 2026 and 2028, respectivley)
Land Use	Taken from site plan
Construction: Off-Road Equipment	Project applicant provided equipment list as well as CalEEMod defaults.
Construction: Trips and VMT	"CalEEMod only assumes Vendor Trips during Building Construction. The CalEEMod default trips were ratioed between each phase based on the number of days."
Operations: Energy Use	Natural gas will not be utilized
Operations: Vehicle Data	Trip information taken from Traffic Analysis.
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Beginning 1 January 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater
Construction: Architectural Coatings	—

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