Town Center at Moreno Valley Specific Plan

GREENHOUSE GAS ANALYSIS

CITY OF MORENO VALLEY

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FEBRUARY 3, 2025

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LIST OF ABBREVIATED TERMS

%	Percent
°C	Degrees Celsius
°F	Degrees Fahrenheit
(1)	Reference
2020-2045 RTP/SCS	*Final 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies*
2017 Scoping Plan	*2017 Scoping Plan*
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
ACE	Affordable Clean Energy
Annex I	Industrialized Nations
APA	Administrative Procedure Act
AQIA	*Moreno Valley Town Center Specific Plan Air Quality Impact Analysis*
BAU	Business As Usual
C_2F_6	Hexafluoroethane
C_2H_6	Ethane
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGAPS	California LBNL GHG Analysis of Policies Spreadsheet
CALGreen	California Green Building Standards Code
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CEQA Guidelines	*2019 CEQA Statute and Guidelines*
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
CPUC	California Public Utilities Commission
CTC	California Transportation Commission
DOF	Department of Finance
DWR	Department of Water Resources
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
EV	Electric Vehicle
g/L	Grams Per Liter
GCC	Global Climate Change
Gg	Gigagram
GHGA	Greenhouse Gas Analysis
GHGRS	Greenhouse Gas Reduction Strategy
GO-Biz	Governor's Office of Business and Economic Development
GWP	Global Warming Potential
H_2O	Water
HFC	Hydrofluorocarbons
HDT	Heavy-Duty Trucks
HFC-23	Fluoroform
HFC-134a	1,1,1,2-tetrafluoroethane
HFC-152a	1,1-difluoroethane
HHDT	Heavy-Heavy-Duty Trucks
hp	Horsepower
HVAC	Heating, Ventilation, Air Conditioning
I-215	Interstate 215
IBANK	California Infrastructure and Economic Development Bank
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Planning
ISO	Independent System Operator
kWh	Kilowatt Hours

lbs	Pounds
LBNL	Lawrence Berkeley National Laboratory
LCA	Life-Cycle Analysis
LCD	Liquid Crystal Display
LCFS	Low Carbon Fuel Standard or Executive Order S-01-07
LDA	Light-Duty Auto
LDT1/LDT2	Light-Duty Trucks
LEV III	Low-Emission Vehicle
LHDT1/LHDT2	Light-Heavy-Duty Trucks
LULUCF	Land-Use, Land-Use Change and Forestry
MCY	Motorcycle
MDT	Medium-Duty Trucks
MDV	Medium-Duty Vehicles
MH	Motorhome
MHDT	Medium-Heavy-Duty Tucks
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
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
OBUS	Other Buses
OPR	Office of Planning and Research
PFC	Perfluorocarbons
ppb	Parts Per Billion

ppm	Parts Per Million
ppt	Parts Per Trillion
Project	Town Center at Moreno Valley Specific Plan
RPS	Renewable Portfolio Standards
RTP	Regional Transportation Plan
SAR	Second Assessment Report
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
SBUS	School Buses
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
Scoping Plan	California Air Resources Board Climate Change Scoping Plan
SCS	Sustainable Communities Strategy
sf	Square Feet
SF_6	Sulfur Hexaflouride
SGC	Strategic Growth Council
SLPS	Short-Lived Climate Pollutant Strategy
SP	Service Population
Supreme Court	United States Supreme Court
Title 20	Appliance Energy Efficiency Standards
Title 24	California Building Code
U.N.	United Nations
U.S.	United States
UBUS	Urban Buses
UNFCCC	United Nations' Framework Convention on Climate Change
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WCI	Western Climate Initiative
WRI	World Resources Institute
ZE/NZE	Zero and Near-Zero Emissions
ZEV	Zero-Emissions Vehicles

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Town Center at Moreno Valley Specific Plan Greenhouse Gas Analysis* (GHGA) are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* (*CEQA Guidelines*) as implemented by City of Moreno Valley (1). Table ES-1 shows the findings of significance for each potential greenhouse gas (GHG) impact under CEQA before and after any required mitigation described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings		
		Unmitigated	Mitigation Measure	Mitigated
GHG Impact #1: Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?	6.0	*Potentially Significant*	*GHG MM-1 through MM-4 and Air Quality MM 2 through MM 6*	*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?	6.0	*Less than Significant*	*n/a*	*n/a*

ES.2 STANDARD REGULATORY REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District (SCAQMD) aimed at the reduction of GHG 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).
- Low Carbon Fuel Standard (LCFS) 2030 Update. Requires carbon content of fuel sold in California to be 20 percent (5) less by 2030 (8)
- California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (9).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (10).
- Renewable Portfolio Standards (SB 1078 – also referred to as RPS). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20% by 2010 and 33% by 2020 (11). This was amended by SB 350 which mandated 50% by 2030. This was further modified by SB 100 which set a target of 60% by 2030 and 100% by 2045.
- 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 (12).

Promulgated regulations that will 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, and therefore are accounted for in the Project's emission calculations.

ES.3 APPLICABLE GHG MITIGATION MEASURES

The following mitigation measures are recommended to specifically reduce GHG emissions.

MM GHG-1

The project applicant shall design and build future non-residential development to meet/include the following:

- The project will utilize on-site renewable energy sources such as solar, to reduce electrical demand as per Division A5.211, Renewable Energy, of Appendix A5, Nonresidential Voluntary Measures, of the 2022 California Green Building Standards Code.
- The project will incorporate measures to reduce the overall use of potable water within the building by 12 percent as per Division A5.3, Water Efficiency and Conservation, as outlined under Section A5.303.2.3.1 of Appendix A5, Nonresidential Voluntary Measures, of the 2022 California Green Building Standards Code.

Prior to the issuance of building permits for new development projects within the project site, the project applicant shall provide documentation (e.g., building plans, site plans) to the City of Moreno Valley Planning Division to verify implementation of the applicable design requirements specified in this mitigation measure. Prior to the issuance of the certificate of occupancy, the City shall verify implementation of these design requirements.

MM GHG-2

The project applicant shall design and build future residential development to meet/include the following:

- No wood-burning fireplaces shall be installed in any of the dwelling units.
- All buildings shall be electric, to the extent feasible, meaning that electricity is the primary source of energy for water heating; heating, ventilation, and air conditioning (HVAC) within the building, excluding pool heating.
- All major appliances provided/installed shall be EnergyStar-certified or of equivalent energy efficiency, where applicable.

Prior to the issuance of building permits for new development projects within the project site, the project applicant shall provide documentation (e.g., building plans, site plans) to the City of Moreno Valley Planning Division to verify implementation of the applicable design requirements specified in this mitigation measure. Prior to the issuance of the certificate of occupancy, the City shall verify implementation of these design requirements.

MM GHG-3

Exterior electric receptacles on nonresidential buildings shall be provided for charging or powering electric landscaping equipment.

MM GHG-4

The project shall use light-color roofing and building materials to minimize the heat island effect and reduce lighting, heating, and cooling needs.

ADDITIONAL APPLICABLE AIR QUALITY MITIGATION MEASURES TO REDUCE GHG EMISSIONS

The following Project-specific mitigation measures were identified in the *Town Center at Moreno Valley Specific Plan Air Quality Impact Analysis Report* (AQIA) (Urban Crossroads, Inc.) (13). Although these measures are designed to reduce Project air quality emissions, they would also assist in the reduction of GHGs. It should be noted that to provide a conservative disclosure of Project emissions, no reductions in emissions are assumed to occur with implementation of these measures. Notwithstanding the foregoing, all of the below measures will decrease Project emissions. As such, even with application of MM 2 through MM 6, Project operational-source emissions impacts would be significant and unavoidable.

MM 2

Legible, durable, weather-proof signs shall be placed at commercial loading docks and truck parking areas that identify applicable CARB anti-idling regulations. 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 five (5) minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and 3) telephone numbers of the building facilities manager and the CARB to report violations. Prior

to the issuance of an occupancy permit, the City shall conduct a site inspection to ensure that the signs are in place.

MM 3

Prior to the issuing of each building permit, the Project proponent and its contractors shall provide plans and specifications to the City that demonstrate that electrical service is provided to each of the areas in the vicinity of the buildings that are to be landscaped in order that electrical equipment may be used for landscape maintenance.

MM 4

Once constructed, the Project proponent shall ensure that all commercial tenants shall utilize only electric or natural gas pallet jacks and forklifts in the loading areas.

MM 5

Upon occupancy and annually thereafter, the operators of the commercial space shall provide information to all delivery truck drivers, regarding:

- Building energy efficiency, solid waste reduction, recycling, and water conservation.
- Vehicle GHG emissions, electric vehicle charging availability, and alternate transportation opportunities for commuting.
- Participation in the Voluntary Interindustry Commerce Solutions (VICS) “Empty Miles” program to improve goods trucking efficiencies.
- Health effects of diesel particulates, State regulations limiting truck idling time, and the benefits of minimized idling.
- The importance of minimizing traffic, noise, and air pollutant impacts to any residences in the Project vicinity.

MM 6

Prior to issuance of a building permit, the Project proponent shall provide the City with an onsite signage program that clearly identifies the required onsite circulation system. This shall be accomplished through posted signs and painting on driveways and internal roadways.

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1 INTRODUCTION

This report presents the results of the GHGA prepared by Urban Crossroads, Inc., for the proposed Town Center at Moreno Valley Specific Plan (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 generally bound by Cottonwood Avenue to the north, Nason Street to the east, Alessandro Boulevard to the south, and vacant land and a residential subdivision to the west. The Project site is currently undeveloped. There is a vacant parcel northeast of the Project site (southwest of the Nason Street and Cottonwood Avenue intersection), and an Eastern Municipal Water District booster station northwest of the Project site (southeast corner of Cottonwood Avenue and Letterman Street) that are not part of the Project. Exhibit 1-A depicts the location of the Project.

1.2 PROJECT DESCRIPTION

The Project includes a proposed Specific Plan and TTM to allow for the development of residential, commercial, and park uses, as shown on the conceptual site plan provided on Figure 3. Access to the Project site would be provided from Cottonwood Avenue, Nason Street, Bay Avenue, and Alessandro Boulevard. Because the proposed Specific Plan is designed to provide flexibility for development within the Specific Plan area, the actual type and amount of uses that would be developed at buildout of the Specific Plan is unknown. Therefore, a reasonable potential buildout development scenario has been developed for purposes of analysis; the following uses are anticipated in the respective land use areas shown in Exhibit 1-B.

- 800 single family detached[1] residential dwelling units (DU)
- 4.8 acres of parks
- 106-room hotel
- 15,000 square feet (sf) of office use
- 30,000 sf of civic use
- 16,660 sf of high turnover (sit-down) restaurant use
- 3,500 sf of fast-food restaurant with drive-thru window
- 60,890 sf of commercial retail use
- 45,000 sf of supermarket use

The existing 2006 Moreno Valley General Plan land use designation and zoning for the site is Public Facilities. Therefore, the proposed Project also involves a General Plan amendment and zone change. The proposed General Plan land use designations are Residential (30 du/acre

[1] The Project could include the development of multifamily residential uses, however, for purposes of analysis, and consistent with the Town Center at Moreno Valley Specific Plan Traffic Analysis, this GHGA analyzes 800 single family detached residential DUs.

maximum), Open Space, and Commercial. The proposed change of zone would amend the Public Facilities zoning to the TCMV Specific Plan (SP 222) zoning classification for the subject property.

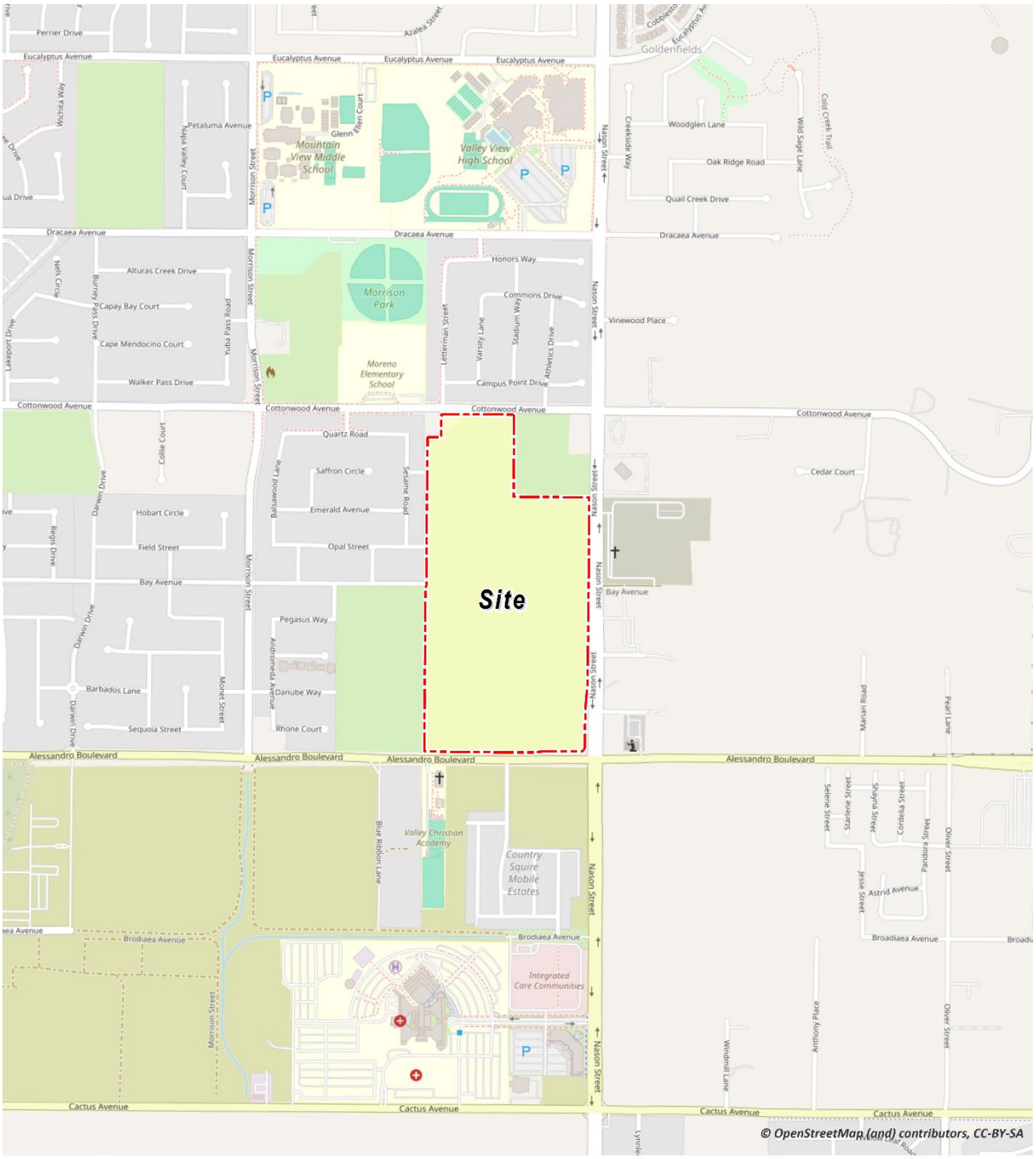
However, the City of Moreno Valley is currently in the process of readopting the City's 2040 General Plan Update (2040 General Plan) and zoning.[2] The General Plan land use designation and zoning proposed by the City is Downtown Center (DC) District. The proposed Town Center at Moreno Valley Specific Plan is consistent with the City's proposed Downtown Center (DC) District land use and zoning designations.

This report evaluates the impacts resulting from implementation of the proposed Project under the existing General Plan land use and zoning designations, which would require a General Plan Amendment and zone change, and the City's proposed 2040 General Plan land use and zoning designation, if applicable to the analysis.

A preliminary land use plan for the proposed Project is shown on Exhibit 1-B. For the purposes of this analysis, it is assumed that the Project would be developed in a single phase with an anticipated Opening Year of 2028.

[2] In June 2021, the City Council of the City of Moreno Valley (City Council) approved and adopted the City's 2040 General Plan Update (2040 General Plan), a Change of Zone and Municipal Code Update, and its Climate Action Plan (CAP) and certified an EIR, State Clearinghouse No. 2020039022, as having been prepared in compliance with CEQA in connection with the approvals. A lawsuit entitled Sierra Club v. The City of Moreno Valley, Riverside Superior Court Case No. CVRI2103300, challenged the validity of the CAP and the EIR. In May 2024, the City Council set aside the 2021 approvals and certification, based on a March 2024 ruling and judgment of the court. The City is in the process of readopting the 2040 General Plan and issued a Notice of Preparation of a Revised Environmental Impact Report for MoVal 2040: The Moreno Valley Comprehensive General Plan Update, Municipal Code and Zoning (including Zoning Atlas) Amendments, and Climate Action Plan on July 30, 2024.

EXHIBIT 1-A: SITE LOCATION

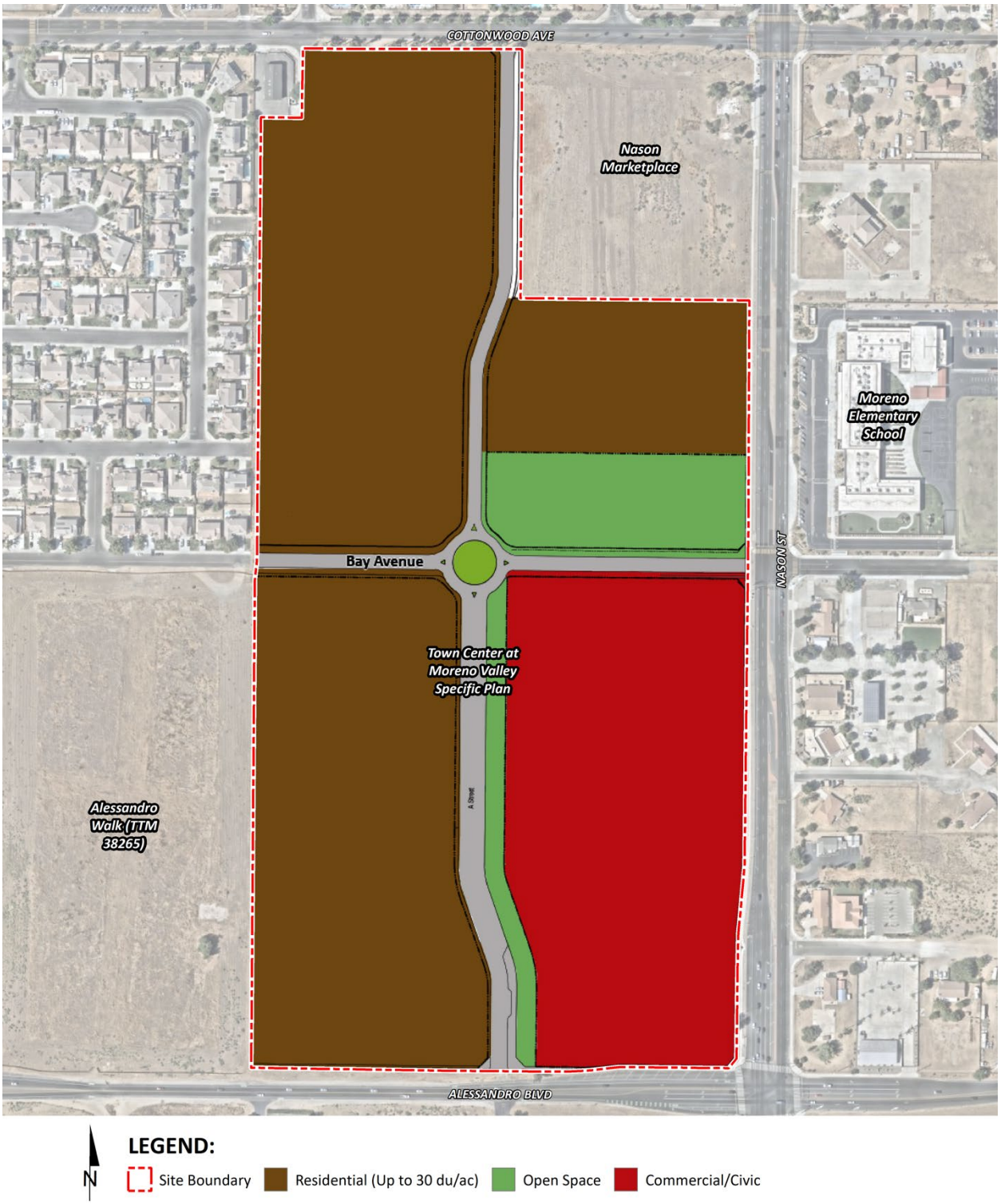


LEGEND:

N

Site Boundary

EXHIBIT 1-B: PRELIMINARY SITE PLAN



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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 from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the proposed 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 3.0 will evaluate the potential for the proposed 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 and 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: GREENHOUSE GASES

GHG	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. A 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 further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is	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.

GHG	Description	Sources	Health Effects
	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 will 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) (14).		
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 ppm by 2100 as a direct result of anthropogenic sources (15).	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 ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (16).	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 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 (17).

GHG	Description	Sources	Health Effects
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 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropocentric sources include fossil-fuel combustion and biomass burning (18).	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high 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.
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	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) (19).

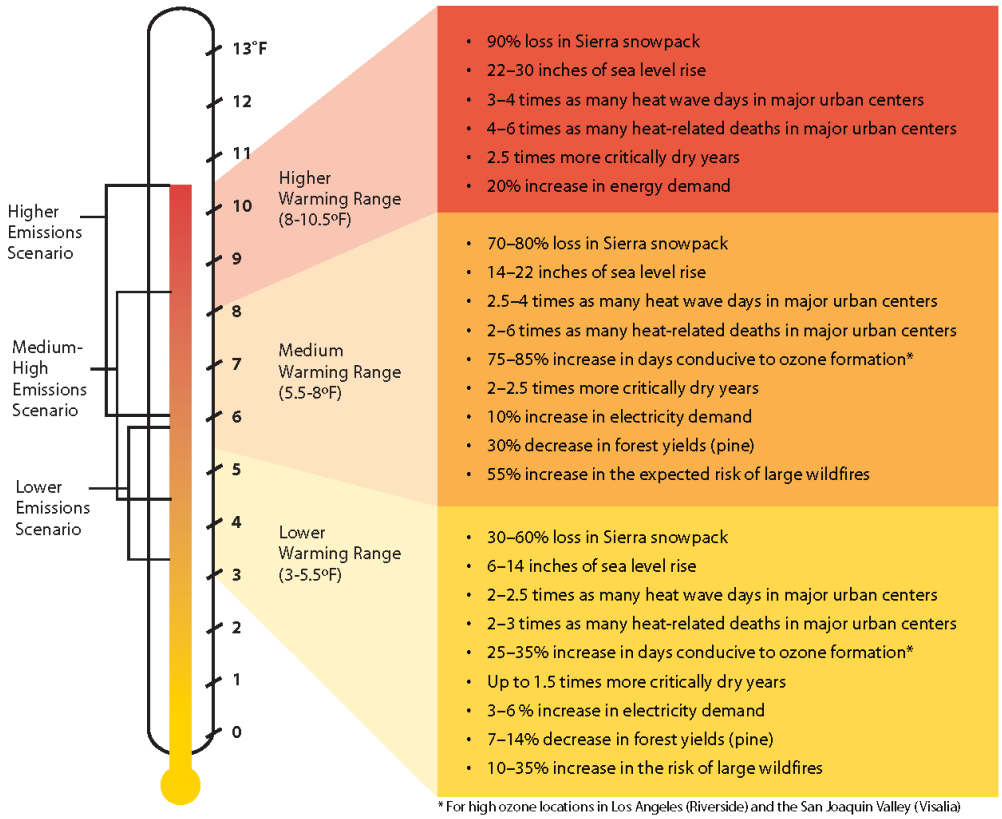
GHG	Description	Sources	Health Effects
		used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (19).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years (20).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

GHG	Description	Sources	Health Effects
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 (CHF_3), 1,1,1,2-tetrafluoroethane (CH_2FCF), and 1,1-difluoroethane (CH_3CF_2). Prior to 1990, the only significant emissions were of CHF_3. CH_2FCF 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 very 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 atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (21). 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.

GHG	Description	Sources	Health Effects
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 (22).	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 (23).

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 proposed 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. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (24). Exhibit 2-A presents the potential impacts of global warming (25).

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

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas causes 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 difference 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 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 (26).

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[3] (27) (28) as summarized on Table 2-3.

[3] 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.

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.

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**

2.5.3 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 United States (U.S.) emissions inventory total (29). The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2023 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2021 GHG emissions period, California emitted an average 381.3 million metric tons of CO_2e per year ($MMTCO_2e/yr$) or 381,300 Gg CO_2e (6.01% of the total United States GHG emissions) (30). Based on data published by the U.S. Energy Information Administration, California's per capita (9.12 metric tons) GHG emissions are much less than the nationwide per capita (15.8 metric ton) average (31).

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 (32).

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 large 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 will 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.

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3 REGULATORY SETTING

3.1 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 will "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 will 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) (33).

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.

3.2 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 United States Supreme Court (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 (34).

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). 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 in August 2012. The new standards for model years 2017 through 2025 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 (35). 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 (36). 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 (37).

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 (38).

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 will 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 will 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 vacated the ACE rule and remanded to the EPA for further proceedings consistent with its opinion. As of February 12, 2021 - EPA does not expect states to

take any further action to develop and submit plans under Clean Air Act section 111(d) with respect to GHGs emissions from power plants at this time.

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 in 2020 has retained all participating states.

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.

SMARTWAY PROGRAM

The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (39):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all HDTs will have to comply with the CARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-

efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10% or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

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.

3.3 MULTISTATE

WESTERN CLIMATE INITIATIVE (WCI)

The WCI is a partnership among seven different US states and four Canadian provinces aimed at developing a regional cap-and-trade economy to reduce GHG emissions. The following comes from the WCI's website (40):

> *The WCI was built on existing greenhouse gas reduction efforts in the individual states as well as two existing regional efforts. In 2003, California, Oregon and Washington created the West Coast Global Warming Initiative, and in 2006, Arizona and New Mexico launched the Southwest Climate Change Initiative.*

During 2007 and 2008, the Premiers of British Columbia, Manitoba, Ontario, and Quebec, and the Governors of Montana and Utah joined the original five states in committing to tackle climate change at a regional level. All 11 jurisdictions collaborated in the development of the Design for the WCI Regional Program, which was released in July 2010.

In November 2011, the Western Climate Initiative formed Western Climate Initiative, Inc. (WCI, Inc.), a non-profit corporation that will provide administrative and technical services to support the implementation of state and provincial greenhouse gas emissions trading programs.

British Columbia, California, Ontario, Quebec and Manitoba are continuing to work together through the Western Climate Initiative to develop and harmonize their emissions trading program policies. They are also continuing to work with Western, Midwestern, and Northeast states on a range of other climate and clean energy strategies through the North America 2050 Initiative. North America 2050 is a forum for states, provinces and stakeholders to identify leadership opportunities in climate and clean energy policy. (41)

PACIFIC COAST ACTION PLAN ON CLIMATE AND ENERGY

The governors of California, Oregon, Washington and the Premier of British Columbia have joined together to produce the Pacific Coast Action Plan signed on October 28, 2013 to reduce GHG emissions among other goals. The plan organizes their Pacific coast economies around several initiatives including (42):

- Leading national and international policy on climate change
    - Accounting for a price on carbon.
    - Harmonizing 2050 targets for GHG emission reductions and developing midterm targets need for long-term reduction goals.
    - Affirming the need to inform policy with climate science findings.
- Transition the West Coast to clean modes of transportation including 100% zero emissions vehicles by 2050
    - Continuing deployment of high-speed rail.
    - Supporting emerging markets and innovation for alternative fuels in trucks, buses, rail, and ports.
- Invest in clean energy and climate-resilient infrastructure including transforming the energy efficiency market and lead the way to net-zero buildings.

3.4 CALIFORNIA

3.4.1 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 provide 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[4]). 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 will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires

[4] Based upon the 2019 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2017 GHG emissions period, California emitted an average 424.1 $MMTCO_2e$ (71). This is less than the 2020 emissions target of 431 $MMTCO_2e$.

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.

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

Enacted on July 22, 2002, California AB 1493, also known as the Pavley Fuel Efficiency Standards, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase is during the 2009 through 2016 MY. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

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, 2022, the EPA reinstated California's authority under the Clean Air Act to implement its own greenhouse gas 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 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will 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 will 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 (12).

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 (43).

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will 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 will 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 CH_4 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 (44) (45).

2022 CARB SCOPING PLAN

On December 15, 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) (24). 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 to determine consistency with the 2022 Scoping Plan. CARB's primary recommendation for determining consistency with the 2022 Scoping Plan and determining a less than significant impact is for Project's to rely on a CEQA-qualified Climate Action Plan (CAP).

In Appendix D of the 2022 Scoping Plan, CARB states: "When jurisdictions have a CEQA-qualified CAP, an individual project that complies with the strategies and actions within a CEQA-qualified CAP can tier and streamline its project-specific CEQA GHG analysis to make a determination "that a project's incremental contribution to a cumulative [GHG] effect is not cumulatively considerable" (CEQA Guidelines Sections 15064.4 (b)(3) and 15183.5). CARB states that CEQA-qualified CAPs serve to assist the state with its long-term carbon neutrality goals.

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

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 will 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 will 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 will 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 (46).

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."* (47)

The Cap-and-Trade Program covers approximately 80% of California's GHG emissions (43). 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.

3.4.2 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 will 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.

The LCFS was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing CARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that LCFS adopted by CARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled CARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for LCFS. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of CARB approving LCFS regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while CARB complies with the procedural requirements it failed to satisfy.

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 (48).

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 as to local governments and the private sector.

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.

3.4.3 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. 23 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 CCR PART 6 – CALIFORNIA ENERGY CODE

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.

TITLE 24 CCR PART 11 – CALIFORNIA GREEN BUILDING STANDARDS CODE

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.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that became effective on January 1, 2023[5]. The CEC anticipates that the 2022 energy code will provide $1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (49). The Project would be required to comply with the applicable standards in place at the time plan check submittals are made. Current CALGreen standards require, among other items (50):

RESIDENTIAL MANDATORY MEASURES

- Electric vehicle (EV) charging stations. New construction shall comply with Section 4.106.4.1, 4.106.4.2, 4.106.4.3, to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625. (4.106.4).
    - New one- and two-family dwellings and town-houses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere 208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.
    - New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1.
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with Sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.1.4.
- Outdoor potable water use in landscape areas. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resource ' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

[5] The 2022 California Energy and Green Building Standard Code became effective on January 1, 2023, however; it has since been amended on July 1, 2024 with the Intervening Code Cycle Update which is reflected in this report. Additionally, it should be noted that the Energy Code and CALGreen provisions are currently being updated, with the most recent draft update consisting of the 2025 California Energy and Green Building Code Standards that will be effective on January 1, 2025. As construction of the Project is anticipated to be completed in 2028, it is presumed that the Project would be required to comply with the Title 24 standards in place at that time.

- Operation and maintenance manual. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:
    - Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
    - Operations and maintenance instructions for the following:
        1. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, EV chargers, water-heating systems and other major appliances and equipment.
        2. Roof and yard drainage, including gutter and downspouts.
        3. Space conditioning systems, including condensers and air filters.
        4. Landscape irrigation systems.
        5. Water reuse systems.
    - Information from local utility, water and waste recovery providers on methods to future reduce resource consumption, including recycle programs and locations.
    - Public transportation and/or carpool options available in the area.
    - Educational material on the positive impacts of an interior relative humidity between 30-60% and what methods an occupants may use to maintain the relative humidity level in that range.
    - Information about water-conserving landscape and irrigation design and controllers which conserve water.
    - Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
    - Information about state solar energy and incentive programs available.
    - A copy of all special inspection verifications required by the enforcing agency of this code.
    - Information from CALFIRE on maintenance of defensible space around residential structures.
- Any installed gas fireplace shall be direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.
- Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the CARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-high Gloss coating, based on its glass, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 CARB, Suggested Control Measure, and the corresponding Flat, Nonflat, Nonflat-high Gloss VOC limit in Table 4.504.3 shall apply.

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.1 (5.106.5.3). Alternatively, the power allocation method may be used as an alternative to the requirements mentioned in Section 5.106.5.1, and associated Table 5.106.5.3. Use of Table 5.106.5.3.6 to can be used to determine the total power in kVA required based on the total number of actual parking spaces. Additionally, Table 5.106.5.5.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty EV supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1).
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).

- Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).

- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is projected to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

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 lbs 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 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 small 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 (51).

3.5 REGIONAL

The project is within the South Coast Air Basin (SCAB), which is under the jurisdiction of the SCAQMD.

SCAQMD

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, which could be applied by lead agencies. The working group

has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. Notably, SCAQMD provides an interim threshold, which consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

3.6 CITY OF MORENO VALLEY

CITY OF MORENO VALLEY GENERAL PLAN MEASURES

Although the 2006 City of Moreno Valley General Plan does not identify specific GHG or climate change policies or goals, a number of the measures identified in the General Plan act to reduce or control criteria pollutant emissions and peripherally reduce GHG emissions.

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4 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

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 CCR of Regulations §§15000, et seq.). Based on these thresholds, the following questions are utilized to determine if a project would result in a significant impact related to GHG (52):

- **Would the project generate direct or indirect GHG emissions that would result in a significant impact on the environment (see Impact GHG-1)?**
- **Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs (see Impact GHG-2)?**

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.

The City of Moreno Valley does not currently have an adopted Climate Action Plan and has not adopted its own numeric threshold of significance for determining impacts with respect to GHG

emissions [6]. In the absence of its own numeric threshold, the City of Moreno Valley has elected to use a significance threshold of 3,000 $MTCO_2e$/yr that is based on the SCAQMD staff's proposed GHG threshold for mixed use residential-commercial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* ("SCAQMD Interim GHG Threshold").

The 3,000 $MTCO_2e$/yr threshold is based on a 90% emission "capture" rate methodology. Prior to its use by the SCAQMD, the 90% 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% emission capture rate means that unmitigated GHG emissions from the top 90% 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% of all GHG-producing projects would be excluded from detailed analysis. A GHG significance threshold based on a 90% 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% 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% of projected statewide GHG emissions in the Year 2050 (53).

In setting the threshold at 3,000 $MTCO_2e$/yr, 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. 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 $MTCO_2e$/yr. 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 $MTCO_2e$/yr) 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 $MTCO_2e$/yr threshold for residential/commercial uses was proposed by SCAQMD a decade ago and was adopted as an interim policy; however, no

[6] In June 2021, the City Council of the City of Moreno Valley (City Council) approved and adopted the City's 2040 General Plan Update (2040 General Plan), a Change of Zone and Municipal Code Update, and its Climate Action Plan (CAP) and certified an EIR, State Clearinghouse No. 2020039022, as having been prepared in compliance with CEQA in connection with the approvals. A lawsuit entitled Sierra Club v. The City of Moreno Valley, Riverside Superior Court Case No. CVRI2103300, challenged the validity of the CAP and the EIR. In May 2024, the City Council set aside the 2021 approvals and certification, based on a March 2024 ruling and judgment of the court. The City is in the process of readopting the 2040 General Plan and issued a Notice of Preparation of a Revised Environmental Impact Report for MoVal 2040: The Moreno Valley Comprehensive General Plan Update, Municipal Code and Zoning (including Zoning Atlas) Amendments, and Climate Action Plan on July 30, 2024.

permanent, superseding policy or threshold has since been adopted. The 3,000 $MTCO_2e$/yr 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% below 1990 levels by 2050] as the basis for deriving the screening level" and, thus, remains valid for use in 2022 (53). Lastly, this threshold has been used for hundreds, if not thousands of GHG analyses performed for projects located within the SCAQMD jurisdiction. Thus, and based on guidance from the SCAQMD, if a mixed use project would emit GHGs less than 3,000 $MTCO_2e$ per year, the project is not considered a substantial GHG emitter and the GHG impact is less than significant, requiring no additional analysis and no mitigation. On the other hand, if a mixed use project would emit GHGs in excess of 3,000 $MTCO_2e$/yr, then the project could be considered a substantial GHG emitter, requiring additional analysis and potential mitigation.

As previously discussed, a significance threshold of 3,000 $MTCO_2e$/yr is an acceptable approach for mixed use projects such as this one.

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5 PROJECT GREENHOUSE GAS ANALYSIS

5.1 INTRODUCTION

As discussed above, CEQA Guidelines Section 15064.4 recommends quantification of a project's GHG emissions. However, quantification of the Project's GHG emissions is provided herein for informational purposes only.

5.2 METHODOLOGY

5.2.1 CALEEMOD

The California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released CalEEMod 2022 in May 2022. CalEEMod periodically releases updates, as such the latest version available at the time of this report (2022.1.1.29), 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 (54). 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 are provided in Appendices 5.1 and 5.2. CalEEMod includes GHG emissions from the following source categories: construction, area, energy, mobile, water, and waste.

5.2.2 LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (55). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the Project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, an LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (56). Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

5.3 CONSTRUCTION EMISSIONS

5.3.1 CONSTRUCTION ACTIVITIES

Project construction actvities would generate CO_2 and CH_4 emissions. The *Town Center at Moreno Valley Specific Plan Air Quality Impact Analysis Report* (AQIA) prepared by Urban Crossroads, Inc., contains detailed information regarding Project construction activities (57). As

discussed in the AQIA, construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

5.3.2 CONSTRUCTION DURATION

For purposes of analysis, construction is assumed to commence in November 2025 and to be complete by October 2028. The construction schedule utilized in the analysis, shown in Table 5-1, represents a "conservative" 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.[7] The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines*.

TABLE 5-1: CONSTRUCTION SCHEDULE

Construction Activity	Start Date	End Date	Days
Site Preparation	11/5/2025	11/26/2025	16
Grading	11/26/2025	03/23/2026	84
Building Construction	03/23/2026	11/6/2028	686
Paving	07/23/2026	11/6/2026	77
Architectural Coating	08/23/2028	11/6/2028	54

5.3.3 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. A detailed summary of construction equipment assumptions by phase is provided at Table 5-2. Please refer to specific detailed modeling inputs/outputs contained in Appendix 5.1 of this GHGA.

[7] 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 5-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment	Amount	Hours Per Day	Horsepower	Load Factor
Site Preparation	Crawler Tractors	4	8	87	0.43
	Rubber Tired Dozers	3	8	367	0.40
Grading	Crawler Tractors	2	8	87	0.43
	Excavators	2	8	36	0.38
	Graders	1	8	148	0.41
	Rubber Tired Dozers	1	8	367	0.40
	Scrapers	2	8	423	0.48
Building Construction	Cranes	2	8	367	0.29
	Forklifts	5	8	82	0.20
	Generator Sets	2	8	14	0.74
	Tractors/Loaders/Backhoes	5	8	84	0.37
	Welders	2	8	46	0.45
Paving	Pavers	2	8	81	0.42
	Paving Equipment	2	8	89	0.36
	Rollers	2	8	36	0.38
Architectural Coating	Air Compressors	1	8	37	0.48

5.3.4 GHG EMISSIONS FROM ON-ROAD TRIPS

Construction generates on-road vehicle emissions from vehicle usage for workers and vendors commuting to and from the site. The number of worker and vendor trips are presented below in Table 5-3.

TABLE 5-3: CONSTRUCTION TRIP ASSUMPTIONS

Construction Activity	Worker Trips Per Day	Vendor Trips Per Day
Site Preparation	18	3
Grading	20	13
Building Construction	372	107
Paving	15	0
Architectural Coating	74	0

5.3.5 CONSTRUCTION EMISSIONS SUMMARY

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD 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 (58). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions. The amortized construction emissions are presented in Table 5-4.

TABLE 5-4: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS

Year	Construction Equipment CO_2e Emissions (MT/yr)	On-Road Vehicle CO_2e Emissions (MT/yr)	Total
2025	118.85	10.35	129.20
2026	676.72	781.09	1,457.81
2027	571.56	953.59	1,525.15
2028	491.47	819.23	1,310.70
Total Annual Construction Emissions	1,858.60	2,564.26	4,422.87
Amortized Construction Emissions ($MTCO_2e$)			**147.43**

5.4 OPERATIONAL EMISSIONS

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

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Water Supply, Treatment, and Distribution
- Solid Waste
- Refrigerants

5.4.1 AREA SOURCE EMISSIONS

CalEEMod estimates area source emissions for the following sources: architectural coating, consumer products, and landscape maintenance equipment. Detailed operational model outputs are presented in Appendix 5.1.

ARCHITECTURAL COATING

Over a period of time, the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using CalEEMod.

CONSUMER PRODUCTS

Consumer products include, but are not limited to, detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which, when released in the atmosphere, can react to form O_3 and other

photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on defaults provided within CalEEMod.

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 as October 9, 2021, Governor Gavin Newsom signed AB 1346. The bill aims to ban the sale of new gasoline-powered equipment under 25 gross 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 from AB 1346.

5.4.2 ENERGY SOURCE EMISSIONS

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources; these emissions are considered to be indirect emissions. Natural gas would be supplied to the Project by Southern California Gas and electricity would be supplied to the Project by Moreno Valley Utility (MVU). Natural gas and electricity usage associated with the Project was calculated by CalEEMod using default parameters.

5.4.3 MOBILE SOURCE EMISSIONS

The Project related GHG emissions derive primarily from vehicle trips generated by the Project. Trip characteristics available from the *Town Center at Moreno Valley Specific Plan (PEN21-0334 and PEN22-0077) Traffic Analysis* were utilized in this analysis (59). The mobile-source emissions were calculated based on trip rates and trip lengths. Detailed operational model outputs are presented in Appendix 5.1.

Per the *Town Center at Moreno Valley Specific Plan (PEN21-0334 and PEN22-007) Traffic Analysis*, the Project is expected to generate a total of approximately 12,010[8] two-way vehicular trips per day (6,005 trips inbound and 6,005 trips outbound) (59).

TRIP RATES

The trip generation rates used for this analysis are consistent with the rates provided in the *Town Center at Moreno Valley Specific Plan (PEN21-0334 and PEN22-007) Traffic Analysis* which are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in the *Trip Generation Manual*, 11th Edition, 2021 (59).

[8] It should be noted that the total trips for each land use is modeled in CalEEMod and that the internal capture and pass-by trip reductions are credited within CalEEMod. As such, the model outputs present the gross trips for all land uses (e.g., 22,508 daily weekday trips), without the reduction of the internal capture and pass-by trips which are calculated internal to the model.

TRIP LENGTHS

For all vehicle types (Light-Duty-Auto vehicles [LDA], Light-Duty Trucks [LDT1][9], Light-Duty Trucks [LDT2][10], Medium-Duty Trucks [MDV], Other Buses [OBUS[11]], Urban Buses [UBUS[12]], Motorcycle [MCY], School Buses [SBUS], and Motor Homes [MH], heavy duty trucks (2-axle/Light-Heavy-Duty Trucks [LHDT1[13] and LHDT2[14]], 3-axle/Medium-Heavy-Duty Trucks [MHDT], and 4+-axle/Heavy-Heavy-Duty Trucks [HHDT]), the CalEEMod default for a one-way trip length was used.

In order to determine emissions from passenger car vehicles, CalEEMod defaults for trip length and trip purpose were utilized (60). Default vehicle trip lengths for primary trips will be populated using data from the local metropolitan planning organizations/Regional Transportation Planning Agencies (MPO/RTPA). Trip type percentages and trip lengths provided by MPO/RTPAs truncate data at their demonstrative borders.

5.4.4 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.

5.4.5 SOLID WASTE

Residential and commercial 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 proposed Project were calculated by CalEEMod using default parameters.

5.4.6 REFRIGERANTS

Air conditioning (A/C) and refrigeration equipment associated with the buildings 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. As such, it was

[9] 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.

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

[11] OBUS vehicle classes refers to all other buses except school buses and urban buses.

[12] UBUS vehicle classes consist of natural gas buses, gasoline buses, and diesel buses.

[13] Vehicles under the LHDT1 category have a GVWR of less than 8,501-10,000 lbs.

[14] Vehicles under the LHDT2 category have a GVWR of less than 10,001-14,000 lbs.

conservatively assumed that refrigeration systems installed at the supermarket portion of the Project would utilize refrigerants with a GWP of 150. GHG emissions associated with refrigerants were calculated by CalEEMod.

5.4.7 EMISSIONS SUMMARY

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 22,940.60 $MTCO_2e$/yr as summarized in Table 5-5.

TABLE 5-5: PROJECT GHG EMISSIONS – WITHOUT MITIGATION

Emission Source	CO_2e Emissions (MT/yr)
	Unmitigated
Annual construction-related emissions amortized over 30 years	147.43
Mobile Source	17,406.70
Area Source	209.69
Energy Source	4,320.48
Water Usage	354.80
Waste	433.55
Refrigerants	67.95
Project Total CO_2e Emissions (All Sources)	**22,940.60**

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6 GHG EMISSIONS FINDINGS AND RECOMMENDATIONS

GHG CEQA THRESHOLD NO. 1

Would the Project have the potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment?

IMPACTS WITHOUT MITIGATION

As shown previously on Table 5-5, construction and operation of the Project would generate a total of approximately 22,940.60 MTCO2e/yr, which would exceed the significance threshold of 3,000 MTCO2e/yr; therefore, Project-related GHG emissions are considered potentially significant. The majority of the GHG emissions (76%) are associated with non-construction related mobile sources. Emissions of motor vehicles are controlled by State and Federal standards, and neither the City nor the Project have control over these emissions.

LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Potentially Significant.

MITIGATION MEASURES

MM GHG-1

The project applicant shall design and build future non-residential development to meet/include the following:

- The project will utilize on-site renewable energy sources such as solar, to reduce electrical demand as per Division A5.211, Renewable Energy, of Appendix A5, Nonresidential Voluntary Measures, of the 2022 California Green Building Standards Code.
- The project will incorporate measures to reduce the overall use of potable water within the building by 12 percent as per Division A5.3, Water Efficiency and Conservation, as outlined under Section A5.303.2.3.1 of Appendix A5, Nonresidential Voluntary Measures, of the 2022 California Green Building Standards Code.

Prior to the issuance of building permits for new development projects within the project site, the project applicant shall provide documentation (e.g., building plans, site plans) to the City of Moreno Valley Planning Division to verify implementation of the applicable design requirements specified in this mitigation measure. Prior to the issuance of the certificate of occupancy, the City shall verify implementation of these design requirements.

MM GHG-2

The project applicant shall design and build future residential development to meet/include the following:

- No wood-burning fireplaces shall be installed in any of the dwelling units.

- All buildings shall be electric, to the extent feasible, meaning that electricity is the primary source of energy for water heating; heating, ventilation, and air conditioning (HVAC) within the building, excluding pool heating.
- All major appliances provided/installed shall be EnergyStar-certified or of equivalent energy efficiency, where applicable.

Prior to the issuance of building permits for new development projects within the project site, the project applicant shall provide documentation (e.g., building plans, site plans) to the City of Moreno Valley Planning Division to verify implementation of the applicable design requirements specified in this mitigation measure. Prior to the issuance of the certificate of occupancy, the City shall verify implementation of these design requirements.

MM GHG-3

Exterior electric receptacles on nonresidential buildings shall be provided for charging or powering electric landscaping equipment.

MM GHG-4

The project shall use light-color roofing and building materials to minimize the heat island effect and reduce lighting, heating, and cooling needs.

ADDITIONAL APPLICABLE AIR QUALITY MITIGATION MEASURES TO REDUCE GHG EMISSIONS

The following Project-specific mitigation measures were identified in the *Town Center at Moreno Valley Specific Plan Air Quality Impact Analysis Report* (AQIA) (Urban Crossroads, Inc.) (13). Although these measures are designed to reduce Project air quality emissions, they would also assist in the reduction of GHGs. It should be noted that to provide a conservative disclosure of Project emissions, no reductions in emissions are assumed to occur with implementation of these measures. Notwithstanding the foregoing, all of the below measures will decrease Project emissions. As such, even with application of MM 2 through MM 6, Project operational-source emissions impacts would be significant and unavoidable.

MM 2

Legible, durable, weather-proof signs shall be placed at commercial loading docks and truck parking areas that identify applicable CARB anti-idling regulations. 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 five (5) minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and 3) telephone numbers of the building facilities manager and the CARB to report violations. Prior to the issuance of an occupancy permit, the City shall conduct a site inspection to ensure that the signs are in place.

MM 3

Prior to the issuing of each building permit, the Project proponent and its contractors shall provide plans and specifications to the City that demonstrate that electrical service is provided

to each of the areas in the vicinity of the buildings that are to be landscaped in order that electrical equipment may be used for landscape maintenance.

MM 4

Once constructed, the Project proponent shall ensure that all commercial tenants shall utilize only electric or natural gas pallet jacks and forklifts in the loading areas.

MM 5

Upon occupancy and annually thereafter, the operators of the commercial space shall provide information to all delivery truck drivers, regarding:

- Building energy efficiency, solid waste reduction, recycling, and water conservation.
- Vehicle GHG emissions, electric vehicle charging availability, and alternate transportation opportunities for commuting.
- Participation in the Voluntary Interindustry Commerce Solutions (VICS) "Empty Miles" program to improve goods trucking efficiencies.
- Health effects of diesel particulates, State regulations limiting truck idling time, and the benefits of minimized idling.
- The importance of minimizing traffic, noise, and air pollutant impacts to any residences in the Project vicinity.

MM 6

Prior to issuance of a building permit, the Project proponent shall provide the City with an onsite signage program that clearly identifies the required onsite circulation system. This shall be accomplished through posted signs and painting on driveways and internal roadways.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Significant and Unavoidable

Because the majority (76%) of the Project GHG emissions would be generated by Project vehicular sources, the Project cannot feasibly achieve the SCAQMD 3,000 $MTCO_2e$ per year threshold. Because responsibility and authority for regulation of vehicular-source emissions resides with the State of California (CARB, et al.), neither the Applicant nor the Lead Agency can affect or mandate substantial reductions in vehicular-source GHG emissions, much less reductions that would achieve the SCAQMD's 3,000 $MTCO_2e$ per year threshold. In effect, all Project traffic (mobile) and energy would need to be eliminated or be "zero GHG emissions sources" to reduce emissions below the SCAQMD's numeric threshold. There are no feasible means to or alternatives to eliminate all Project traffic or energy to ensure that Project traffic and energy would be zero GHG emissions sources. In terms of its practical application, this would constitute a "no build" condition. While neither the City nor the Project have regulatory authority to control mobile source emissions, it is noted, however, that emissions of motor vehicles are controlled by state and federal standards, and these fuel efficiency and emissions standards are becoming more stringent over the years to reduce mobile source emissions. On this basis, even with implementation of applicable Mitigation Measures the Project would generate direct or

indirect GHG emissions that would exceed SCAQMD's interim numeric threshold and therefore are conservatively concluded to result in a significant impact on the environment. As there are no additional feasible mitigation measures that would reduce GHG emissions to levels below the threshold, ***this is a significant and unavoidable impact.***

GHG CEQA THRESHOLD NO. 2

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

As previously stated, pursuant to Section 15604.4 of the *State CEQA Guidelines*, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions (61). 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. For reasons outlined herein, the proposed Project would result in a less than significant impact with respect to GHG emissions for GHG Impact #2.

CITY OF MORENO VALLEY CAP

In June 2021, the City Council of the City of Moreno Valley (City Council) approved and adopted the City's 2040 General Plan Update (2040 General Plan), a Change of Zone and Municipal Code Update, and its Climate Action Plan (CAP) and certified an EIR, State Clearinghouse No. 2020039022, as having been prepared in compliance with CEQA in connection with the approvals. A lawsuit entitled Sierra Club v. The City of Moreno Valley, Riverside Superior Court Case No. CVRI2103300, challenged the validity of the CAP and the EIR. In May 2024, the City Council set aside the 2021 approvals and certification, based on a March 2024 ruling and judgment of the court. The City is in the process of readopting the 2040 General Plan and issued a Notice of Preparation of a Revised Environmental Impact Report for MoVal 2040: The Moreno Valley Comprehensive General Plan Update, Municipal Code and Zoning (including Zoning Atlas) Amendments, and Climate Action Plan on July 30, 2024.

As such, if the City adopts a qualified CAP and future development is determined to be consistent with that CAP, then impacts for implementing projects would be considered less than significant. However, because at this time there is no adopted CAP, the Project cannot be determined to be consistent, as such a significant and unavoidable impact is expected.

2022 SCOPING PLAN

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 qualitatively discussed below.

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 if a project would conflict with the 2022 Scoping Plan.

The 2022 Scoping Plan includes three priority areas to reduce GHG emissions that would apply to all land use development projects. More specifically, the three priority areas include: (1) transportation electrification, (2) VMT reduction, and (3) Building Decarbonization. The potential for the Project to conflict with these three priority areas is discussed as follows:

Transportation Electrification: No Conflict. The Project would include EV charging infrastructure that, at minimum, would equal the Residential and Non-Residential Mandatory Measures in sections 4.106.4.1, 4.106.4.2, 4.106.4.3 and Section A5.106.5.3 of the California Green Building Standards Code. Therefore, the Project does not conflict with this priority area.

VMT Reduction: No Conflict. As noted in the Project's VMT Assessment, the Project's effect on VMT was found to be less than significant and therefore the Project would not result in a per-capita increase in VMT. Additionally, the Project cumulative effect on VMT was not found to increase VMT per service population in the baseline year or horizon year conditions. As such, based on the VMT Assessment conclusions, the Project would not conflict with this priority area.

Building Decarbonization: No Conflict. Per Title 24 requirements, the Project would be required to incorporate solar for the residential and commercial portion of the buildings. Additionally, the Project would be required to comply with all Title 24 Energy and CalGreen requirements as discussed in Section 3.4.3 of this Report. Further, the required GHG MMs require building electrification features. As such, the Project does not conflict with this priority area.

As shown in the preceding discussion, the Project does not conflict with the 2022 Scoping Plan.

6.1 CITY OF MORENO VALLEY GENERAL PLAN MEASURES

This report evaluates the impacts resulting from implementation of the proposed Project under the existing 2006 General Plan land use and zoning designations, which would require a General Plan Amendment and zone change, and the City's proposed 2040 General Plan land use and zoning designation, if applicable to the analysis.

As previously stated, although the City of Moreno Valley General Plan does not identify specific GHG or climate change policies or goals, a number of the goals/policies identified in the General Plan act to reduce or control criteria pollutant emissions and peripherally reduce GHG emissions. As shown on Tables 6-1 and 6-2, the Project has been evaluated for consistency with both the 2006 and 2040 City of Moreno Valley General Plan.

TABLE 6-1: 2006 CITY OF MORENO VALLEY GENERAL PLAN CONSISTENCY

Objective/Policy	Project Consistency
Objective 6.6: Promote land use patterns that reduce daily automotive trips and reduce trip distance for work, shopping, school, and recreation.	No Conflict. The Project site is providing employment opportunities to Moreno Valley and the surrounding area.
Objective 6.7: Reduce mobile and stationary source air pollutant emissions.	No Conflict. The Project site is located proximate to existing and proposed major roadways, acting to generally reduce vehicle trip lengths, thereby reducing mobile source emissions. The Project will further reduce mobile source emissions by creating local employment opportunities, reducing commuter VMT within the region. Additionally, the Project will implement energy efficient designs and operational programs meeting or surpassing California Code of Regulations (CCR) Title 24 Building Standards, including but not limited to compliance with or betterment of, energy conservation requirements identified at CCR Title 24, Part 6, Energy Code. Energy efficient designs and programs implemented by the Project reduce resources consumption with correlating reductions in stationary-source emissions.
Policy 6.7.5: Require grading activities to comply with SCAQMD District's Rule 403 regarding the control of fugitive dust.	No Conflict. The Project will be required to implement fugitive dust control measures consistent with SCAQMD Rule 403.
Policy 6.7.6: Require building construction to comply with the energy conservation requirements of Title 24 of the California Administrative Code [CCR].	No Conflict. Pursuant to City and State Building Code requirements, the Project will meet or surpass applicable CCR Title 24 energy conservation requirements.

Source: City of Moreno Valley General Plan, Safety Element

TABLE 6-2: 2040 CITY OF MORENO VALLEY GENERAL PLAN CONSISTENCY

Goal	Project Consistency
Goal LCC-2: Foster vibrant gathering places for Moreno Valley residents and visitors.	Consistent. The Project's proposed commercial/residential land uses provide for gathering places for Moreno Valley residents and visitors.
Goal E-1: Diversity and grow the local economy.	Consistent. The Project's proposed commercial/residential land uses will supplement the City's goal in diversifying and growing the local economy. The proposed uses would improve the jobs/housing balance within the City which would reduce the need for residents to travel to employment outside the City.

Goal	Project Consistency
Goal E-4: Promote education and workforce development.	Consistent. The Project site is providing employment opportunities to Moreno Valley and the surrounding area. The proposed uses would improve the jobs/housing balance within the City which would reduce the need for residents to travel to employment outside the City.
Goal C-2: Plan, design, construction, and maintain a local transportation network that provides safe and efficient access throughout the city and optimizes travel by all modes.	Consistent. The Project site is located proximate to existing and proposed major roadways, acting to generally reduce vehicle trip lengths, thereby reducing mobile source emissions. The Project will further reduce mobile source emissions by creating local employment opportunities, reducing commuter VMT within the region. Additionally, the Project will implement energy efficient designs and operational programs meeting California Code of Regulations (CCR) Title 24 Building Standards, including but not limited to compliance with or betterment of, energy conservation requirements identified at CCR Title 24, Part 6, Energy Code. Energy efficient designs and programs implemented by the Project reduce resources consumption with correlating reductions in stationary-source emissions.
Goal C-3: Manage the City's transportation system to minimize congestion, improve flow, and improve air quality.	
Goal C-4: Provide convenient and safe connections between neighborhoods and destinations within Moreno Valley.	
Goal C-5: Enhance the range of transportation operations in Moreno Valley and reduce VMT.	
Goal OSRC-3: Use energy and water wisely and promote reduced consumption.	Consistent. Pursuant to City and State Building Code requirements, the Project will meet or surpass applicable CCR Title 24 energy conservation requirements.

Source: City of Moreno Valley General Plan, Safety Element

6.4 CONSISTENCY WITH SB 375 (SCAG RTP/SCSR)

The proposed Project would increase regional employment. According to SCAG's *2024-2050 RTP/SCS*, housing within Riverside County in 2024 is approximately 883,000 jobs with an anticipated increase to approximately 1,179,000 jobs by 2050, a growth of approximately 296,000 jobs (62). The proposed Project represents a nominal percentage of the anticipated increase in jobs, and therefore, would not result in long-term operational employment growth that exceeds planned growth projections in the RTP/SCS, or result in employment growth that would substantially add to traffic congestion.

According to SCAG's *2024-2050 RTP/SCS*, housing within Riverside County in 2024 is approximately 783,000 households with an anticipated increase to approximately 1,149,000 households by 2050, a growth of approximately 366,000 households (62). The proposed Project represents a nominal percentage of the anticipated increase in homes, and therefore, would not result in long-term operational household growth that exceeds planned growth projections in

the RTP/SCS or the AQMP, or result in household growth that would substantially add to traffic congestion. As such, the Project would be consistent with the SCAG's *2024-2050 RTP/SCS*.

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7 REFERENCES

1. **State of California.** *2020 CEQA California Environmental Quality Act.* 2020.
2. **Air Resources Board.** Assembly Bill 32: Global Warming Solutions Act. [Online] 2006. http://www.arb.ca.gov/cc/ab32/ab32.htm.
3. —. Sustainable Communities. [Online] 2008. http://www.arb.ca.gov/cc/sb375/sb375.htm.
4. —. Clean Car Standards - Pavley, Assembly Bill 1493. [Online] September 24, 2009. http://www.arb.ca.gov/cc/ccms/ccms.htm.
5. **Building Standards Commission.** California Building Standards Code (Title 24, California Code of Regulations). [Online] http://www.bsc.ca.gov/codes.aspx.
6. **California Energy Commission.** California Code of Regulations, TITLE 20, Division 2. [Online] September 3, 2013. https://www.energy.ca.gov/sites/default/files/2021-07/Title%2020%20Updated%20July%2023%2C%202021.pdf.
7. **Air Resources Board.** Title 17 - California Code of Regulation. [Online] 2010. https://www.epa.gov/system/files/documents/2022-09/epa-approved-compiled-sip-california-code-of-regulations-title-17.pdf.
8. **Board, California Air Resources.** *CARB amends Low Carbon Fuel Standard for wider impact.* s.l. : California Air Resources Board, 2018.
9. **Department of Water Resources.** Updated Model Water Efficient Landscape Ordinance AB 1881. [Online] 2006. https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance.
10. **California Energy Commission.** SB 1368 Emission Performance Standards. [Online] September 29, 2006. http://www.energy.ca.gov/emission_standards/.
11. —. Renewables Portfolio Standard (RPS). [Online] 2002. http://www.energy.ca.gov/portfolio/.
12. **California Legislative Information.** Senate Bill No. 32. [Online] September 8, 2016. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32.
13. **Urban Crossroads, Inc.** *Town Center at Moreno Valley Specific Plan Air Quality Impact Analysis Report.* 2024.
14. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Water Vapor. *NOAA National Centers For Environmental Information.* [Online] https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=watervapor.
15. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report.* **International Panel on Climate Change.** 4, 2007.
16. *The Carbon Cycle and Climate Change.* **Bennington, Bret J.** 1, s.l. : Brooks/Cole, 2019. ISBN 1 3: 978-0-495-73855-8.
17. **The National Institute for Occupational Safety and Health.** Carbon Dioxide. *Centers for Disease Control and Prevention.* [Online] 2019. https://www.cdc.gov/niosh/npg/npgd0103.html.
18. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Methane. *NOAA National Centers for Environmental Information.* [Online] 2020. https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=methane.
19. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] 2020. http://cait.wri.org.

20. **National Oceanic and Atmospheric Administration.** Greenhouse Gases - Chlorofluorocarbons. *NOAA National Centers For Environmental Information.* [Online] 2020. https://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php?section=chlorofluorocarbons.

21. **United States Environmental Protection Agency.** Regulation for Reducting Sulfur Hexafluoride Emissions from Gas Insulated Switchgear. *Environmental Protection Agency.* [Online] 2014. https://www.epa.gov/sites/production/files/2016-02/documents/mehl-arb-presentation-2014-wkshp.pdf.

22. **World Resources Institute.** Nitrogen Trifluoride Now Required in GHG Protocol Greenhouse Gas Emissions Inventory. [Online] 2013. https://www.wri.org/blog/2013/05/nitrogen-trifluoride-now-required-ghg-protocol-greenhouse-gas-emissions-inventories.

23. **National Center for Biotechnology Information.** Nitrogen Trifluoride. *PubChem Compound Database.* [Online] 2020. https://pubchem.ncbi.nlm.nih.gov/compound/24553.

24. **California Air Resources Board.** *2022 Scoping Plan for Achieving Carbon Neutrality.*

25. **Barbara H. Allen-Diaz.** Climate change affects us all. *University of California Agriculture and Natural Resources.* [Online] 2009. http://calag.ucanr.edu/Archive/?article=ca.v063n02p51.

26. **Intergovernmental Panel on Climate Change.** Climate Change 2013 The Physical Science Basis - Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *AR5 Climate Change 2013: The Physical Science Basis.* [Online] September 2013. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

27. **United Nations.** Annex 1. [Online] 2023. https://di.unfccc.int/time_series.

28. —. GHG Profiles - Non-Annex I. [Online] 2023. http://di.unfccc.int/ghg_profile_non_annex1.

29. **World Resources Institute.** Climate Analysis Indicator Tool (CAIT). [Online] http://cait.wri.org.

30. **California Air Resources Board.** 2023 GHG Inventory. *California Greenhouse Gas Emission Inventory 2000-2021 Edition.* [Online] https://ww2.arb.ca.gov/ghg-inventory-data.

31. **Energy Information Administration .** [Online] https://www.eia.gov/state/data.php?sid=US.

32. **California Energy Commission.** *Our Changing Climate Assessing the Risks to California.* 2006.

33. **Center for Climate and Energy Solutions (C2ES).** Outcomes of the U.N. Climate Change Conference. *Center for Climate and Energy Solutions (C2ES).* [Online] 2015. http://www.c2es.org/international/negotiations/cop21-paris/summary.

34. **Agency, United States Environmental Protection.** Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act. *United States Environmental Protection Agency.* [Online] 2020. https://www.epa.gov/climate-change/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a#:~:text=The%20Court%20held%20that%20the,to%20make%20a%20reasoned%20decision..

35. **Federal Register.** Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles. [Online] 2018. https://www.federalregister.gov/documents/2018/04/13/2018-07364/mid-term-evaluation-of-greenhouse-gas-emissions-standards-for-model-year-2022-2025-light-duty.

36. **Administration, National Highway Traffic Safety.** SAFE: The Safer Affordable Fuel-Efficient 'SAFE' Vehicle Rule. *National Highway Traffic Safety Administration.* [Online] 2020. https://www.nhtsa.gov/corporate-average-fuel-economy/safe.

37. **National Highway Traffic Safety Administration.** Corporate Average Fuel Economy. [Online] https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy.

38. **Department of Transportation.** Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks. [Online] https://www.nhtsa.gov/sites/nhtsa.gov/files/2022-04/Final-Rule-Preamble_CAFE-MY-2024-2026.pdf.

39. **United States Environmental Protection Agency.** SmartWay. [Online] 2017. https://www.epa.gov/smartway/learn-about-smartway.

40. **Western Regional Climate Initiative.** ***WCI.*** **[Online] http://westernclimateinitiative.org/.**

41. Western Climate Initiative. History. ***Western Climate Initiative.*** **[Online] http://westernclimateinitiative.org/index.php?option=com_content&view=article&id=29&Itemid=44.**

42. ***Pacific Coast Action Plan on Climate and Energy.*** **San Francisco : The Pacific Coast Collaborative, 2013.**

43. California Air Resources Board. California's 2017 Climate Change Scoping Plan . [Online] 2017. https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017_es.pdf.

44. Lawrence Berkeley National Laboratory. California's Policies Can Significantly Cut Greenhouse Gas Emissions through 2030. ***Lawrence Berkeley National Laboratory.*** **[Online] January 22, 2015. http://newscenter.lbl.gov/2015/01/22/californias-policies-can-significantly-cut-greenhouse-gas-emissions-2030/.**

45. Ernest Orlando Lawrence Berkeley National Laboratory. Modeling California policy impacts on greenhouse gas emissions. [Online] 2015. https://eta-publications.lbl.gov/sites/default/files/lbnl-7008e.pdf.

46. California Air Resources Board. Legal Disclaimer & User's Notice. [Online] April 2019. https://ww2.arb.ca.gov/sites/default/files/2021-02/ct_reg_unofficial.pdf.

47. —. Climate Change Scoping Plan. [Online] 2014. https://ww3.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

48. —. Low Carbon Fuel Standard. [Online] December 2019. https://ww3.arb.ca.gov/fuels/lcfs/lcfs.htm.

49. California Energy Commission. Energy Commission Adopts Updated Building Standards to Improve Efficiency, Reduce Emissions from Homes and Businesses. [Online] August 11, 2021. https://www.energy.ca.gov/news/2021-08/energy-commission-adopts-updated-building-standards-improve-efficiency-reduce-0.

50. California Department of General Services. 2022 CALGreen Code. ***CALGreen.*** **[Online] https://codes.iccsafe.org/content/CAGBC2022P1.**

51. Association of Environmental Professionals. ***2018 CEQA California Environmental Quality Act.*** **2018.**

52. State of California. ***2020 CEQA California Environmental Quality Act.*** **2020.**

53. South Coast Air Quality Management District. Interim CEQA GHG Threshold for Stationary Sources, Rules and Plans. [Online] December 5, 2008. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf.

54. California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod). [Online] May 2022. www.caleemod.com.

55. California Natural Resources Agency. Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. [Online] December 2009.

56. *Minutes for the GHG CEQA Significance.* South Coast Air Quality Managment District. 2008.

57. Urban Crossroads, Inc. *Moreno Valley Town Center Specific Plan Air Quality Impact Analysis Report.* 2024.

58. South Coast Air Quality Management District. *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #13.* [Powerpoint] Diamond Bar : s.n., 2009.

59. Urban Crossroads, Inc. *Town Center at Moreno Valley Specific Plan (PEN21-0034, -0035, -0036) Traffic Analysis.* 2022.

60. —. *Nevada Street Warehouse Vehicle Miles Traveled (VMT) Screening Evaluation.* 2022.

61. California Natural Resources Agency. *2023 California Environmental Quality Act (CEQA) Statute and Guidelines.* s.l. : Association of Environmental Professionals, 2023.

62. Southern California Association of Governments. Certified Final Connect SoCAL PEIR. [Online] 2024. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://scag.ca.gov/sites/main/files/file-attachments/23-2987-tr-demographics-growth-forecast-final-040424.pdf?1712261839.

63. Air Resources Board. 2022 GHG Inventory. *California Greenhouse Gas Emission Inventory 2000-2020 Edition.* [Online] https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/2000-2020_ghg_inventory_trends.pdf.

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8 CERTIFICATIONS

The contents of this GHG study report represent an accurate depiction of the GHG impacts associated with the proposed Town Center at Moreno Valley Specific Plan 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 hqureshi@urbanxroads.com.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
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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 – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 5.1:

CALEEMOD ANNUAL EMISSIONS MODEL OUTPUTS

14556-Moreno Valley Towne Center (Unmitigated) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14556-Moreno Valley Towne Center (Unmitigated)
Construction Start Date	11/5/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	24.0
Location	33.920986394588446, -117.193682312174
County	Riverside-South Coast
City	Moreno Valley
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5592
EDFZ	11
Electric Utility	Moreno Valley Utility
Gas Utility	Southern California Gas
App Version	2022.1.1.29

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
Single Family Housing	800	Dwelling Unit	33.1	1,440,000	9,370,286	—	2,584	—

City Park	4.80	Acre	4.80	0.00	209,088	0.00	—	—
Hotel	106	Room	1.34	58,409	0.00	—	—	—
General Office Building	15.0	1000sqft	0.34	15,000	0.00	—	—	—
Library	30.0	1000sqft	0.69	30,000	0.00	—	—	—
High Turnover (Sit Down Restaurant)	16.7	1000sqft	0.38	16,660	0.00	—	—	—
Fast Food Restaurant with Drive Thru	3.50	1000sqft	0.08	3,500	0.00	—	—	—
Regional Shopping Center	60.9	1000sqft	1.40	60,890	0.00	—	—	—
Supermarket	45.0	1000sqft	1.03	45,000	0.00	—	—	—
Parking Lot	930	Space	3.07	0.00	0.00	—	—	—
Other Asphalt Surfaces	434	1000sqft	9.97	0.00	0.00	—	—	—

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.	194	193	31.7	64.0	0.09	1.12	6.75	7.43	1.03	1.62	2.47	—	14,890	14,890	0.55	0.73	26.9	15,149
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	194	193	70.8	76.4	0.14	3.46	8.96	12.4	3.18	3.82	7.00	—	20,122	20,122	0.63	0.85	0.73	20,391
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	30.5	30.2	20.3	33.5	0.05	0.73	4.07	4.58	0.68	0.98	1.62	—	9,052	9,052	0.25	0.49	7.31	9,212
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.56	5.51	3.71	6.11	0.01	0.13	0.74	0.84	0.12	0.18	0.30	—	1,499	1,499	0.04	0.08	1.21	1,525

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	5.88	5.05	31.7	64.0	0.09	1.12	5.98	7.10	1.03	1.44	2.47	—	14,890	14,890	0.55	0.73	26.9	15,149
2027	4.28	3.62	23.3	50.9	0.07	0.72	5.78	6.50	0.67	1.39	2.06	—	13,018	13,018	0.33	0.69	23.7	13,255
2028	194	193	23.5	55.3	0.07	0.67	6.75	7.43	0.62	1.62	2.24	—	14,020	14,020	0.32	0.73	24.2	14,269
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	9.26	7.79	70.8	64.2	0.12	3.46	8.96	12.4	3.18	3.82	7.00	—	13,219	13,219	0.53	0.19	0.09	13,290
2026	8.51	7.16	55.3	76.4	0.14	2.19	8.82	11.0	2.02	2.47	4.48	—	20,122	20,122	0.63	0.85	0.73	20,391
2027	4.20	3.53	23.6	44.9	0.07	0.72	5.78	6.50	0.67	1.39	2.06	—	12,616	12,616	0.33	0.69	0.62	12,830
2028	194	193	23.9	48.6	0.07	0.67	6.75	7.43	0.62	1.62	2.24	—	13,547	13,547	0.33	0.73	0.63	13,772
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.52	0.44	3.99	3.64	0.01	0.19	0.47	0.67	0.18	0.20	0.37	—	776	776	0.03	0.01	0.09	780
2026	3.39	2.87	20.3	33.5	0.05	0.73	3.69	4.43	0.68	0.94	1.62	—	8,666	8,666	0.25	0.43	6.48	8,805
2027	3.00	2.53	17.0	32.7	0.05	0.51	4.07	4.58	0.48	0.98	1.46	—	9,052	9,052	0.24	0.49	7.31	9,212
2028	30.5	30.2	13.9	27.9	0.04	0.40	3.61	4.01	0.37	0.87	1.24	—	7,779	7,779	0.19	0.42	5.79	7,917

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.10	0.08	0.73	0.66	< 0.005	0.04	0.09	0.12	0.03	0.04	0.07	—	128	128	0.01	< 0.005	0.01	129
2026	0.62	0.52	3.71	6.11	0.01	0.13	0.67	0.81	0.12	0.17	0.30	—	1,435	1,435	0.04	0.07	1.07	1,458
2027	0.55	0.46	3.10	5.97	0.01	0.09	0.74	0.84	0.09	0.18	0.27	—	1,499	1,499	0.04	0.08	1.21	1,525
2028	5.56	5.51	2.54	5.08	0.01	0.07	0.66	0.73	0.07	0.16	0.23	—	1,288	1,288	0.03	0.07	0.96	1,311

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.	138	131	78.1	567	1.34	2.69	106	109	2.63	27.0	29.6	854	166,802	167,656	94.1	6.42	755	172,675
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	127	120	81.4	451	1.26	2.65	106	109	2.60	27.0	29.6	854	159,398	160,252	94.4	6.61	419	165,000
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	119	113	63.5	446	1.07	1.58	93.3	94.8	1.53	23.7	25.2	854	132,173	133,027	93.4	5.93	543	137,672
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	21.7	20.6	11.6	81.4	0.20	0.29	17.0	17.3	0.28	4.32	4.60	141	21,883	22,024	15.5	0.98	89.9	22,793

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	91.2	85.8	55.3	501	1.19	0.86	106	107	0.80	27.0	27.8	—	122,112	122,112	5.92	5.96	344	124,381
Area	46.2	45.1	13.8	61.1	0.09	1.11	—	1.11	1.10	—	1.10	0.00	17,007	17,007	0.32	0.03	—	17,025
Energy	1.04	0.52	9.03	4.61	0.06	0.72	—	0.72	0.72	—	0.72	—	25,999	25,999	2.07	0.15	—	26,096
Water	—	—	—	—	—	—	—	—	—	—	—	105	1,683	1,789	10.9	0.27	—	2,143
Waste	—	—	—	—	—	—	—	—	—	—	—	748	0.00	748	74.8	0.00	—	2,619
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	410	410
Total	138	131	78.1	567	1.34	2.69	106	109	2.63	27.0	29.6	854	166,802	167,656	94.1	6.42	755	172,675
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	85.7	80.2	59.1	441	1.12	0.86	106	107	0.80	27.0	27.8	—	114,871	114,871	6.28	6.15	8.93	116,870
Area	40.2	39.5	13.3	5.65	0.08	1.07	—	1.07	1.07	—	1.07	0.00	16,845	16,845	0.32	0.03	—	16,862
Energy	1.04	0.52	9.03	4.61	0.06	0.72	—	0.72	0.72	—	0.72	—	25,999	25,999	2.07	0.15	—	26,096
Water	—	—	—	—	—	—	—	—	—	—	—	105	1,683	1,789	10.9	0.27	—	2,143
Waste	—	—	—	—	—	—	—	—	—	—	—	748	0.00	748	74.8	0.00	—	2,619
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	410	410
Total	127	120	81.4	451	1.26	2.65	106	109	2.60	27.0	29.6	854	159,398	160,252	94.4	6.61	419	165,000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	74.8	70.0	53.2	403	1.01	0.76	93.3	94.0	0.72	23.7	24.4	—	103,225	103,225	5.57	5.51	132	105,137
Area	42.9	42.6	1.26	38.4	0.01	0.10	—	0.10	0.09	—	0.09	0.00	1,265	1,265	0.03	< 0.005	—	1,267
Energy	1.04	0.52	9.03	4.61	0.06	0.72	—	0.72	0.72	—	0.72	—	25,999	25,999	2.07	0.15	—	26,096
Water	—	—	—	—	—	—	—	—	—	—	—	105	1,683	1,789	10.9	0.27	—	2,143
Waste	—	—	—	—	—	—	—	—	—	—	—	748	0.00	748	74.8	0.00	—	2,619
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	410	410
Total	119	113	63.5	446	1.07	1.58	93.3	94.8	1.53	23.7	25.2	854	132,173	133,027	93.4	5.93	543	137,672
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	13.7	12.8	9.70	73.6	0.18	0.14	17.0	17.2	0.13	4.32	4.45	—	17,090	17,090	0.92	0.91	21.9	17,407
Area	7.83	7.77	0.23	7.00	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	209	209	< 0.005	< 0.005	—	210

Energy	0.19	0.10	1.65	0.84	0.01	0.13	—	0.13	0.13	—	0.13	—	4,304	4,304	0.34	0.02	—	4,320
Water	—	—	—	—	—	—	—	—	—	—	—	17.5	279	296	1.81	0.04	—	355
Waste	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	68.0	68.0
Total	21.7	20.6	11.6	81.4	0.20	0.29	17.0	17.3	0.28	4.32	4.60	141	21,883	22,024	15.5	0.98	89.9	22,793

3. Construction Emissions Details

3.1. Site Preparation (2025) - 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	4.82	4.05	37.5	32.4	0.05	1.93	—	1.93	1.78	—	1.78	—	5,528	5,528	0.22	0.04	—	5,547
Dust From Material Movement	—	—	—	—	—	—	5.66	5.66	—	2.69	2.69	—	—	—	—	—	—	—
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	0.21	0.18	1.64	1.42	< 0.005	0.08	—	0.08	0.08	—	0.08	—	242	242	0.01	< 0.005	—	243

Dust From Material Movement	—	—	—	—	—	—	0.25	0.25	—	0.12	0.12	—	—	—	—	—	—	—
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	0.04	0.03	0.30	0.26	< 0.005	0.02	—	0.02	0.01	—	0.01	—	40.1	40.1	< 0.005	< 0.005	—	40.3
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	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	0.08	0.07	0.08	1.02	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	227	227	0.01	0.01	0.02	230
Vendor	< 0.005	< 0.005	0.11	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	91.8	91.8	< 0.005	0.01	0.01	96.1
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	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.02	10.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.02	4.02	< 0.005	< 0.005	< 0.005	4.21
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	—	1.67	1.67	< 0.005	< 0.005	< 0.005	1.69

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.67	0.67	< 0.005	< 0.005	< 0.005	0.70
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

3.3. Grading (2025) - 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	4.24	3.57	32.6	29.4	0.06	1.52	—	1.52	1.40	—	1.40	—	6,715	6,715	0.27	0.05	—	6,738
Dust From Material Movement	—	—	—	—	—	—	2.67	2.67	—	0.98	0.98	—	—	—	—	—	—	—
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	0.30	0.25	2.30	2.07	< 0.005	0.11	—	0.11	0.10	—	0.10	—	473	473	0.02	< 0.005	—	475
Dust From Material Movement	—	—	—	—	—	—	0.19	0.19	—	0.07	0.07	—	—	—	—	—	—	—
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	0.05	0.05	0.42	0.38	< 0.005	0.02	—	0.02	0.02	—	0.02	—	78.3	78.3	< 0.005	< 0.005	—	78.6
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	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	0.09	0.08	0.10	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	259	259	0.01	0.01	0.03	262
Vendor	0.02	0.01	0.46	0.14	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	398	398	0.01	0.06	0.03	416
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	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.5	18.5	< 0.005	< 0.005	0.03	18.7
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	28.0	28.0	< 0.005	< 0.005	0.03	29.3
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.06	3.06	< 0.005	< 0.005	0.01	3.10
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.64	4.64	< 0.005	< 0.005	0.01	4.86
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. Grading (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	4.03	3.39	30.0	28.7	0.06	1.38	—	1.38	1.27	—	1.27	—	6,715	6,715	0.27	0.05	—	6,738
Dust From Material Movement	—	—	—	—	—	—	2.67	2.67	—	0.98	0.98	—	—	—	—	—	—	—
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	0.65	0.54	4.81	4.60	0.01	0.22	—	0.22	0.20	—	0.20	—	1,078	1,078	0.04	0.01	—	1,081
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.16	0.16	—	—	—	—	—	—	—
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	0.12	0.10	0.88	0.84	< 0.005	0.04	—	0.04	0.04	—	0.04	—	178	178	0.01	< 0.005	—	179

Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	254	254	< 0.005	0.01	0.02	257
Vendor	0.02	0.01	0.44	0.13	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	—	392	392	0.01	0.06	0.03	410
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	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.2	41.2	< 0.005	< 0.005	0.06	41.8
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.8	62.8	< 0.005	0.01	0.07	65.8
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	—	6.82	6.82	< 0.005	< 0.005	0.01	6.92
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	10.4	10.4	< 0.005	< 0.005	0.01	10.9
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. Building Construction (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.56	2.14	19.6	25.2	0.05	0.75	—	0.75	0.69	—	0.69	—	4,817	4,817	0.20	0.04	—	4,833
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	2.56	2.14	19.6	25.2	0.05	0.75	—	0.75	0.69	—	0.69	—	4,817	4,817	0.20	0.04	—	4,833
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	1.42	1.19	10.9	14.0	0.03	0.42	—	0.42	0.38	—	0.38	—	2,677	2,677	0.11	0.02	—	2,686
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	0.26	0.22	1.99	2.55	< 0.005	0.08	—	0.08	0.07	—	0.07	—	443	443	0.02	< 0.005	—	445
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	1.75	1.58	1.46	26.7	0.00	0.00	4.87	4.87	0.00	1.14	1.14	—	5,134	5,134	0.22	0.18	17.4	5,210
Vendor	0.15	0.07	3.44	1.07	0.02	0.05	0.92	0.96	0.05	0.25	0.30	—	3,221	3,221	0.07	0.50	8.81	3,380
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	1.67	1.49	1.63	20.3	0.00	0.00	4.87	4.87	0.00	1.14	1.14	—	4,721	4,721	0.07	0.18	0.45	4,778
Vendor	0.14	0.06	3.59	1.10	0.02	0.05	0.92	0.96	0.05	0.25	0.30	—	3,223	3,223	0.07	0.50	0.23	3,374
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	0.92	0.82	0.99	11.8	0.00	0.00	2.66	2.66	0.00	0.62	0.62	—	2,657	2,657	0.04	0.10	4.18	2,693
Vendor	0.08	0.04	2.00	0.60	0.01	0.03	0.50	0.53	0.03	0.14	0.17	—	1,791	1,791	0.04	0.28	2.10	1,876
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	0.17	0.15	0.18	2.15	0.00	0.00	0.49	0.49	0.00	0.11	0.11	—	440	440	0.01	0.02	0.69	446
Vendor	0.01	0.01	0.37	0.11	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	296	296	0.01	0.05	0.35	311
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

3.9. 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	2.46	2.06	18.7	25.1	0.05	0.67	—	0.67	0.62	—	0.62	—	4,817	4,817	0.20	0.04	—	4,833

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	2.46	2.06	18.7	25.1	0.05	0.67	—	0.67	0.62	—	0.62	—	4,817	4,817	0.20	0.04	—	4,833
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	1.76	1.47	13.4	18.0	0.03	0.48	—	0.48	0.44	—	0.44	—	3,440	3,440	0.14	0.03	—	3,452
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	0.32	0.27	2.44	3.28	0.01	0.09	—	0.09	0.08	—	0.08	—	570	570	0.02	< 0.005	—	572
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	1.68	1.49	1.29	24.7	0.00	0.00	4.87	4.87	0.00	1.14	1.14	—	5,039	5,039	0.06	0.18	15.7	5,109
Vendor	0.14	0.07	3.31	1.04	0.02	0.05	0.92	0.96	0.05	0.25	0.30	—	3,162	3,162	0.07	0.47	8.05	3,313
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	1.60	1.41	1.46	18.7	0.00	0.00	4.87	4.87	0.00	1.14	1.14	—	4,635	4,635	0.07	0.18	0.41	4,689
Vendor	0.14	0.06	3.46	1.07	0.02	0.05	0.92	0.96	0.05	0.25	0.30	—	3,164	3,164	0.07	0.47	0.21	3,308
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	1.14	1.01	1.15	14.0	0.00	0.00	3.42	3.42	0.00	0.80	0.80	—	3,352	3,352	0.05	0.13	4.82	3,396
Vendor	0.10	0.05	2.46	0.75	0.02	0.03	0.65	0.68	0.03	0.18	0.21	—	2,259	2,259	0.05	0.34	2.48	2,364
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	0.18	0.21	2.56	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	555	555	0.01	0.02	0.80	562
Vendor	0.02	0.01	0.45	0.14	< 0.005	0.01	0.12	0.12	0.01	0.03	0.04	—	374	374	0.01	0.06	0.41	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

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	2.37	1.98	17.8	25.1	0.05	0.60	—	0.60	0.55	—	0.55	—	4,818	4,818	0.20	0.04	—	4,834
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	2.37	1.98	17.8	25.1	0.05	0.60	—	0.60	0.55	—	0.55	—	4,818	4,818	0.20	0.04	—	4,834
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	1.44	1.21	10.8	15.3	0.03	0.37	—	0.37	0.34	—	0.34	—	2,932	2,932	0.12	0.02	—	2,942
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	0.26	0.22	1.97	2.79	0.01	0.07	—	0.07	0.06	—	0.06	—	485	485	0.02	< 0.005	—	487
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	1.62	1.44	1.28	23.0	0.00	0.00	4.87	4.87	0.00	1.14	1.14	—	4,945	4,945	0.06	0.18	14.0	5,013
Vendor	0.14	0.07	3.15	1.01	0.02	0.05	0.92	0.96	0.05	0.25	0.30	—	3,090	3,090	0.05	0.47	7.33	3,240
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	1.40	1.36	1.45	17.4	0.00	0.00	4.87	4.87	0.00	1.14	1.14	—	4,549	4,549	0.07	0.18	0.36	4,603
Vendor	0.14	0.06	3.29	1.04	0.02	0.05	0.92	0.96	0.05	0.25	0.30	—	3,093	3,093	0.05	0.47	0.19	3,235
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	0.84	0.82	0.88	11.2	0.00	0.00	2.92	2.92	0.00	0.68	0.68	—	2,803	2,803	0.04	0.11	3.69	2,840
Vendor	0.09	0.04	2.02	0.63	0.01	0.03	0.55	0.58	0.03	0.15	0.18	—	1,881	1,881	0.03	0.29	1.92	1,970
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	0.15	0.15	0.16	2.04	0.00	0.00	0.53	0.53	0.00	0.12	0.12	—	464	464	0.01	0.02	0.61	470
Vendor	0.02	0.01	0.37	0.11	< 0.005	0.01	0.10	0.11	0.01	0.03	0.03	—	312	312	0.01	0.05	0.32	326
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 (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.50	2.10	< 0.005	0.07	—	0.07	0.06	—	0.06	—	319	319	0.01	< 0.005	—	320
Paving	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.27	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	52.8	52.8	< 0.005	< 0.005	—	52.9
Paving	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.08	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	207	207	0.01	0.01	0.70	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.07	0.06	0.07	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.02	0.18	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.6	40.6	< 0.005	< 0.005	0.06	41.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	—	6.73	6.73	< 0.005	< 0.005	0.01	6.82
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.17	0.14	1.08	1.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	190	190	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.17	0.14	1.08	1.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	178	178	0.01	< 0.005	—	179

Architectural Coating	190	190	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.02	0.16	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.3	26.3	< 0.005	< 0.005	—	26.4
Architectural Coatings	28.0	28.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.36	4.36	< 0.005	< 0.005	—	4.38
Architectural Coatings	5.12	5.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.32	0.29	0.26	4.61	0.00	0.00	0.97	0.97	0.00	0.23	0.23	—	989	989	0.01	0.04	2.81	1,003
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.28	0.27	0.29	3.49	0.00	0.00	0.97	0.97	0.00	0.23	0.23	—	910	910	0.01	0.04	0.07	921
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.04	0.04	0.04	0.54	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	136	136	< 0.005	0.01	0.18	138
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	22.6	22.6	< 0.005	< 0.005	0.03	22.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	27.6	25.8	17.7	162	0.40	0.28	35.4	35.7	0.26	8.98	9.25	—	40,487	40,487	1.86	1.92	115	41,221
City Park	0.04	0.04	0.04	0.40	< 0.005	< 0.005	0.10	0.10	< 0.005	0.03	0.03	—	111	111	< 0.005	< 0.005	0.32	113

Hotel	3.14	2.94	2.07	19.1	0.05	0.03	4.23	4.26	0.03	1.07	1.11	—	4,830	4,830	0.22	0.23	13.7	4,917
General Office Building	0.82	0.75	0.75	7.30	0.02	0.01	1.80	1.81	0.01	0.46	0.47	—	2,026	2,026	0.07	0.09	5.83	2,059
Library	9.59	8.83	7.70	73.7	0.19	0.13	17.5	17.7	0.13	4.45	4.58	—	19,812	19,812	0.75	0.86	56.8	20,145
High Turnover (Sit Down Restaurant)	7.68	7.39	3.23	26.3	0.05	0.04	4.13	4.17	0.04	1.05	1.09	—	4,993	4,993	0.40	0.32	13.4	5,113
Fast Food Restaurant with Drive Thru	7.24	6.90	3.58	30.8	0.07	0.05	5.70	5.75	0.05	1.45	1.49	—	6,686	6,686	0.41	0.37	18.5	6,826
Regional Shopping Center	16.9	16.1	9.00	79.0	0.18	0.13	15.5	15.6	0.12	3.93	4.05	—	17,999	17,999	1.01	0.95	50.2	18,358
Supermarket	18.2	17.1	11.3	102	0.25	0.18	21.9	22.1	0.17	5.57	5.73	—	25,167	25,167	1.20	1.22	71.1	25,631
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
Total	91.2	85.8	55.3	501	1.19	0.86	106	107	0.80	27.0	27.8	—	122,112	122,112	5.92	5.96	344	124,381
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	25.9	24.2	18.9	141	0.37	0.28	35.4	35.7	0.26	8.98	9.25	—	38,074	38,074	1.96	1.98	2.97	38,717
City Park	0.04	0.04	0.04	0.33	< 0.005	< 0.005	0.10	0.10	< 0.005	0.03	0.03	—	104	104	< 0.005	< 0.005	0.01	106

Hotel	2.96	2.75	2.22	16.6	0.04	0.03	4.23	4.26	0.03	1.07	1.11	—	4,542	4,542	0.23	0.23	0.36	4,617
General Office Building	0.78	0.70	0.80	6.06	0.02	0.01	1.80	1.81	0.01	0.46	0.47	—	1,902	1,902	0.07	0.09	0.15	1,931
Library	9.06	8.29	8.25	62.1	0.18	0.13	17.5	17.7	0.13	4.45	4.58	—	18,614	18,614	0.78	0.89	1.47	18,900
High Turnover (Sit Down Restaurant)	7.18	6.88	3.44	25.1	0.05	0.04	4.13	4.17	0.04	1.05	1.09	—	4,715	4,715	0.43	0.33	0.35	4,826
Fast Food Restaurant with Drive Thru	6.78	6.44	3.82	28.2	0.06	0.05	5.70	5.75	0.05	1.45	1.49	—	6,300	6,300	0.44	0.38	0.48	6,426
Regional Shopping Center	15.8	15.0	9.61	71.2	0.17	0.13	15.5	15.6	0.12	3.93	4.05	—	16,948	16,948	1.08	0.98	1.30	17,268
Supermarket	17.1	16.0	12.0	89.7	0.23	0.18	21.9	22.1	0.17	5.57	5.73	—	23,672	23,672	1.27	1.26	1.84	24,080
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
Total	85.7	80.2	59.1	441	1.12	0.86	106	107	0.80	27.0	27.8	—	114,871	114,871	6.28	6.15	8.93	116,870
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.60	4.28	3.44	26.1	0.07	0.05	6.24	6.29	0.05	1.58	1.63	—	6,242	6,242	0.32	0.32	8.04	6,354
City Park	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	9.44	9.44	< 0.005	< 0.005	0.01	9.59
Hotel	0.51	0.47	0.39	2.99	0.01	0.01	0.73	0.73	0.01	0.18	0.19	—	726	726	0.04	0.04	0.94	738

General Office Building	0.11	0.09	0.11	0.86	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	237	237	0.01	0.01	0.31	241
Library	1.41	1.29	1.32	10.1	0.03	0.02	2.71	2.73	0.02	0.69	0.71	—	2,677	2,677	0.11	0.13	3.49	2,722
High Turnover (Sit Down Restaurant)	1.04	1.00	0.51	3.77	0.01	0.01	0.60	0.60	0.01	0.15	0.16	—	632	632	0.06	0.04	0.77	647
Fast Food Restaurant with Drive Thru	0.97	0.92	0.56	4.20	0.01	0.01	0.81	0.82	0.01	0.21	0.21	—	836	836	0.06	0.05	1.05	854
Regional Shopping Center	2.33	2.20	1.44	10.9	0.02	0.02	2.26	2.28	0.02	0.57	0.59	—	2,302	2,302	0.15	0.13	2.92	2,348
Supermarket	2.68	2.51	1.93	14.7	0.04	0.03	3.42	3.45	0.03	0.87	0.89	—	3,430	3,430	0.18	0.18	4.41	3,493
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
Total	13.7	12.8	9.70	73.6	0.18	0.14	17.0	17.2	0.13	4.32	4.45	—	17,090	17,090	0.92	0.91	21.9	17,407

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	9,277	9,277	0.68	0.08	—	9,318
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	1,168	1,168	0.09	0.01	—	1,174
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	325	325	0.02	< 0.005	—	326
Library	—	—	—	—	—	—	—	—	—	—	—	—	356	356	0.03	< 0.005	—	358
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	726	726	0.05	0.01	—	730
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	153	153	0.01	< 0.005	—	153
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	738	738	0.05	0.01	—	741
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	1,792	1,792	0.13	0.02	—	1,800
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	145	145	0.01	< 0.005	—	146
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	14,681	14,681	1.07	0.13	—	14,747

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	9,277	9,277	0.68	0.08	—	9,318
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	1,168	1,168	0.09	0.01	—	1,174
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	325	325	0.02	< 0.005	—	326
Library	—	—	—	—	—	—	—	—	—	—	—	—	356	356	0.03	< 0.005	—	358
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	726	726	0.05	0.01	—	730
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	153	153	0.01	< 0.005	—	153
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	738	738	0.05	0.01	—	741
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	1,792	1,792	0.13	0.02	—	1,800
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	145	145	0.01	< 0.005	—	146
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	14,681	14,681	1.07	0.13	—	14,747

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,536	1,536	0.11	0.01	—	1,543
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	193	193	0.01	< 0.005	—	194
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	53.8	53.8	< 0.005	< 0.005	—	54.0
Library	—	—	—	—	—	—	—	—	—	—	—	—	59.0	59.0	< 0.005	< 0.005	—	59.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	120	120	0.01	< 0.005	—	121
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	25.3	25.3	< 0.005	< 0.005	—	25.4
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	122	122	0.01	< 0.005	—	123
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	297	297	0.02	< 0.005	—	298
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	24.1	24.1	< 0.005	< 0.005	—	24.2
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,431	2,431	0.18	0.02	—	2,441

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.84	0.42	7.18	3.06	0.05	0.58	—	0.58	0.58	—	0.58	—	9,118	9,118	0.81	0.02	—	9,144
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Hotel	0.05	0.03	0.47	0.39	< 0.005	0.04	—	0.04	0.04	—	0.04	—	559	559	0.05	< 0.005	—	561
General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Library	0.04	0.02	0.35	0.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	413	413	0.04	< 0.005	—	414
High Turnover (Sit Down Restaurant)	0.06	0.03	0.51	0.43	< 0.005	0.04	—	0.04	0.04	—	0.04	—	609	609	0.05	< 0.005	—	611
Fast Food Restaurant with Drive Thru	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	128
Regional Shopping Center	0.01	0.01	0.10	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	116	116	0.01	< 0.005	—	116
Supermarket	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	242	242	0.02	< 0.005	—	243

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
Total	1.04	0.52	9.03	4.61	0.06	0.72	—	0.72	0.72	—	0.72	—	11,318	11,318	1.00	0.02	—	11,349
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.84	0.42	7.18	3.06	0.05	0.58	—	0.58	0.58	—	0.58	—	9,118	9,118	0.81	0.02	—	9,144
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Hotel	0.05	0.03	0.47	0.39	< 0.005	0.04	—	0.04	0.04	—	0.04	—	559	559	0.05	< 0.005	—	561
General Office Building	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Library	0.04	0.02	0.35	0.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	413	413	0.04	< 0.005	—	414
High Turnover (Sit Down Restaurant)	0.06	0.03	0.51	0.43	< 0.005	0.04	—	0.04	0.04	—	0.04	—	609	609	0.05	< 0.005	—	611
Fast Food Restaurant with Drive Thru	0.01	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	128
Regional Shopping Center	0.01	0.01	0.10	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	116	116	0.01	< 0.005	—	116
Supermarket	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	242	242	0.02	< 0.005	—	243

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
Total	1.04	0.52	9.03	4.61	0.06	0.72	—	0.72	0.72	—	0.72	—	11,318	11,318	1.00	0.02	—	11,349
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.15	0.08	1.31	0.56	0.01	0.11	—	0.11	0.11	—	0.11	—	1,510	1,510	0.13	< 0.005	—	1,514
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Hotel	0.01	< 0.005	0.09	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.6	92.6	0.01	< 0.005	—	92.9
General Office Building	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.0	22.0	< 0.005	< 0.005	—	22.0
Library	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.4	68.4	0.01	< 0.005	—	68.6
High Turnover (Sit Down Restaurant)	0.01	0.01	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	101	101	0.01	< 0.005	—	101
Fast Food Restaurant with Drive Thru	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.2	21.2	< 0.005	< 0.005	—	21.2
Regional Shopping Center	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Supermarket	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.1	40.1	< 0.005	< 0.005	—	40.2
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
Total	0.19	0.10	1.65	0.84	0.01	0.13	—	0.13	0.13	—	0.13	—	1,874	1,874	0.17	< 0.005	—	1,879

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	1.55	0.78	13.3	5.65	0.08	1.07	—	1.07	1.07	—	1.07	0.00	16,845	16,845	0.32	0.03	—	16,862
Consumer Products	35.9	35.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	2.80	2.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	5.95	5.59	0.51	55.4	< 0.005	0.04	—	0.04	0.03	—	0.03	—	162	162	0.01	< 0.005	—	163
Total	46.2	45.1	13.8	61.1	0.09	1.11	—	1.11	1.10	—	1.10	0.00	17,007	17,007	0.32	0.03	—	17,025
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	1.55	0.78	13.3	5.65	0.08	1.07	—	1.07	1.07	—	1.07	0.00	16,845	16,845	0.32	0.03	—	16,862
Consumer Products	35.9	35.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	2.80	2.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	40.2	39.5	13.3	5.65	0.08	1.07	—	1.07	1.07	—	1.07	0.00	16,845	16,845	0.32	0.03	—	16,862
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.02	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	191	191	< 0.005	< 0.005	—	191
Consumer Products	6.55	6.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.51	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.74	0.70	0.06	6.93	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.4	18.4	< 0.005	< 0.005	—	18.5
Total	7.83	7.77	0.23	7.00	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	209	209	< 0.005	< 0.005	—	210

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	62.4	1,472	1,534	6.50	0.16	—	1,746
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	21.8	21.8	< 0.005	< 0.005	—	21.9
Hotel	—	—	—	—	—	—	—	—	—	—	—	5.15	22.7	27.9	0.53	0.01	—	44.9

General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.11	22.5	27.6	0.53	0.01	—	44.5
Library	—	—	—	—	—	—	—	—	—	—	—	1.80	7.93	9.73	0.19	< 0.005	—	15.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	9.69	42.7	52.4	1.00	0.02	—	84.5
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	2.04	8.98	11.0	0.21	0.01	—	17.8
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	8.64	38.1	46.8	0.89	0.02	—	75.4
Supermarket	—	—	—	—	—	—	—	—	—	—	—	10.6	46.9	57.5	1.09	0.03	—	92.7
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
Total	—	—	—	—	—	—	—	—	—	—	—	105	1,683	1,789	10.9	0.27	—	2,143
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	62.4	1,472	1,534	6.50	0.16	—	1,746
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	21.8	21.8	< 0.005	< 0.005	—	21.9
Hotel	—	—	—	—	—	—	—	—	—	—	—	5.15	22.7	27.9	0.53	0.01	—	44.9

General Office Building	—	—	—	—	—	—	—	—	—	—	—	5.11	22.5	27.6	0.53	0.01	—	44.5
Library	—	—	—	—	—	—	—	—	—	—	—	1.80	7.93	9.73	0.19	< 0.005	—	15.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	9.69	42.7	52.4	1.00	0.02	—	84.5
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	2.04	8.98	11.0	0.21	0.01	—	17.8
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	8.64	38.1	46.8	0.89	0.02	—	75.4
Supermarket	—	—	—	—	—	—	—	—	—	—	—	10.6	46.9	57.5	1.09	0.03	—	92.7
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
Total	—	—	—	—	—	—	—	—	—	—	—	105	1,683	1,789	10.9	0.27	—	2,143
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.3	244	254	1.08	0.03	—	289
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	3.62	3.62	< 0.005	< 0.005	—	3.63
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.85	3.76	4.62	0.09	< 0.005	—	7.44

General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.85	3.73	4.58	0.09	< 0.005	—	7.38
Library	—	—	—	—	—	—	—	—	—	—	—	0.30	1.31	1.61	0.03	< 0.005	—	2.60
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	1.60	7.08	8.68	0.17	< 0.005	—	14.0
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.34	1.49	1.82	0.03	< 0.005	—	2.94
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	1.43	6.31	7.74	0.15	< 0.005	—	12.5
Supermarket	—	—	—	—	—	—	—	—	—	—	—	1.76	7.76	9.52	0.18	< 0.005	—	15.3
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
Total	—	—	—	—	—	—	—	—	—	—	—	17.5	279	296	1.81	0.04	—	355

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	395	0.00	395	39.5	0.00	—	1,381
City Park	—	—	—	—	—	—	—	—	—	—	—	0.22	0.00	0.22	0.02	0.00	—	0.78
Hotel	—	—	—	—	—	—	—	—	—	—	—	31.3	0.00	31.3	3.13	0.00	—	109
General Office Building	—	—	—	—	—	—	—	—	—	—	—	7.52	0.00	7.52	0.75	0.00	—	26.3
Library	—	—	—	—	—	—	—	—	—	—	—	14.9	0.00	14.9	1.49	0.00	—	52.1
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.7	0.00	—	374
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	21.7	0.00	21.7	2.17	0.00	—	76.0
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	34.5	0.00	34.5	3.44	0.00	—	121
Supermarket	—	—	—	—	—	—	—	—	—	—	—	137	0.00	137	13.7	0.00	—	479
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
Total	—	—	—	—	—	—	—	—	—	—	—	748	0.00	748	74.8	0.00	—	2,619

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	395	0.00	395	39.5	0.00	—	1,381
City Park	—	—	—	—	—	—	—	—	—	—	—	0.22	0.00	0.22	0.02	0.00	—	0.78
Hotel	—	—	—	—	—	—	—	—	—	—	—	31.3	0.00	31.3	3.13	0.00	—	109
General Office Building	—	—	—	—	—	—	—	—	—	—	—	7.52	0.00	7.52	0.75	0.00	—	26.3
Library	—	—	—	—	—	—	—	—	—	—	—	14.9	0.00	14.9	1.49	0.00	—	52.1
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	107	0.00	107	10.7	0.00	—	374
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	21.7	0.00	21.7	2.17	0.00	—	76.0
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	34.5	0.00	34.5	3.44	0.00	—	121
Supermarket	—	—	—	—	—	—	—	—	—	—	—	137	0.00	137	13.7	0.00	—	479
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
Total	—	—	—	—	—	—	—	—	—	—	—	748	0.00	748	74.8	0.00	—	2,619

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	65.4	0.00	65.4	6.53	0.00	—	229
City Park	—	—	—	—	—	—	—	—	—	—	—	0.04	0.00	0.04	< 0.005	0.00	—	0.13
Hotel	—	—	—	—	—	—	—	—	—	—	—	5.18	0.00	5.18	0.52	0.00	—	18.1
General Office Building	—	—	—	—	—	—	—	—	—	—	—	1.24	0.00	1.24	0.12	0.00	—	4.35
Library	—	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.62
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	17.7	0.00	17.7	1.77	0.00	—	61.9
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	3.60	0.00	3.60	0.36	0.00	—	12.6
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	5.70	0.00	5.70	0.57	0.00	—	20.0
Supermarket	—	—	—	—	—	—	—	—	—	—	—	22.6	0.00	22.6	2.26	0.00	—	79.2
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
Total	—	—	—	—	—	—	—	—	—	—	—	124	0.00	124	12.4	0.00	—	434

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.22	9.22
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.8	32.8
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.35	9.35
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.96	1.96
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23

Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	357	357
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	410	410
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.22	9.22
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32.8	32.8
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.35	9.35
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.96	1.96
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	357	357
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	410	410
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.53	1.53
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.43	5.43
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.55	1.55
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.33	0.33
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Supermarket	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	59.1	59.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	68.0	68.0

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

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
Site Preparation	Site Preparation	11/5/2025	11/26/2025	5.00	16.0	—

Grading	Grading	11/26/2025	03/23/2026	5.00	84.0	—
Building Construction	Building Construction	03/23/2026	11/6/2028	5.00	686	—
Paving	Paving	07/23/2026	11/6/2026	5.00	77.0	—
Architectural Coating	Architectural Coating	08/23/2028	11/6/2028	5.00	54.0	—

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
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Crawler Tractors	Diesel	Average	4.00	8.00	87.0	0.43
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	2.00	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	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	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
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	3.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	13.0	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	372	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	107	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	74.5	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	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	2,916,000	972,000	344,189	114,730	34,081

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	320	0.00	—
Grading	—	—	1,680	0.00	—
Paving	0.00	0.00	0.00	0.00	21.9

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
Single Family Housing	8.82	0%
City Park	0.00	0%
Hotel	0.00	0%
General Office Building	0.00	0%

Library	0.00	0%
High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Regional Shopping Center	0.00	0%
Supermarket	0.00	0%
Parking Lot	3.07	100%
Other Asphalt Surfaces	9.97	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	453	0.03	< 0.005
2026	0.00	453	0.03	< 0.005
2027	0.00	453	0.03	< 0.005
2028	0.00	453	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
Single Family Housing	7,544	7,584	6,784	2,716,017	49,727	49,990	44,717	17,902,768
City Park	4.00	9.41	10.5	2,082	53.0	125	139	27,578
Hotel	848	855	630	298,521	5,923	5,975	4,398	2,085,156
General Office Building	192	33.1	10.5	52,333	2,544	439	139	693,376
Library	2,162	2,403	1,263	754,815	22,281	24,760	13,012	7,778,475
High Turnover (Sit Down Restaurant)	1,786	2,039	2,376	695,863	4,387	5,009	5,837	1,709,283

Fast Food Restaurant with Drive Thru	1,636	2,156	1,654	625,218	6,107	8,050	6,175	2,334,026
Regional Shopping Center	4,112	4,936	2,599	1,464,935	18,216	21,868	11,513	6,489,740
Supermarket	4,224	5,074	4,609	1,606,201	25,801	30,993	28,151	9,810,512
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

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	800
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

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)

2916000	972,000	344,189	114,730	34,081

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

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)
Single Family Housing	7,471,395	453	0.0330	0.0040	28,451,451
City Park	0.00	453	0.0330	0.0040	0.00
Hotel	940,998	453	0.0330	0.0040	1,745,474
General Office Building	261,648	453	0.0330	0.0040	413,800
Library	287,072	453	0.0330	0.0040	1,288,510
High Turnover (Sit Down Restaurant)	585,014	453	0.0330	0.0040	1,900,220
Fast Food Restaurant with Drive Thru	122,902	453	0.0330	0.0040	399,206
Regional Shopping Center	594,189	453	0.0330	0.0040	360,601
Supermarket	1,443,587	453	0.0330	0.0040	755,314
Parking Lot	117,147	453	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	453	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)
Single Family Housing	32,539,020	181,588,668
City Park	0.00	3,315,245
Hotel	2,688,878	0.00
General Office Building	2,666,006	0.00
Library	938,667	0.00
High Turnover (Sit Down Restaurant)	5,056,872	0.00
Fast Food Restaurant with Drive Thru	1,062,368	0.00
Regional Shopping Center	4,510,276	0.00
Supermarket	5,547,070	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	732	—
City Park	0.41	—
Hotel	58.0	—
General Office Building	14.0	—
Library	27.6	—
High Turnover (Sit Down Restaurant)	198	—
Fast Food Restaurant with Drive Thru	40.3	—
Regional Shopping Center	63.9	—
Supermarket	254	—
Parking Lot	0.00	—
Other Asphalt Surfaces	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
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	User Defined	750	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
City Park	Other commercial A/C and heat pumps	User Defined	750	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Hotel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Hotel	Other commercial A/C and heat pumps	User Defined	750	1.80	4.00	4.00	18.0
Hotel	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	User Defined	750	< 0.005	4.00	4.00	18.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	User Defined	750	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00

Library	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	User Defined	750	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	User Defined	750	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	User Defined	150	< 0.005	7.50	7.50	20.0
Regional Shopping Center	Other commercial A/C and heat pumps	User Defined	750	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Supermarket	Other commercial A/C and heat pumps	User Defined	750	< 0.005	4.00	4.00	18.0
Supermarket	Supermarket refrigeration and condensing units	User Defined	150	26.5	16.5	16.5	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

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	28.0	annual days of extreme heat
Extreme Precipitation	2.05	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	7.76	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	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	99.1

AQ-PM	56.1
AQ-DPM	64.1
Drinking Water	10.2
Lead Risk Housing	19.2
Pesticides	62.3
Toxic Releases	54.3
Traffic	43.8
Effect Indicators	—
CleanUp Sites	17.1
Groundwater	0.00
Haz Waste Facilities/Generators	40.9
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	72.0
Cardio-vascular	93.5
Low Birth Weights	68.4
Socioeconomic Factor Indicators	—
Education	49.4
Housing	62.4
Linguistic	56.3
Poverty	60.6
Unemployment	58.4

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	46.40061594
Employed	68.38188118
Median HI	54.09983318
Education	—
Bachelor's or higher	45.52803798
High school enrollment	100
Preschool enrollment	16.32234056
Transportation	—
Auto Access	70.20402926
Active commuting	11.88245862
Social	—
2-parent households	45.51520595
Voting	16.7842936
Neighborhood	—
Alcohol availability	82.6767612
Park access	53.93301681
Retail density	39.66380085
Supermarket access	38.16245348
Tree canopy	0.898242012
Housing	—
Homeownership	49.23649429
Housing habitability	68.70268189
Low-inc homeowner severe housing cost burden	15.42409855
Low-inc renter severe housing cost burden	85.268831
Uncrowded housing	85.268831
Health Outcomes	—
Insured adults	21.95560118
Arthritis	90.5

Asthma ER Admissions	30.2
High Blood Pressure	79.9
Cancer (excluding skin)	85.3
Asthma	49.0
Coronary Heart Disease	94.7
Chronic Obstructive Pulmonary Disease	86.1
Diagnosed Diabetes	80.8
Life Expectancy at Birth	17.2
Cognitively Disabled	33.5
Physically Disabled	52.4
Heart Attack ER Admissions	3.3
Mental Health Not Good	51.7
Chronic Kidney Disease	90.3
Obesity	37.0
Pedestrian Injuries	19.6
Physical Health Not Good	69.2
Stroke	88.3
Health Risk Behaviors	—
Binge Drinking	20.5
Current Smoker	45.9
No Leisure Time for Physical Activity	52.7
Climate Change Exposures	—
Wildfire Risk	18.6
SLR Inundation Area	0.0
Children	35.2
Elderly	94.0
English Speaking	77.1
Foreign-born	60.7

Outdoor Workers	46.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	84.1
Traffic Density	36.6
Traffic Access	23.0
Other Indices	—
Hardship	35.1
Other Decision Support	—
2016 Voting	26.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	63.0
Healthy Places Index Score for Project Location (b)	42.0
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
Land Use	Land uses modeled consistent with information provided in Traffic and on Site Plan
Construction: Construction Phases	Taken from latest provided construction schedule
Construction: Off-Road Equipment	Construction equipment based on consultation with the Project Team
Construction: Dust From Material Movement	Analysis conservatively assumes that up to 20 acres can be disturbed per day As such, the “Total Acres Graded” field in CalEEMod has been revised to 320 acres for site preparation (20 acres disturbed per day x 16 working days) and 1680 acres for grading activities (20 acres disturbed per day x 84 working days)
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Site Preparation, Grading, and Building Construction
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Vehicle Data	Trip characteristics based on information provided in the Traffic analysis Pass-by and internal capture was accounted for in the "Pass By Trip" category.
Operations: Hearths	SCAQMD Rule 445
Characteristics: Project Details	—
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively. Beginning 1 January 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater.

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