Rich-Haven Specific Plan, 2022 Amendment

GREENHOUSE GAS ANALYSIS

CITY OF ONTARIO

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LIST OF ABBREVIATED TERMS

%	Percent
°C	Degrees Celsius
°F	Degrees Fahrenheit
(1)	Reference
2016-2040 RTP/SCS	*Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategies*
2017 Scoping Plan	*Final 2017 Scoping Plan Update*
AB	Assembly Bill
AB 32	Global Warming Solutions Act of 2006
AB 1493	Pavley Fuel Efficiency Standards
AB 1881	California Water Conservation Landscaping Act of 2006
ACE	Affordable Clean Energy
AFUE	Annual Fuel Utilization Efficiency
Annex I	Industrialized Nations
APA	Administrative Procedure Act
AQIA	*Rich Haven Specific Plan Air Quality Impact Analysis*
BAU	Business As Usual
C_2F_6	Hexafluoroethane
C_2H_6	Ethane
$C_2H_2F_4$	Tetrafluroethane
$C_2H_4F_2$	Ethylidene Fluoride
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
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
CBSC	California Building Standards Commission
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
City	City of Ontario
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
CRRC	Cool Roof Rating Council
CTC	California Transportation Commission
DOF	Department of Finance
DWR	Department of Water Resources
EER	Energy Efficiency Ratio
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
GO-Biz	Governor's Office of Business and Economic Development
gpm	Gallons per Minute
GWP	Global Warming Potential
H_2O	Water
HERS	Home Energy Rating System
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

HSPF	Heating Seasonal Performance Factor
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
MMR	Mandatory Reporting Rule
$MMTCO_2e$	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	Rich-Haven Specific Plan, 2022 Amendment
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
SEER	Season Energy Efficiency Ratio
sf	Square Feet
SF_6	Sulfur Hexaflouride
SGC	Strategic Growth Council
SHGC	Solar Heat Gain Coefficient
SLPS	Short-Lived Climate Pollutant Strategy
SP	Service Population
Supreme Court	United States Supreme Court
SWCRB	State Water Resources Control Board
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
URBEMIS	Urban Emissions
UTR	Utility Tractors
VFP	Vehicle Fueling Positions
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 *Rich-Haven Specific Plan, 2022 Amendment Greenhouse Gas Analysis* (GHGA) are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* (*CEQA Guidelines*) as implemented by City of Ontario (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
Would the Project generate GHG emissions either directly or indirectly, that may have a significant impact on the environment?	6.0	*Potentially Significant*	*MM GHG-1*	*Significant and Unavoidable*
Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?	6.0	*Potentially Significant*	*MM GHG-1*	*Less-Than-Significant*

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).

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, are accounted for in the Project's emission calculations.

ES.3 PROJECT MITIGATION MEASURES (MM)

GHG MITIGATION MEASURES

MM GHG-1

Project development proposals shall implement Screening Table Measures that the requisite points per the City's Community Climate Action Plan (CCAP) Screening Tables. It is preliminarily estimated that the Project would be required to achieve at least 100 Screening Table points to ensure compliance with the CCAP. For informational purposes, a representative example of how the Project could achieve a minimum of 100 Screening Table Points through implementation of CCAP Screening Table Measures pursuant to Mitigation Measure GHG-1 is provided at Table ES-2 for the residential portions of the Project and Table ES-3 for the commercial and industrial portions of the Project.

TABLE ES-2: EXAMPLE CAP SCREENING TABLE MEASURES (RESIDENTIAL)

Feature	Description	Assigned Point Values	Project Point Values
Reduction Measure PS E1: Residential Energy Efficiency			
Building Envelope			
Insulation	Enhanced Insulation (rigid wall insulation R-13; roof/attic: R-38)	15	15
Windows	Enhanced Window Insulation (0.32 U-Factor, 0.25 SHGC)	7	7

Cool Roof	Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance)	12	12
Heating/Cooling Distribution System	Modest duct insulation (R-6)	7	7
	Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	12	12
Space Heating/Cooling Equipment	Very High Efficiency HVAC (SEER 16/80% AFUE or 9 HSPF)	9	9
Water Heaters	Very High Efficiency Water Heater (0.92 energy factor)	18	18
Artificial Lighting	Very High Efficiency Lights (100% of in-unit fixtures are high efficacy)	12	12
Reduction Measure PS W1: Residential Water Conservation			
Potable Water			
Showers	Water Efficient Showerheads (2.0 gpm)	3	3
Toilets	Water Efficient Toilets (1.5 gpm)	3	3
Faucets	Water Efficient Faucets	3	3
	Total Points Earned by Residential Project:		**101**

TABLE ES-3: EXAMPLE CAP SCREENING TABLE MEASURES (COMMERCIAL & INDUSTRIAL)

Feature	Description	Assigned Point Values	Project Point Values
Reduction Measure PS E3: Commercial/Industrial Energy Efficiency			
Building Envelope			
Insulation	Enhanced Insulation (rigid wall insulation R-13; roof/attic: R-38)	18	18
Windows	Enhanced Window Insulation (0.32 U-Factor, 0.25 SHGC)	8	8
Cool Roof	Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance)	14	14
Heating/Cooling Distribution System	Modest duct insulation (R-6)	8	8
	Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	14	14
Space Heating/Cooling Equipment	Very High Efficiency HVAC (SEER 16/80% AFUE or 9 HSPF)	12	12
Water Heaters	Very High Efficiency Water Heater (0.92 energy factor)	19	19
Artificial Lighting	Very High Efficiency Lights (100% of in-unit fixtures are high efficacy)	14	14
	Total Points Earned by Commercial/Industrial Project:		**107**

The City shall verify that Screening Table Measures achieving the requisite points are incorporated in development plans prior to the issuance of building permit(s) and/or site plans (as applicable). The City shall verify implementation of the selected Screening Table Measures prior to the issuance of Certificate(s) of Occupancy. At the discretion of the City, measures that provide GHG reductions equivalent to GHG emissions reductions achieved via the Screening Table Measures may be implemented. Air Quality Mitigation Measures

The following mitigation measures are identified in the Project Air Quality Impact Analysis. Although the purpose of these measures is to reduce criteria pollutant emissions, it is anticipated that implementation of these measures would also result in a reduction in Project GHG emissions. However, the extent to which GHG emissions would be reduced by implementation of these is not quantifiable.

MM AQ-1

Fugitive dust control measures that surpass SCAQMD Rule 403 minimum requires shall be implemented. Such measures include: use of nontoxic soil stabilizers, applying water every four hours to active soil disturbing activities and tarping and/or maintaining a minimum of 24 inches of freeboard on trucks hauling dirt, sand, soil, or other loose materials.

MM AQ-2

Construction equipment rated by the United States Environmental Protection Agency as having Tier 3 or higher exhaust emission limits shall be utilized.

MM AQ-3

Construction equipment shall be properly serviced and maintained to the manufacturer's standards.

MM AQ-4

Nonessential idling of construction equipment shall be limited to no more than five consecutive minutes.

MM AQ-5

Super-Compliant VOC paints for coating of architectural surfaces shall be used whenever possible.

MM AQ-6

The construction contractor shall use off-road diesel construction equipment that complies with EPA/CARB Tier 4 Interim or better emissions standards during all construction phases.

MM AQ-7

Legible, durable, weather-proof signs shall be placed at truck access gates, 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 AQ-8

Prior to tenant occupancy, the Project Applicant or successor(s) in interest shall provide documentation to the City demonstrating that occupants/tenants of the Project site have been provided documentation on funding opportunities, such as the Carl Moyer Program, that provide incentives for using cleaner-than-required engines and equipment.

MM AQ-9

Prior to the issuing of each building permit, the Project Applicant, successor(s) in interest, and contractors shall provide plans and specifications to the City that demonstrate that each project building is designed for passive heating and cooling and is designed to include natural light. Features designed to achieve this shall include the proper placement of windows, overhangs, and skylights.

MM AQ-10

Prior to the issuing of each building permit, the Project Applicant, successor(s) in interest, and 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 building that are to be landscaped in order that electrical equipment may be used for landscape maintenance.

MM AQ-11

Once constructed, the Project Applicant, successor(s) in interest shall ensure that all building tenants shall utilize electric equipment for landscape maintenance to the extent feasible, through requirements in the lease agreements.

MM AQ-12

Once constructed, through requirements in the lease agreements, the Project Applicant or successors in interest shall ensure that all building tenants shall utilize only electric or natural gas service yard trucks (hostlers), pallet jacks and forklifts, and other onsite equipment, through requirements in the lease agreements. Electric-powered service yard trucks (hostlers), pallet jacks and forklifts, and other onsite equipment shall also be required instead of diesel-powered equipment, if technically feasible. Yard trucks may be diesel fueled in lieu of electrically or natural gas fueled provided such yard trucks are at least compliant with California Air Resources Board (CARB) 2010 standards for on-road vehicles or CARB Tier 4 compliant for off-road vehicles.

MM AQ-13

Through requirements in the lease agreements, tenants that do not already operate 2010 and newer trucks shall apply in good faith for funding to replace/retrofit their trucks. Funding mechanisms include Carl Moyer, VIP, Prop 1B, SmartWay Finance, or other similar funds. If awarded, the tenant shall be required to accept and use the funding. Tenants shall be encouraged to consider the use of alternative fueled trucks as well as new or retrofitted diesel trucks. Tenants shall also be encouraged to become SmartWay Partners, if eligible. This measure shall not apply to trucks that are not owned or operated by the facility operator or facility tenants since it would

be infeasible to prohibit access to the site by any truck that is otherwise legal to operate on California roads and highways.

MM AQ-14

Through requirements in the lease agreements, tenants who employ 250 or more employees on a full- or part-time basis shall comply with SCAQMD Rule 2202, On-Road Motor Vehicle Mitigation Options. The purpose of this rule is to provide employees with a menu of options to reduce employee commute vehicle emissions. Tenants with less than 250 employees or tenants with 250 or more employees who are exempt from SCAQMD Rule 2202 (as stated in the Rule) shall either (a) join with a tenant who is implementing a program in accordance with Rule 2202 or (b) implement an emission reduction program similar to Rule 2202 with annual reporting of actions and results to the City. The tenant-implemented program would include, but not be limited to the following:

- Appoint a Transportation Demand Management (TDM) coordinator who would promote the TDM program, activities and features to all employees.
- Create and maintain a "commuter club" to manage subsidies or incentives for employees who carpool, vanpool, bicycle, walk, or take transit to work.
- Inform employees of public transit and commuting services available to them (e.g., social media, signage).
- Provide on-site transit pass sales and discounted transit passes.
- Guarantee a ride home.
- Offer shuttle service to and from public transit and commercial areas/food establishments, if warranted.

MM AQ-15

Prior to the issuance of a building permit, the Project Applicant or successor(s) in interest shall provide evidence to the City that loading docks are designed to be compatible with SmartWay trucks.

MM AQ-16

Upon occupancy and annually thereafter, the Project Applicant or successor(s) in interest shall provide the following information to all tenants:

- 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.

Tenants shall ensure that the above information is provided to employees and truck drivers as appropriate.

MM AQ-17

Prior to issuance of a building permit, the Project Applicant or successor(s) in interest 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.

MM AQ-18

Prior to issuance of an occupancy permit, the City shall confirm that signs clearly identifying approved trucks have been installed along any truck routes to and from the project site.

MM AQ-19

Prior to issuance of an occupancy permit(s) for commercial/retail/industrial tenants, tenants shall install (a) sign(s) on their respective property(ies) with telephone, email, and regular mail contact information for a designated tenant representative (representative) who would receive complaints about excessive noise, dust, fumes, or odors. The sign shall also identify contact data for the City for perceived Code violations. The representative shall keep records of any complaints received and actions taken to communicate with the complainant and resolve the complaint. The representative shall endeavor to resolve complaints within 24 hours.

MM AQ-20

Prior to issuance of a building permit for the Project industrial uses, the Project Applicant or successor(s) in interest shall provide the City with site and building specifications, drawings, and calculations that demonstrate that main electrical supply lines and panels have been sized to support heavy truck charging facilities when these trucks become available. The calculations shall be based on reasonable predictions from currently available truck manufacturer's data.

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1 INTRODUCTION

This report presents the results of the GHGA prepared by Urban Crossroads, Inc., for the proposed Meridian Rich-Haven Specific Plan, 2022 Amendment (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 BACKGROUND AND PROJECT DESCRIPTION

The Rich-Haven Specific Plan (RHSP) was approved by the City of Ontario in 2015, with subsequent Specific Plan Amendments approved in 2016, 2018, and 2021. The current (2021) Rich-Haven Specific Plan ("2021 Specific Plan") comprises approximately 584 acres located west of Interstate 15 (I-15), and south of State Route 60 (SR-60). The 2021 Specific Plan Area lies within the 8,200-acre Ontario Ranch area, bounded generally by Riverside Drive to the north, "Old" East Edison Avenue [alignment] to the south, Mill Creek Avenue and Hamner Avenue to the east, and Haven Avenue to the west. The location and boundaries of the 2022 RHSP Specific Plan Amendment evaluated herein coincide with the location and boundaries in the 2021 Specific Plan. The location of the Project is presented at Exhibit 1-A.

The 2021 Specific Plan entitlements allow for development of up to 7,194 dwelling units (all residential types), up to 990,902 square feet of commercial/office space, up to 1,183,525 square feet of light industrial uses, approximately 27 acres of public parkland, and approximately 20 acres of Southern California Edison (SCE) Parcel open space and SCE Easements. The 2022 RHSP Specific Plan Amendment (2022 Specific Plan Amendment, Project) evaluated proposes a new amendment of the RHSP as described herein.

Under the proposed 2022 RHSP Specific Plan Amendment, the Specific Plan Area would be developed with up to 7,194 dwelling units, up to 925,002 square feet of commercial space, and up to 2,767,148 square feet of light industrial uses. Other existing RHSP land uses, e.g., public parkland, Southern California Edison (SCE) Parcel open space and SCE Easements would not be substantively affected under the 2022 RHSP Specific Plan Amendment. This EIR evaluates potential environmental impacts of entire buildout of the Specific Plan Area that would result from the 2022 RHSP Specific Plan Amendment.

In summary, the proposed 2022 Specific Plan Amendment would result in the following primary revisions to the 2021 Specific Plan:

1. Total residential development within the Specific Plan Area would be maintained at 7,194 dwelling units. Residential units and residential densities would however be reassigned within the Specific Plan Area.
2. Total commercial development would be reduced by approximately 65,900 square feet, an approximate 6.7 percent reduction in the 2021 Specific Plan commercial entitlements.
3. Total light industrial development would be increased by approximately 1,583,623 square feet, an approximate 134 percent increase from the 2021 Specific Plan Amendment.

Other aspects and attributes of the 2021 Specific Plan would be substantively maintained under the proposed 2022 Specific Plan Amendment.

Note that portions of Planning Areas 3A and 4A within the Project site have been developed. Planning Areas 2, 3, 4A, 5C, 6, 10, and portions of 7, 8, and 9 are anticipated to be developed as part of the first phase with an anticipated Opening Year of 2024. Project Buildout and of Phase 2 is anticipated in Year 2027. Project Planning Areas and Phases are illustrated at Exhibit 1-B.

Table 1-1 presents the land uses that were assumed to be developed as part of Phase 1.

TABLE 1-1: PHASE 1 LAND USES

Land Use	Qty	Units
Business Park	316.725	TSF
High-Cube Cold Storage	454.244	TSF
High-Cube Fulfillment	1,404.417	TSF
High-Cube Transload	591.763	TSF
Multifamily (Low Rise) Residential	3,289	DU
Single Family Detached Residential	822	DU
Public Park	1.3	AC
Strip Retail	7.500	TSF
Gasoline Station	48	VFP
Shopping Center	162.137	TSF
High Turnover Restaurant	32.427	TSF
Fast Food Restaurant w/Drive Through	21.618	TSF

TSF = Thousand Square Feet
DU = Dwelling Units
AC = Acre
VFP = Vehicle Fueling Position

Table 1-2 presents the land uses that would be developed as part of Phase 2.

TABLE 1-2: PHASE 2 LAND USES

Land Use	Qty	Units
Multifamily (Low Rise) Residential	2,000	DU
Single Family Detached Residential	603	DU
Public Park	27	AC
Gasoline Station	48	VFP
Shopping Center	525.990	TSF
High Turnover Restaurant	105.198	TSF
Fast Food Restaurant w/Drive Through	70.132	TSF

TSF = Thousand Square Feet
DU = Dwelling Units
AC = Acre
VFP = Vehicle Fueling Position

According to the *Rich-Haven Specific Plan, 2022 Amendment Traffic Analysis*, at buildout following the development of Phases 1 and 2, the proposed Project is anticipated to generate a total of 95,552 two-way vehicle trips per day including 94,408 two-way passenger vehicle trips and 1,144 two-way truck trips per day (in actual vehicles) (13).

EXHIBIT 1-A: LOCATION MAP

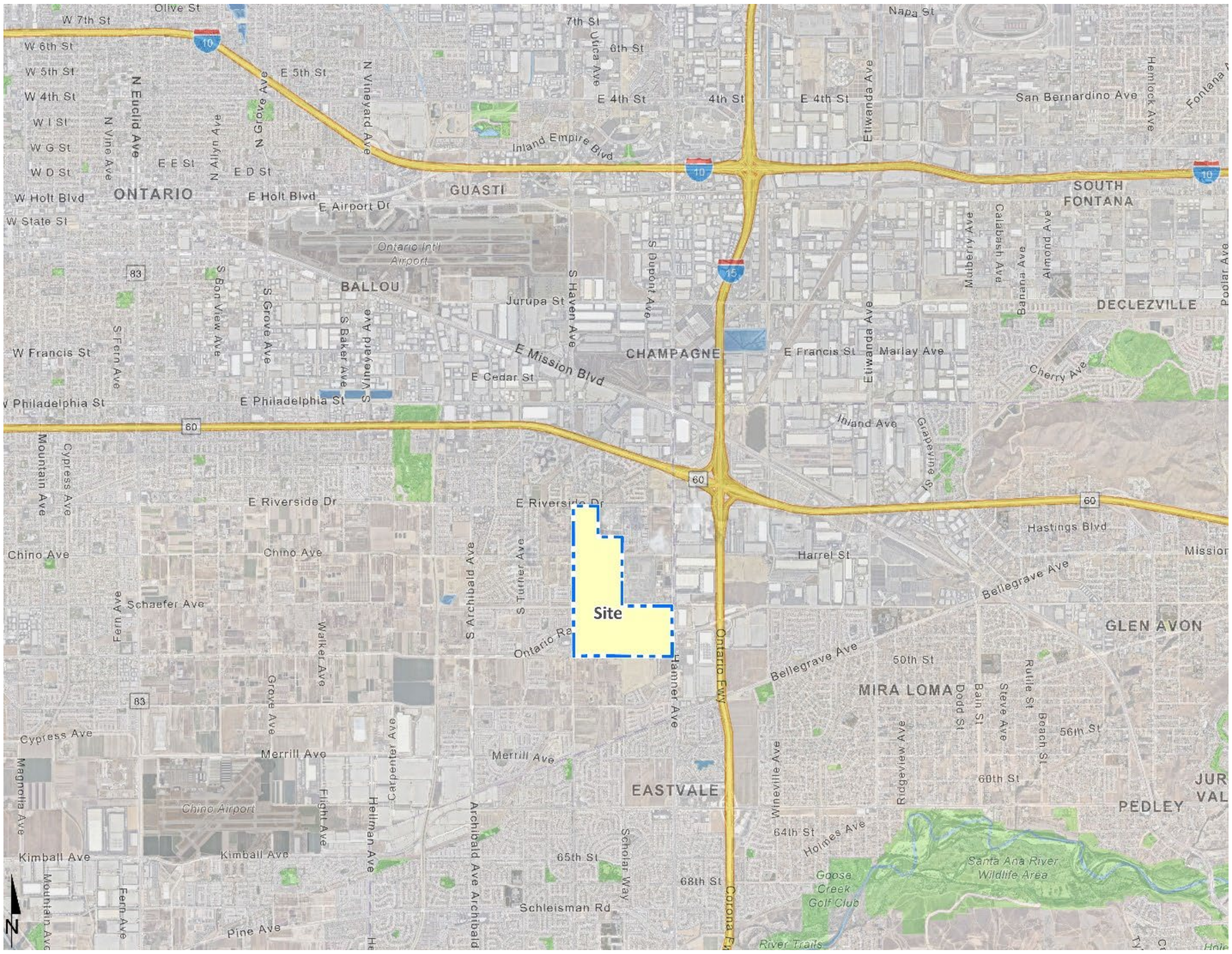
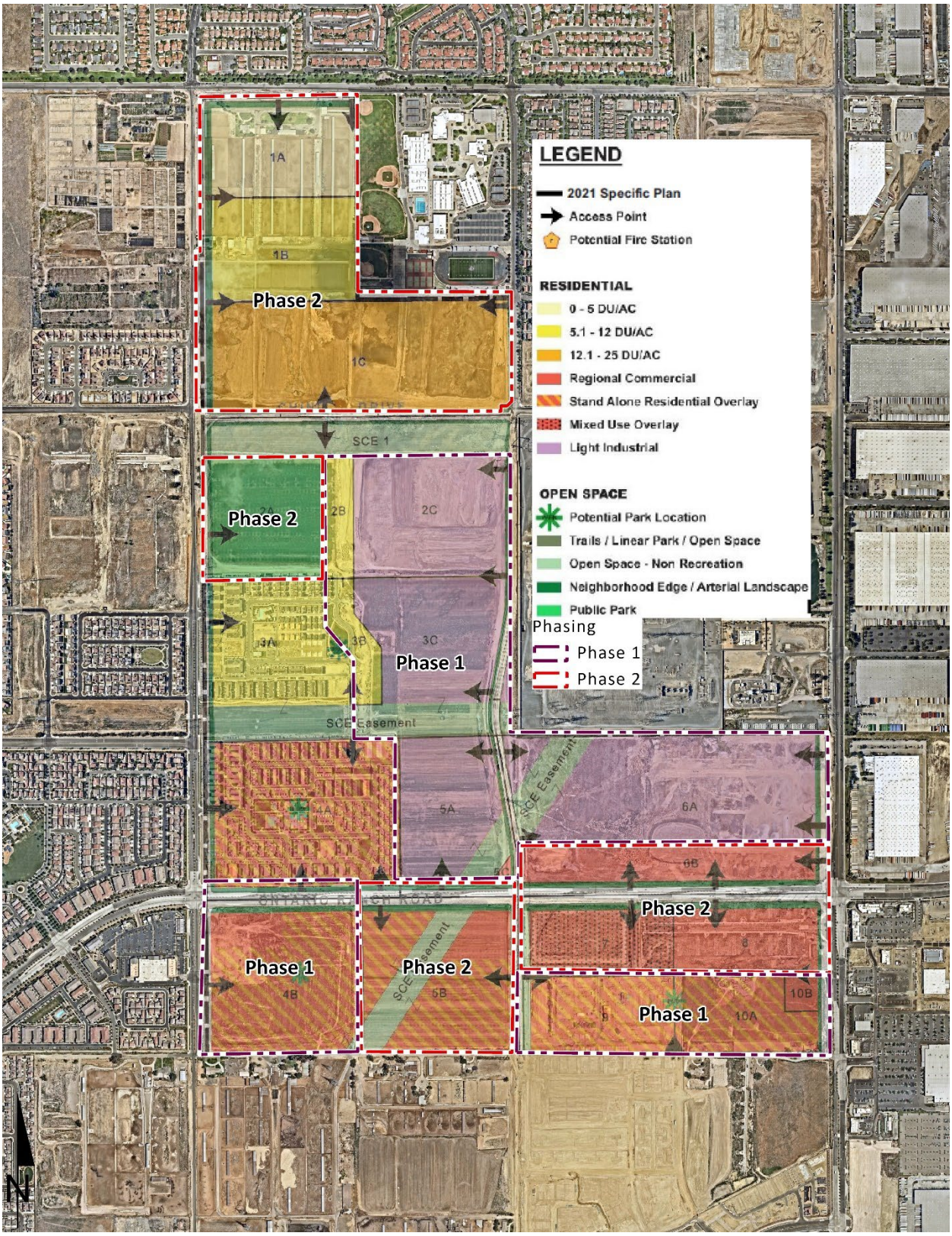


EXHIBIT 1-B: LAND USE PLAN



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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 radioactive 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 (see Table 3-1 later in this report) 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).

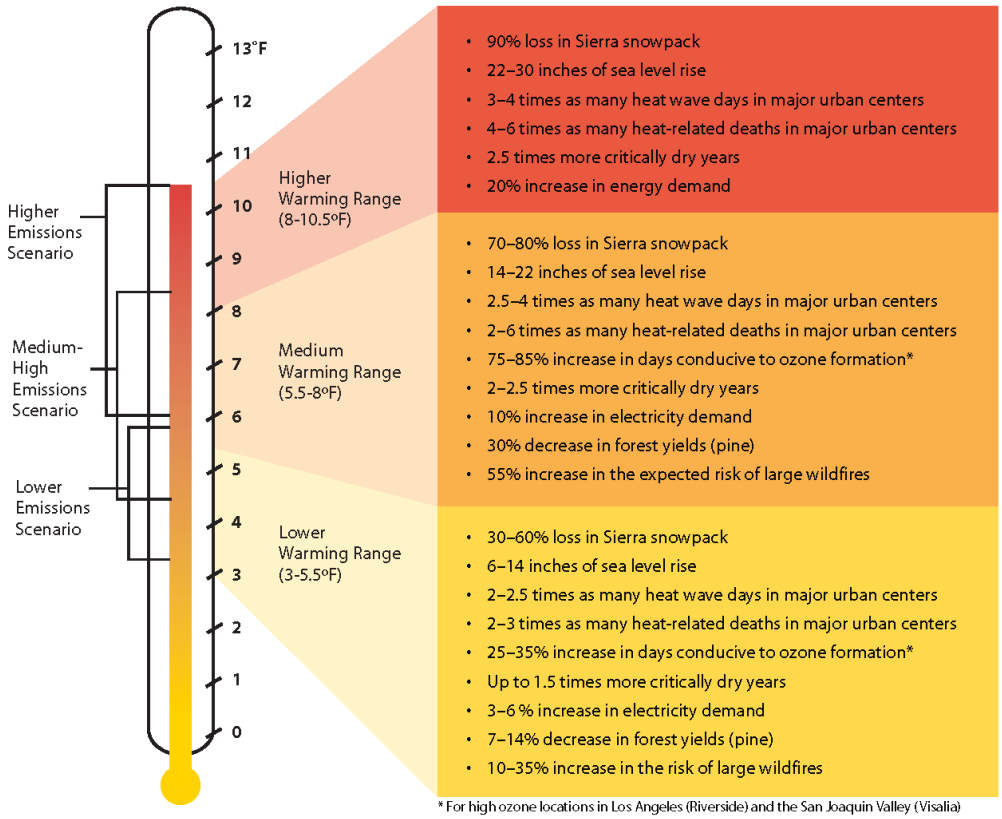
GHG	Description	Sources	Health Effects
		used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (19).	
Chlorofluorocarbons (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. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. 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 atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for the Second Assessment Report, the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for CO_2 to 23,900 for SF_6 and GWP for the IPCC's 5th Assessment Report range from 1 for CO_2 to 23,500 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	5th Assessment Report
CO_2	See*	1	1
CH_4	12 .4	21	28
N_2O	121	310	265
HFC-23	222	11,700	12,400
HFC-134a	13.4	1,300	1,300
HFC-152a	1.5	140	138
SF_6	3,200	23,900	23,500

*As per Appendix 8.A. of IPCC's 5th Assessment Report, no single lifetime can be given.
Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

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 2018. Based on the latest available data, the sum of these emissions totaled approximately 28,768,439 gigagram (Gg) CO_2e[1] (27) (28) as summarized on Table 2-3.

[1] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2018 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 2010, 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 2018.

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

Emitting Countries	GHG Emissions (Gg CO_2e)
China	12,300,200
United States	6,676,650
European Union (28-member countries)	4,232,274
Russian Federation	2,220,123
India	2,100,850
Japan	1,238,343
Total	**28,768,439**

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 2021 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted an average 418.2 million metric tons of CO_2e per year ($MMTCO_2e/yr$) or 418,200 Gg CO_2e (6.26% of the total United States GHG emissions) (30).

2.5.4 CITY OF ONTARIO

The City's Climate Action Plan includes a baseline inventory of city-wide GHG emissions for 2008. Based on the 2008 inventory, community activities within the City resulted in emissions of approximately 2.5 $MMTCO_2e/yr$. The largest source of GHG emissions within the City is transportation sources, accounting for approximately 38% of total community emissions for 2008.

2.5.5 PROJECT SITE

The Project site is generally vacant, and thus generates generally negligible GHG emissions.

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

[2] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in https://www.climatewatchdata.org site to reference Non-Annex I countries of China and India.

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 (31).

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) (32).

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 (33).

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 (34). 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 (35). 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 (36).

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 (36).

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 Court of Appeals ruled that the EPA's ACE Rule for GHG emissions from power plants rested on an erroneous interpretation of the CAA that barred EPA from considering measures beyond those that apply at and to an individual source. The court

therefore vacated and remanded the ACE Rule and adopted a replacement rule which regulates CO_2 emissions from existing power plants, potentially again considering generation shifting and other measures to more aggressively target power sector emissions.

CAP-AND-TRADE

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

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008 and 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 (37):

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.

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 WC's website (38):

> *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. (39)

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 (40):

- 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 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[3]). 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 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] 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 $MMTCO_2e$ (29). This is less than the 2020 emissions target of 431 $MMTCO_2e$.

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 in 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, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards for cars and light trucks, which other states can also adopt and enforce. With this authority restored, EPA will continue partnering with states to advance the next generation of clean vehicle technologies.

CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015 (SB 350)

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

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 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).

CARB SCOPING PLAN UPDATE

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 (41).

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 (42) (43).

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 (44).

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."* (45)

The Cap-and-Trade Program covers approximately 80% of California's GHG emissions (41). 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.

After a series of legal changes to address the court's 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 (46).

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. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

EXECUTIVE ORDER B-55-18 AND SB 100

SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25% of retail sales of electricity are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kW 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

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

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 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 will be effective on January 1, 2023.

Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction waste and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65% diversion requirement.

The code also provides exemptions for areas not served by construction waste and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2022 version of Title 24 was adopted by the CEC and will be effective on January 1, 2023.

The 2022 Title 24 standards would result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the SCAB and across the State of California. For example, the 2022 Title 24 standards require solar photovoltaic systems for new homes, encourage the use of heat pumps for space and water heating, and require homes to be electric-ready to ease the adoption of cleaner electric heating, cooking, and EV charging. 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 (47). The Project would be required to comply with the applicable standards in place at the time building permit document submittals are made. These require, among other items (48):

- EV Charging (new one- and two-family dwellings and townhouses 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 minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device (4.106.4.1).
- 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).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- 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. 5.3.3 (5.106.5.3).
- 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 combine 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 use 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 project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water use 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).

Additionally, under California's 2022 Title 24, Part 6 Building Energy Efficiency Standards, solar photovoltaic systems are required for newly constructed low-rise residential buildings and shall be sized sufficient to offset the electricity use of the proposed building as if it was a mixed-fuel building.

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.

TRACTOR-TRAILER GHG REGULATION

The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the HD tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors MY 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

PHASE I AND 2 HEAVY-DUTY VEHICLE GHG STANDARDS

In September 2011, CARB has adopted a regulation for GHG emissions from HDTs and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the EPA rule for new trucks and engines nationally. Existing HD vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer GHG Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. The EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements began with MY 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) HD pickups and vans; b) vocational vehicles; and c) combination tractors. The EPA rule does not regulate trailers.

CARB staff has worked jointly with the EPA and the NHTSA on the next phase of federal GHG emission standards for medium-duty trucks (MDT) and HDT vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later MY HDT vehicles, including trailers. The EPA and NHTSA have proposed to roll back GHG and fuel economy standards for cars and light-duty trucks, which suggests a similar rollback of Phase 2 standards for MDT and HDT vehicles may be pursued.

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 (49).

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. SCAQMD acts as an expert commenting agency for impacts to air quality.

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 identified several different options that are contained in the SCAQMD Draft Guidance Document – *Interim CEQA GHG Significance Threshold*, however no thresholds for CEQA land use development projects were adopted. The Working Group has not convened a meeting since November 2009

nor has the Working Group provided additional guidance since release of the interim guidance in 2008.

3.6 CITY OF ONTARIO

CITY OF ONTARIO CLIMATE ACTION PLAN

The City of Ontario initially adopted its Climate Action Plan on December 16, 2014 (2014 CAP). The 2014 CAP provided guidance on the City of Ontario's GHG Inventory reduction goals, policies, guidelines, and implementation programs. The CAP also established guidance and protocols addressing analysis of GHG emissions impacts and determination of GHG emissions impact significance (50).

As part of the 2014 CAP, the City of Ontario published a guidance document titled "Greenhouse Gas Emissions, CEQA Thresholds and Screening Tables" (December 2014). Under this guidance, "Mixed-Use Projects [such as the proposed RHSP - 2022 SPA considered herein] that garner at least 100 points will be consistent with the reduction quantities in the City's CAP and are considered less than significant for GHG emissions (*Greenhouse Gas Reduction Measures Screening Threshold Tables Directions*, p. 1).

The Ontario Plan (TOP) 2050 includes an update to the 2014 CAP, referred to herein as the 2022 Community Climate Action Plan Update (2022 CCAP Update). The 2022 CCAP Update furthers the City efforts to reduce GHG emissions and improve community resilience to hazardous conditions associated with climate change. The 2022 CCAP Update includes updated emissions inventories; updated emissions forecasts; identifies GHG emissions reduction targets to achieve the GHG reduction goals of the City of Ontario consistent with Senate Bill 32, Executive Order S-03-05, and substantial progress toward the State's carbon neutrality goals of Executive Order B-55-18; and measures, that when quantified, achieve the GHG reduction targets for the City. As noted in the TOP 2050 EIR, the measures included in the 2022 CCAP Update are not substantially different than that of the 2014 CCAP and therefore there is no change in the environmental impacts associated with the CCAP.

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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 significance criteria, a project would result in a significant impact related to GHG if it would (16):

- GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

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

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

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

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

4.1 THRESHOLDS OF SIGNIFICANCE

Based on the foregoing guidance, the City has elected to rely on compliance with a local air district threshold in the determination of significance of Project-related GHG emissions. Specifically, the City has selected the interim 3,000 $MTCO_2e$ per year threshold recommended by SCAQMD staff for residential and commercial sector projects against which to compare Project-related GHG emissions.

The 3,000 $MTCO_2e$ per year threshold is based on a 90 percent emission "capture" rate methodology. Prior to its use by the SCAQMD, the 90 percent emissions capture approach was one of the options suggested by the California Air Pollution Control Officers Association (CAPCOA) in their *CEQA & Climate Change* white paper (2008). A 90 percent emission capture rate means that unmitigated GHG emissions from the top 90 percent of all GHG-producing projects within a geographic area – the SCAB in this instance – would be subject to a detailed analysis of potential environmental impacts from GHG emissions, while the bottom 10 percent of all GHG-producing projects would be excluded from detailed analysis. A GHG significance threshold based on a 90 percent emission capture rate is appropriate to address the long-term adverse impacts associated with global climate change because medium and large projects will be required to implement measures to reduce GHG emissions, while small projects, which are generally infill development projects that are not the focus of the State's GHG reduction targets, are allowed to proceed. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial proportion of future development projects and demonstrate that cumulative emissions reductions are being achieved while setting the emission threshold high enough to exclude small projects that will, in aggregate, contribute approximate 1 percent of projected statewide GHG emissions in the Year 2050 (51).

In setting the threshold at 3,000 $MTCO_2e$ per year, SCAQMD researched a database of projects kept by the Governor's Office of Planning and Research (OPR). That database contained 798 projects, 87 of which were removed because they were very large projects and/or outliers that would skew emissions values too high, leaving 711 as the sample population to use in determining the 90th percentile capture rate. The SCAQMD analysis of the 711 projects within the sample population combined commercial, residential, and mixed-use projects. It should be noted that the sample of projects included warehouses and other light industrial land uses but did not include industrial processes (i.e., oil refineries, heavy manufacturing, electric generating stations, mining operations, etc.). Emissions from each of these projects were calculated by SCAQMD to provide a consistent method of emissions calculations across the sample population and from projects within the sample population. In calculating the emissions, the SCAQMD analysis determined that the 90th percentile ranged between 2,983 to 3,143 $MTCO_2e$ per year. The SCAQMD set their significance threshold at the low-end value of the range when rounded to the nearest hundred tons of emissions (i.e., 3,000 $MTCO_2e$ per year) to define small projects that are considered less than significant and do not need to provide further analysis.

The City understands that the 3,000 $MTCO_2e$ per year threshold for residential/commercial uses was proposed by SCAQMD a decade ago and was adopted as an interim policy; however, no permanent, superseding policy or threshold has since been adopted. The 3,000 $MTCO_2e$ per year

threshold was developed and recommended by SCAQMD, an expert agency, based on substantial evidence as provided in the Draft Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold (2008) document and subsequent Working Group meetings (latest of which occurred in 2010). SCAQMD has not withdrawn its support of the interim threshold and all documentation supporting the interim threshold remains on the SCAQMD website on a page that provides guidance to CEQA practitioners for air quality analysis (and where all SCAQMD significance thresholds for regional and local criteria pollutants and toxic air contaminants also are listed). Further, as stated by SCAQMD, this threshold "uses the Executive Order S-3-05 goal [80 percent below 1990 levels by 2050] as the basis for deriving the screening level" and, thus, remains valid for use in 2022 (51). Lastly, this threshold has been used for hundreds, if not thousands of GHG analyses performed for projects located within the SCAQMD jurisdiction.

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

As noted above in Section 3.6, the 2022 CCAP Update includes updated emissions inventories; updated emissions forecasts; identifies GHG emissions reduction targets to achieve the GHG reduction goals of the City of Ontario consistent with Senate Bill 32, Executive Order S-03-05, and substantial progress toward the State's carbon neutrality goals of Executive Order B-55-18; and measures, that when quantified, achieve the GHG reduction targets for the City. As noted in the TOP 2050 SEIR, the measures included in the 2022 update to the CCAP are not substantially different than that of the 2014 CCAP. Under the 2022 CCAP Update, mixed use developments that garner at least 100 Screening Table points would be consistent with the GHG emissions reduction targets in the City's 2022 CCAP Update. As substantiated herein, with application of Mitigation Measure GHG-1, the Project would attain more than 100 Screening Table points. The Project is therefore determined to be consistent with the 2022 CCAP Update.

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5 PROJECT GREENHOUSE GAS IMPACT

5.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant GHG impact. It should be noted that quantification of the Project's GHG emissions is provided herein for informational purposes only.

5.2 METHODOLOGY

5.2.1 CALEEMOD

In May 2022, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the CalEEMod Version 2022.1. 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 (52). 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, on-site cargo handling equipment, water, and waste.

5.2.2 LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for project-level construction-source and operational-source GHG emissions is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (53). 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 (54). 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

One-time emissions are those emissions that are not recurring over the life of the project. This includes emissions associated with project construction. Project construction actvities would generate CO_2 and CH_4 emissions The report *Rich-Haven Specific Plan, 2022 Amendment Air Quality Impact Analysis Report* (AQIA) prepared by Urban Crossroads, Inc., contains detailed

information regarding Project construction activities (55). As discussed in the AQIA, construction related emissions are expected from the following construction activities:

PHASE 1

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

PHASE 2

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

5.3.2 CONSTRUCTION DURATION

Construction is expected to commence in January 2023 and will end in December 2026. The construction schedule utilized in the analysis, shown in Table 5-1, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[4] 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

Phase	Construction Activity	Start Date	End Date	Days
Phase 1	Site Preparation	1/1/2023	4/30/2023	85
	Grading	5/1/2023	11/30/2023	154
	Building Construction	12/1/2023	12/31/2024	283
	Paving	9/1/2024	12/31/2024	87
	Architectural Coating	2/1/2024	12/31/2024	239
Phase 2	Demolition	1/1/2024	3/31/2024	65
	Site Preparation	4/1/2024	8/31/2024	110

[4] As shown in the CalEEMod User's Guide Version 2022.1, Section 4.3 "OFFROAD Equipment" 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.

Phase	Construction Activity	Start Date	End Date	Days
	Grading	9/1/2024	4/30/2025	173
	Building Construction	5/1/2025	12/31/2026	436
	Paving	9/1/2026	12/31/2026	88
	Architectural Coating	6/1/2026	12/31/2026	154

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.

TABLE 5-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase	Construction Activity	Equipment	Amount	Hours Per Day
Phase 1	Site Preparation	Rubber Tired Dozers	9	8
		Crawler Tractors	12	8
	Grading	Excavators	6	8
		Graders	3	8
		Rubber Tired Dozers	3	8
		Scrapers	6	8
		Crawler Tractors	6	8
	Building Construction	Cranes	3	8
		Forklifts	9	8
		Generator Sets	3	8
		Tractors/Loaders/Backhoes	9	8
		Welders	3	8
	Paving	Pavers	6	8
		Paving Equipment	6	8
		Rollers	6	8
	Architectural Coating	Air Compressors	3	8
Phase 2	Demolition	Concrete/Industrial Saws	3	8
		Excavators	9	8
		Rubber Tired Dozers	6	8
	Site Preparation	Rubber Tired Dozers	9	8
		Crawler Tractors	12	8

Phase	Construction Activity	Equipment	Amount	Hours Per Day
	Grading	Excavators	6	8
		Graders	3	8
		Rubber Tired Dozers	3	8
		Scrapers	6	8
		Crawler Tractors	6	8
	Building Construction	Cranes	3	8
		Forklifts	9	8
		Generator Sets	3	8
		Tractors/Loaders/Backhoes	9	8
		Welders	3	8
	Paving	Pavers	6	8
		Paving Equipment	6	8
		Rollers	6	8
	Architectural Coating	Air Compressors	3	8

5.3.4 GHG EMISSIONS FROM ON-ROAD TRIPS

Construction worker and construction vendor trips generate vehicle-source GHG emissions. Estimated worker and vendor trips are presented below in Table 5-3.

TABLE 5-3: CONSTRUCTION TRIP ASSUMPTIONS

Phase	Construction Activity	Worker Trips Per Day	Vendor Trips Per Day	Hauling Trips Per Day
Phase 1	Site Preparation	53	152	0
	Grading	60	275	0
	Building Construction	3,874	505	0
	Paving	45	0	0
	Architectural Coating	775	0	0
Phase 2	Demolition	45	33	6
	Site Preparation	53	55	0
	Grading	60	87	0
	Building Construction	1,901	219	0
	Paving	45	0	0
	Architectural Coating	380	0	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 (56). Accordingly. , 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	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	Refrigerants	Total CO_2e
2023	3,698.00	0.20	0.18	2.38	3,759.00
2024	12,592.00	0.63	0.61	16.24	12,807.00
2025	4,058.00	0.20	0.18	4.24	4,122.00
2026	5,187.00	0.15	0.26	6.06	5,273.00
Total GHG Emissions	25,535.00	1.18	1.23	28.92	25,961.00
Amortized Construction Emissions	**851.17**	**0.04**	**0.04**	**0.96**	**865.37**

5.4 OPERATIONAL EMISSIONS

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

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- On-Site Equipment Emissions
- Water Supply, Treatment, and Distribution
- TRU Source Emissions
- Solid Waste

5.4.1 AREA SOURCE EMISSIONS

CalEEMod estimates area source GHG emissions resulting from landscape maintenance equipment. Detailed operational model outputs are presented in Appendix 5.2.

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 2024. For purposes of analysis, the emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

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. Combustion of any type of fuel emits CO2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building; the building energy use emissions do not include street lighting5. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

RENEWABLE PORTFOLIO STANDARD

Indirect emissions from electricity use were modeled based on electricity intensity factors for the Project utility provider, Southern California Edison (SCE). CalEEMOD derives energy intensity factors from 2019 data, which indicates that in 2019 SCE generated 393 pounds of CO2e for each megawatt-hour (MWh) of electricity delivered. SCE had a power mix with 38% renewables in 2019 and is projected to meet the 44% renewables requirement by 2024 (57). The 2019 reported energy intensity factors were used in this analysis of GHG emissions.

5.4.3 MOBILE SOURCE EMISSIONS

Approximately 72 percent of the Project operational-source GHG emissions would be generated by mobile-sources (vehicle traffic) accessing the Project site. Trip characteristics available from the *Rich Haven Specific Plan Traffic Analysis* were utilized in this analysis (58). The mobile-source emissions were calculated based on trip rates and trip lengths. Detailed operational model outputs are presented in Appendices 5.4 through 5.7.

Per the *Rich Haven Specific Plan Traffic Analysis*, at buildout the Project is expected to generate a total of approximately of 95,552 trip-ends per day with 8,079 AM peak hour trips and 8,036 PM peak hour trips (in actual vehicles) (58).

TRIP RATES

The trip generation rates used for this analysis are consistent with the rates provided in the *Rich Haven Specific Plan 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 (58).

[5] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

TRIP LENGTHS

To determine emissions associated with the retail, active park, and public park land uses from all vehicle types (Light-Duty-Auto vehicles [LDA], Light-Duty Trucks [LDT1][6], Light-Duty Trucks [LDT2][7], Medium-Duty Trucks [MDV], Other Buses [OBUS[8]], Urban Buses [UBUS[9]], Motorcycle [MCY], School Buses [SBUS], and Motor Homes [MH], heavy duty trucks (2-axle/Light-Heavy-Duty Trucks [LHDT1[10] and LHDT2[11]], 3-axle/Medium-Heavy-Duty Trucks [MHDT], and 4+-axle/Heavy-Heavy-Duty Trucks [HHDT]), the CalEEMod default for vehicle type, trip purpose and one-way trip length was employed. In order to determine emissions from passenger car vehicles, CalEEMod defaults for trip length and trip purpose were utilized. 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.

To determine emissions from passenger car vehicles associated with the high-cube fulfillment center and business park uses, the CalEEMod defaults for trip purpose and a trip length were utilized. It should also be noted that for purposes of this analysis, passenger cars related to the high-cube fulfillment center and business park uses include LDA, LDT1, LDT2, MDV, and MCY vehicle types. The CalEEMod default fleet mix was utilized for residential, retail, and recreational land uses. To account for emissions generated by passenger cars accessing the business park, high-cube cold storage, high-cube fulfillment, and high-cube transload land uses the following fleet mix was utilized in this analysis:

TABLE 5-5: PASSENGER CAR FLEET MIX

Land Use	% Vehicle Type				
	LDA	LDT1	LDT2	MDV	MCY
Phase 1 (2024)	54.62%	4.53%	21.75%	16.80%	2.30%
Buildout (2027)	53.99%	4.16%	23.01%	16.58%	2.26%

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

To determine emissions from trucks for the proposed industrial uses, the analysis incorporated the SCAQMD recommended truck trip length of 14.2 miles for 2-axle (LHDT1 and LHDT2) trucks, 15.3 miles for 3-axle (MHDT) trucks, and 39.9 miles for 4+-axle (HHDT) trucks and weighting the average trip lengths using traffic trip percentages taken from the *Rich-Haven Specific Plan, 2022 Amendment Traffic Study*. The trip length function for the industrial uses has been conservatively calculated to 31.31 miles, with an assumption of 100% primary trips for the proposed industrial land uses. This trip length assumption is higher than the CalEEMod default trip length. Heavy trucks are broken down by truck type (or axle type) and are categorized as either Light-Heavy-

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

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

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

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

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

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

Duty Trucks (LHDT1[12] & LHDT2 [13])/2-axle, Medium-Heavy-Duty Trucks (MHDT)/3-axle, and Heavy-Heavy-Duty Trucks (HHDT)/4+-axle. To account for emissions generated by trucks, the following fleet mix was utilized in this analysis:

TABLE 5-6: TRUCK FLEET MIX

Land Use	% Vehicle Type			
	LHDT1	LHDT2	MHDT	HHDT
Phase 1 (2024)	15.76%	4.25%	14.25%	65.73%
Buildout (2027)	15.71%	4.30%	14.25%	65.73%

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

5.4.4 TRU Source Emissions

In order to account for the possibility of refrigerated uses, trucks associated with the assumed 454,244 square feet of cold-storage land use(s) are assumed to also have TRUs. For modeling purposes 174 trucks (348 two-way truck trips per day) are assumed to have the potential to include TRUs. TRUs are accounted for during on-site and off-site travel. The TRU calculations are based on EMissions FACtor Model version 2021 (EMFAC2021), developed by the CARB. EMFAC2021 does not provide emission rates per hour or mile as with the on-road emission model and only provides emission inventories. Emission results are produced in tons per day while all activity, fuel consumption and horsepower hours were reported at annual levels. The emission inventory is based on specific assumptions including the average horsepower rating of specific types of equipment and the hours of operation annually. These assumptions are not always consistent with assumptions used in the modeling of project-level emissions. Therefore, the emissions inventory was converted into emission rates to accurately calculate emissions from TRU operation associated with project level details. This was accomplished by converting the annual horsepower hours to daily operational characteristics and converting the daily emission levels into hourly emission rates based on the total emission of each criteria pollutant by equipment type and the average daily hours of operation.

5.4.5 On-Site Cargo Handling Equipment Emissions

It is common for warehouse buildings to require the operation of exterior cargo handling equipment in the building's truck court areas. For this particular Project, on-site modeled operational equipment includes up to ten (10) 200 horsepower (hp), compressed natural gas or gasoline-powered tractors/loaders/backhoes operating at 4 hours a day[14] for 365 days of the year.

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

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

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

5.4.6 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. CalEEMod default parameters were used to estimate GHG emissions associated with water supply, treatment and distribution for the Project scenario.

5.4.7 SOLID WASTE

GHG emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CAPCOA 2017). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle). CalEEMod based solid waste generation on a 2008 waste characterization study. Since the publication of the 2008 survey, statewide diversion has increased by approximately 25%. As a conservative measure, the analysis is based on CalEEMod default parameters.

5.4.8 GHG EMISSIONS

The annual GHG emissions associated with the Project at buildout are summarized in Table 5-7. As shown in Table 5-7, construction and operation of the Project would generate a total of 129,314.95 $MTCO_2e$/yr.

TABLE 5-7: PROJECT GHG EMISSIONS

Emission Source	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	Refrigerants	Total CO_2e
Annual construction-related emissions amortized over 30 years	851.17	0.04	0.04	0.96	865.37
Mobile	90,393.00	5.73	6.30	121.40	92,535.00
Area	1,553.00	0.03	0.05	0	1,567.00
Energy	25,030.00	2.30	0.17	0	25,138.00
Water	1,514.00	33.47	0.81	0	2,591.00
Waste	1,015.00	101.30	0	0	3,548.00
Refrigerants	0	0	0	117.00	117.00
TRUs					2479.91
On-Site Equipment					473.67
Total CO_2e (All Sources)	**129,314.95**				

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6 GHG EMISSIONS FINDINGS AND RECOMMENDATIONS

6.1 PROJECT IMPACTS

GHG -1: Would the Project generate GHG emissions either directly or indirectly, that may have a significant impact on the environment?

Implementation of a development project could contribute to global climate change through direct emissions of GHGs from on-site area sources and vehicle trips generated by the project, and indirectly through offsite energy production required for on-site activities, water use, and waste disposal. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis consistent with the requirements outlined in CEQA Guidelines 15064(h)(3).

As previously noted, a project would result in a significant impact related to GHG if it would (59):

GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The annual GHG emissions associated with the operation of the proposed Project would result in direct and indirect emissions of CO2, CH4, and N2O and would not generate other GHGs of sufficient quantity to affect the analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct Project-related GHG emissions include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from electricity consumption, water demand, and solid waste generation. Project-related GHG emissions were quantified with CalEEMod, which relies upon vehicle trip rates and Project-specific land use data to calculate emissions (as discussed previously in Section 5.0 of this report. The emissions are summarized in Table 5-7 (previously presented). As shown construction and operation of the Project would generate a total of approximately 129,314.95 MTCO2e/yr, which would exceed the SCAQMD significance threshold of 3,000 MTCO2e/yr; therefore, Project-related GHG emissions are considered potentially significant. The majority of the GHG emissions (72 percent unmitigated) are associated with non-construction related mobile sources, as shown on Table 5-7, previously presented. 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 effect or mandate substantial reductions in vehicular-source GHG emissions, much less reductions that would achieve no net increase condition or achieve the SCAQMD 3,000 MTCO2e/year threshold. In effect, all Project traffic would need to be eliminated or be "zero GHG emissions sources" in order to achieve the SCAQMD threshold. There are no feasible means to or alternatives to eliminate all Project traffic, or to ensure that Project traffic would zero GHG emissions sources. In terms of its practical application, this would constitute a "no build" condition.

LEVEL OF SIGNIFICANCE

Significant and unavoidable impact. No additional feasible mitigation measures are available that can reduce impacts to less than significant. As explained above, the Project incorporates all feasible mitigation measures that could be implemented to further reduce the Project's GHG

emissions below the 3,000 $MTCO_2e$ threshold. There are no additional measures available that would further reduce emissions because the majority of the Project's emissions come from mobile sources which are regulated by the State and not the City of Ontario.

GHG-2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

The Project is consistent with TOP 2050, and GHG emissions modeling reflected in TOP 2050 – 2022 CCAP Update. The 2022 CCAP Update provides guidance on how to analyze GHG emissions and determine significance during the CEQA review of proposed development projects within the City. Because the 2022 CCAP Update addresses GHG emissions reductions and is consistent with the requirements of AB 32, SB 32, and international efforts to reduce GHG emissions, compliance with the 2022 CCAP Update fulfills the description of mitigation found in the State CEQA Guidelines. As substantiated herein, with the application of Mitigation Measure GHG-1, the Project would attain more than 100 Screening Table points. The Project is therefore determined to be consistent with the 2022 CCAP Update.

MITIGATION MEASURES

Refer to MM AQ-7 through MM AQ-20 from the Air Quality Impact Analysis. These measures would have the co-benefit of reducing GHG emissions. Additionally, the following mitigation measures are required:

MM GHG-1

Project development proposals shall implement Screening Table Measures that the requisite points per the City's Community Climate Action Plan (CCAP) Screening Tables. It is preliminarily estimated that the Project would be required to achieve at least 100 Screening Table points to ensure compliance with the CCAP. For informational purposes, a representative example of how the Project could achieve a minimum of 100 Screening Table Points through implementation of CCAP Screening Table Measures pursuant to Mitigation Measure GHG-1 is provided at Table 6-1 for the residential portions of the Project and Table 6-2 for the commercial and industrial portions of the Project.

TABLE 6-1: EXAMPLE CAP SCREENING TABLE MEASURES (RESIDENTIAL)

Feature	Description	Assigned Point Values	Project Point Values
Reduction Measure PS E1: Residential Energy Efficiency			
Building Envelope			
Insulation	Enhanced Insulation (rigid wall insulation R-13; roof/attic: R-38)	15	15
Windows	Enhanced Window Insulation (0.32 U-Factor, 0.25 SHGC)	7	7
Cool Roof	Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance)	12	12
	Modest duct insulation (R-6)	7	7

Heating/Cooling Distribution	Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	12	12
Space Heating/Cooling Equipment	Very High Efficiency HVAC (SEER 16/80% AFUE or 9 HSPF)	9	9
Water Heaters	Very High Efficiency Water Heater (0.92 energy factor)	18	18
Artificial Lighting	Very High Efficiency Lights (100% of in-unit fixtures are high efficacy)	12	12
Reduction Measure PS W1: Residential Water Conservation			
Potable Water			
Showers	Water Efficient Showerheads (2.0 gpm)	3	3
Toilets	Water Efficient Toilets (1.5 gpm)	3	3
Faucets	Water Efficient Faucets	3	3
	Total Points Earned by Residential Project:		**101**

TABLE 6-2: EXAMPLE CAP SCREENING TABLE MEASURES (COMMERCIAL & INDUSTRIAL)

Feature	Description	Assigned Point Values	Project Point Values
Reduction Measure PS E3: Commercial/Industrial Energy Efficiency			
Building Envelope			
Insulation	Enhanced Insulation (rigid wall insulation R-13; roof/attic: R-38)	18	18
Windows	Enhanced Window Insulation (0.32 U-Factor, 0.25 SHGC)	8	8
Cool Roof	Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance)	14	14
Heating/Cooling Distribution System	Modest duct insulation (R-6)	8	8
	Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	14	14
Space Heating/Cooling Equipment	Very High Efficiency HVAC (SEER 16/80% AFUE or 9 HSPF)	12	12
Water Heaters	Very High Efficiency Water Heater (0.92 energy factor)	19	19
Artificial Lighting	Very High Efficiency Lights (100% of in-unit fixtures are high efficacy)	14	14
	Total Points Earned by Commercial/Industrial Project:		**107**

Implementation of the design features and operational measures outlined in Tables 6-1 and 6-2 would ensure that the Project is consistent with and supports the 2022 CAP Update. Absent implemented design features and operational measures identified at Table 6-1 (or equivalent

measures acceptable to the Lead Agency) Project GHG emissions would have the potential to either directly or indirectly result in a significant impact on the environment. This is a potentially significant impact.

Project development proposals shall implement Screening Table Measures identified at Tables 6-1 and 6-2, or equivalent measures acceptable to the City. The City shall verify that Screening Table Measures achieving a minimum of 100 points are incorporated in development plans prior to the issuance of building permit(s) and/or site plans (as applicable). Multiple development proposals may, at the discretion of the City, be allowed to collectively demonstrate achievement of at least 100 points per the Screening Tables. The City shall verify implementation of the selected Screening Table Measures prior to the issuance of Certificate(s) of Occupancy. At the discretion of the City, measures that provide GHG reductions equivalent to GHG emissions reductions achieved via the Screening Table Measures may be implemented.

LEVEL OF SIGNIFICANCE

Less than significant impact. Application of MM GHG-1 ensures Project consistency with the 2022 CAP Update. GHG emissions control and reduction strategies identified in the 2022 CAP Update ensure that development proposals within the City do not result in GHG emissions either directly or indirectly, that may have a significant impact on the environment. On this basis, with application of MM GHG-1, the potential for the Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs would be less-than-significant.

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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 Rich-Haven Specific Plan, 2022 Amendment 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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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
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APPENDIX 5.1:

CALEEMOD CONSTRUCTION EMISSIONS MODEL OUTPUTS

14822 Rich Haven Ph1 Construction Mitigated Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14822 Rich Haven Ph1 Construction Mitigated
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	20.8
Location	34.01192837529811, -117.57074736445445
County	San Bernardino-South Coast
City	Ontario
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5261
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
Office Park	317	1000sqft	7.27	316,725	0.00	—	—	—
Refrigerated Warehouse-No Rail	454	1000sqft	10.4	454,244	0.00	—	—	—

Unrefrigerated Warehouse-No Rail	1,996	1000sqft	45.8	1,996,180	531,432	—	—	—
Condo/Townhouse	3,289	Dwelling Unit	106	3,486,340	1,045,440	—	10,887	—
Single Family Housing	822	Dwelling Unit	72.5	1,602,900	631,620	—	2,721	—
Strip Mall	7.50	1000sqft	0.17	7,500	4,356	—	—	—
Gasoline/Service Station	48.0	Pump	0.16	6,776	0.00	—	—	—
Regional Shopping Center	162	1000sqft	3.72	162,137	109,336	—	—	—
High Turnover (Sit Down Restaurant)	32.4	1000sqft	0.74	32,427	0.00	—	—	—
Fast Food Restaurant with Drive Thru	21.6	1000sqft	0.50	21,618	0.00	—	—	—
Parking Lot	58.0	Acre	58.0	0.00	0.00	—	—	—
City Park	1.30	Acre	1.30	0.00	56,628	56,628	—	—

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.	30.8	70.1	97.7	491	0.25	0.98	65.7	66.6	0.94	15.6	16.5	—	96,362	96,362	4.59	4.79	314	98,220

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	29.4	68.6	102	394	0.25	0.98	65.7	66.6	0.94	15.6	16.5	—	90,733	90,733	4.69	4.79	8.15	92,287
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	20.2	45.0	62.5	273	0.16	0.57	45.5	46.1	0.55	10.8	11.3	—	62,486	62,486	3.23	3.38	95.4	63,670
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.69	8.21	11.4	49.8	0.03	0.10	8.31	8.41	0.10	1.97	2.07	—	10,345	10,345	0.53	0.56	15.8	10,541

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.80	3.03	70.4	120	0.25	0.68	19.0	19.4	0.66	8.58	8.96	—	29,743	29,743	1.59	1.48	27.8	30,251
2024	30.8	70.1	97.7	491	0.24	0.98	65.7	66.6	0.94	15.6	16.5	—	96,362	96,362	4.59	4.79	314	98,220
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	25.2	21.7	74.5	329	0.25	0.68	55.0	55.6	0.66	13.1	13.6	—	76,040	76,040	4.18	4.36	7.50	77,450
2024	29.4	68.6	102	394	0.24	0.98	65.7	66.6	0.94	15.6	16.5	—	90,733	90,733	4.69	4.79	8.15	92,287
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.78	3.14	46.9	93.5	0.16	0.41	12.4	12.8	0.40	4.37	4.77	—	22,333	22,333	1.18	1.09	14.3	22,702
2024	20.2	45.0	62.5	273	0.15	0.57	45.5	46.1	0.55	10.8	11.3	—	62,486	62,486	3.23	3.38	95.4	63,670
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.69	0.57	8.56	17.1	0.03	0.07	2.26	2.34	0.07	0.80	0.87	—	3,698	3,698	0.20	0.18	2.38	3,759

2024	3.69	8.21	11.4	49.8	0.03	0.10	8.31	8.41	0.10	1.97	2.07	—	10,345	10,345	0.53	0.56	15.8	10,541

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.03	2.03	47.1	89.9	0.15	0.31	—	0.31	0.31	—	0.31	—	16,589	16,589	0.67	0.13	—	16,646
Dust From Material Movement	—	—	—	—	—	—	17.0	17.0	—	8.06	8.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.03	2.03	47.1	89.9	0.15	0.31	—	0.31	0.31	—	0.31	—	16,589	16,589	0.67	0.13	—	16,646
Dust From Material Movement	—	—	—	—	—	—	17.0	17.0	—	8.06	8.06	—	—	—	—	—	—	—
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	0.47	0.47	11.0	20.9	0.04	0.07	—	0.07	0.07	—	0.07	—	3,863	3,863	0.16	0.03	—	3,877
Dust From Material Movement	—	—	—	—	—	—	3.96	3.96	—	1.88	1.88	—	—	—	—	—	—	—
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	0.09	0.09	2.00	3.82	0.01	0.01	—	0.01	0.01	—	0.01	—	640	640	0.03	0.01	—	642
Dust From Material Movement	—	—	—	—	—	—	0.72	0.72	—	0.34	0.34	—	—	—	—	—	—	—
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	0.28	4.86	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	771	771	0.03	0.03	3.31	783
Vendor	0.54	0.14	5.72	3.08	0.03	0.07	0.27	0.34	0.07	0.10	0.17	—	4,817	4,817	0.40	0.71	13.3	5,052
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	0.30	0.27	0.32	3.65	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	707	707	0.03	0.03	0.09	715
Vendor	0.53	0.13	5.94	3.13	0.03	0.07	0.27	0.34	0.07	0.10	0.17	—	4,819	4,819	0.40	0.71	0.35	5,042
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	0.07	0.06	0.08	0.90	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	167	167	0.01	0.01	0.33	169

Vendor	0.13	0.03	1.39	0.72	0.01	0.02	0.06	0.08	0.02	0.02	0.04	—	1,122	1,122	0.09	0.17	1.34	1,175
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	0.16	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	27.6	27.6	< 0.005	< 0.005	0.06	28.0
Vendor	0.02	0.01	0.25	0.13	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	186	186	0.02	0.03	0.22	195
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 (2023) - 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	2.46	59.7	109	0.19	0.55	—	0.55	0.54	—	0.54	—	20,146	20,146	0.82	0.16	—	20,215
Dust From Material Movement	—	—	—	—	—	—	8.01	8.01	—	2.94	2.94	—	—	—	—	—	—	—
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	2.46	59.7	109	0.19	0.55	—	0.55	0.54	—	0.54	—	20,146	20,146	0.82	0.16	—	20,215
Dust From Material Movement	—	—	—	—	—	—	8.01	8.01	—	2.94	2.94	—	—	—	—	—	—	—

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	1.04	1.04	25.2	45.8	0.08	0.23	—	0.23	0.23	—	0.23	—	8,500	8,500	0.34	0.07	—	8,529
Dust From Material Movement	—	—	—	—	—	—	3.38	3.38	—	1.24	1.24	—	—	—	—	—	—	—
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	0.19	0.19	4.60	8.36	0.01	0.04	—	0.04	0.04	—	0.04	—	1,407	1,407	0.06	0.01	—	1,412
Dust From Material Movement	—	—	—	—	—	—	0.62	0.62	—	0.23	0.23	—	—	—	—	—	—	—
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	0.36	0.33	0.32	5.55	0.00	0.00	0.05	0.05	0.00	0.00	0.00	—	881	881	0.04	0.03	3.78	895
Vendor	0.98	0.24	10.3	5.58	0.06	0.12	0.49	0.62	0.12	0.19	0.31	—	8,715	8,715	0.73	1.29	24.1	9,140
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	0.34	0.31	0.37	4.18	0.00	0.00	0.05	0.05	0.00	0.00	0.00	—	808	808	0.04	0.03	0.10	818
Vendor	0.97	0.23	10.7	5.66	0.06	0.12	0.49	0.62	0.12	0.19	0.31	—	8,719	8,719	0.73	1.29	0.63	9,122

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	0.14	0.13	0.16	1.86	0.00	0.00	0.02	0.02	0.00	0.00	0.00	—	346	346	0.02	0.01	0.69	350
Vendor	0.41	0.10	4.56	2.37	0.03	0.05	0.21	0.26	0.05	0.08	0.13	—	3,678	3,678	0.31	0.54	4.40	3,851
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	0.03	0.02	0.03	0.34	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	57.2	57.2	< 0.005	< 0.005	0.11	58.0
Vendor	0.07	0.02	0.83	0.43	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	609	609	0.05	0.09	0.73	638
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. Building Construction (2023) - 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	1.40	1.34	30.9	48.6	0.08	0.38	—	0.38	0.36	—	0.36	—	7,890	7,890	0.32	0.06	—	7,917
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	0.09	0.08	1.87	2.95	< 0.005	0.02	—	0.02	0.02	—	0.02	—	479	479	0.02	< 0.005	—	480
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	0.02	0.01	0.34	0.54	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	79.2	79.2	< 0.005	< 0.005	—	79.5
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	22.0	19.9	23.9	270	0.00	0.00	3.16	3.16	0.00	0.00	0.00	—	52,139	52,139	2.52	1.92	6.35	52,781
Vendor	1.77	0.42	19.7	10.4	0.11	0.23	0.91	1.14	0.23	0.34	0.57	—	16,011	16,011	1.34	2.37	1.15	16,752
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	1.33	1.20	1.45	17.3	0.00	0.00	0.19	0.19	0.00	0.00	0.00	—	3,208	3,208	0.15	0.12	6.41	3,253
Vendor	0.11	0.03	1.21	0.63	0.01	0.01	0.06	0.07	0.01	0.02	0.03	—	971	971	0.08	0.14	1.16	1,017
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	0.24	0.22	0.27	3.16	0.00	0.00	0.03	0.03	0.00	0.00	0.00	—	531	531	0.03	0.02	1.06	539
Vendor	0.02	< 0.005	0.22	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	161	161	0.01	0.02	0.19	168
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 (2024) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.34	30.8	48.6	0.08	0.37	—	0.37	0.35	—	0.35	—	7,891	7,891	0.32	0.06	—	7,918
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.34	30.8	48.6	0.08	0.37	—	0.37	0.35	—	0.35	—	7,891	7,891	0.32	0.06	—	7,918
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	1.00	0.96	22.1	34.8	0.05	0.27	—	0.27	0.25	—	0.25	—	5,652	5,652	0.23	0.05	—	5,671
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.17	4.03	6.35	0.01	0.05	—	0.05	0.05	—	0.05	—	936	936	0.04	0.01	—	939
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	22.2	20.3	18.8	328	0.00	0.00	3.16	3.16	0.00	0.00	0.00	—	55,768	55,768	2.35	1.92	223	56,622
Vendor	1.68	0.45	18.2	9.74	0.11	0.23	0.91	1.14	0.23	0.34	0.57	—	15,833	15,833	1.22	2.36	44.2	16,611
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	21.1	19.1	22.1	248	0.00	0.00	3.16	3.16	0.00	0.00	0.00	—	51,115	51,115	2.43	1.92	5.78	51,755
Vendor	1.65	0.42	18.9	9.88	0.11	0.23	0.91	1.14	0.23	0.34	0.57	—	15,840	15,840	1.22	2.36	1.14	16,575
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	15.0	13.5	15.8	186	0.00	0.00	2.26	2.26	0.00	0.00	0.00	—	37,129	37,129	1.74	1.38	68.9	37,652
Vendor	1.19	0.31	13.6	7.04	0.08	0.16	0.65	0.81	0.16	0.24	0.41	—	11,342	11,342	0.87	1.69	13.6	11,882
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	2.73	2.47	2.89	34.0	0.00	0.00	0.41	0.41	0.00	0.00	0.00	—	6,147	6,147	0.29	0.23	11.4	6,234
Vendor	0.22	0.06	2.49	1.28	0.01	0.03	0.12	0.15	0.03	0.04	0.07	—	1,878	1,878	0.14	0.28	2.25	1,967
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. Paving (2024) - 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	0.69	0.69	21.6	31.8	0.04	0.26	—	0.26	0.24	—	0.24	—	4,535	4,535	0.18	0.04	—	4,550
Paving	—	1.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.69	0.69	21.6	31.8	0.04	0.26	—	0.26	0.24	—	0.24	—	4,535	4,535	0.18	0.04	—	4,550
Paving	—	1.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.16	0.16	5.15	7.58	0.01	0.06	—	0.06	0.06	—	0.06	—	1,081	1,081	0.04	0.01	—	1,085
Paving	—	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.94	1.38	< 0.005	0.01	—	0.01	0.01	—	0.01	—	179	179	0.01	< 0.005	—	180
Paving	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.26	0.24	0.22	3.81	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	648	648	0.03	0.02	2.59	658
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	0.25	0.22	0.26	2.88	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	594	594	0.03	0.02	0.07	601

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	0.06	0.05	0.06	0.72	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	144	144	0.01	0.01	0.27	146
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	0.13	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	23.8	23.8	< 0.005	< 0.005	0.04	24.1
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

3.11. Architectural Coating (2024) - 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	0.08	0.08	4.28	3.85	0.01	0.12	—	0.12	0.11	—	0.11	—	534	534	0.02	< 0.005	—	536
Architectural Coatings	—	41.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.08	0.08	4.28	3.85	0.01	0.12	—	0.12	0.11	—	0.11	—	534	534	0.02	< 0.005	—	536

Architect Coatings	—	41.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.06	0.06	2.80	2.52	< 0.005	0.08	—	0.08	0.07	—	0.07	—	350	350	0.01	< 0.005	—	351
Architectural Coatings	—	27.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.51	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.9	57.9	< 0.005	< 0.005	—	58.1
Architectural Coatings	—	4.93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	4.44	4.06	3.76	65.5	0.00	0.00	0.63	0.63	0.00	0.00	0.00	—	11,154	11,154	0.47	0.38	44.6	11,324
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	4.22	3.82	4.42	49.5	0.00	0.00	0.63	0.63	0.00	0.00	0.00	—	10,223	10,223	0.49	0.38	1.16	10,351
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	2.74	2.48	2.90	34.1	0.00	0.00	0.41	0.41	0.00	0.00	0.00	—	6,789	6,789	0.32	0.25	12.6	6,884
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	0.50	0.45	0.53	6.22	0.00	0.00	0.08	0.08	0.00	0.00	0.00	—	1,124	1,124	0.05	0.04	2.09	1,140
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

4.10. 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	1/1/2023	4/30/2023	5.00	85.0	—
Grading	Grading	5/1/2023	11/30/2023	5.00	154	—

Building Construction	Building Construction	12/1/2023	12/31/2024	5.00	283	—
Paving	Paving	9/1/2024	12/31/2024	5.00	87.0	—
Architectural Coating	Architectural Coating	2/1/2024	12/31/2024	5.00	239	—

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	Tier 4 Interim	9.00	8.00	367	0.40
Grading	Excavators	Diesel	Tier 4 Interim	6.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Interim	3.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	3.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 4 Interim	6.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Tier 4 Interim	3.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	9.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 4 Interim	3.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	9.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Interim	3.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Interim	6.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	6.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Interim	6.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	3.00	8.00	37.0	0.48
Site Preparation	Crawler Tractors	Diesel	Tier 4 Interim	12.0	8.00	87.0	0.43
Grading	Crawler Tractors	Diesel	Tier 4 Interim	6.00	8.00	87.0	0.43

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	52.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	152	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	60.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	275	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	3,874	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	505	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	45.0	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	775	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	10,305,711	3,435,237	4,496,411	1,498,804	151,589

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	—	—	1,700	0.00	—
Grading	—	—	3,080	0.00	—
Paving	0.00	0.00	0.00	0.00	67.1

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
Office Park	0.00	0%
Refrigerated Warehouse-No Rail	0.00	0%
Unrefrigerated Warehouse-No Rail	0.00	0%

Condo/Townhouse	—	0%
Single Family Housing	9.06	0%
Strip Mall	0.00	0%
Gasoline/Service Station	0.00	0%
Regional Shopping Center	0.00	0%
High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Parking Lot	58.0	100%
City Park	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	532	0.03	< 0.005
2024	0.00	532	0.03	< 0.005

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	20.0	annual days of extreme heat
Extreme Precipitation	3.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	84.6
AQ-PM	95.6
AQ-DPM	57.0
Drinking Water	93.3
Lead Risk Housing	7.89
Pesticides	64.8
Toxic Releases	71.4
Traffic	14.2
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	81.4
Haz Waste Facilities/Generators	81.9
Impaired Water Bodies	43.8
Solid Waste	35.7
Sensitive Population	—
Asthma	58.6
Cardio-vascular	79.3
Low Birth Weights	68.1
Socioeconomic Factor Indicators	—
Education	51.5
Housing	70.8

Linguistic	15.6
Poverty	40.3
Unemployment	40.6

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	50.9816502
Employed	66.62389324
Median HI	72.65494675
Education	—
Bachelor's or higher	43.46208136
High school enrollment	100
Preschool enrollment	17.18208649
Transportation	—
Auto Access	93.63531374
Active commuting	23.14897985
Social	—
2-parent households	66.79070961
Voting	49.36481458
Neighborhood	—
Alcohol availability	65.76414731
Park access	55.29321186
Retail density	20.00513281
Supermarket access	52.71397408
Tree canopy	13.73027076

Housing	—
Homeownership	73.48902862
Housing habitability	38.94520724
Low-inc homeowner severe housing cost burden	67.22699859
Low-inc renter severe housing cost burden	48.14577185
Uncrowded housing	46.38778391
Health Outcomes	—
Insured adults	44.20633902
Arthritis	84.5
Asthma ER Admissions	52.8
High Blood Pressure	89.6
Cancer (excluding skin)	77.2
Asthma	51.9
Coronary Heart Disease	88.8
Chronic Obstructive Pulmonary Disease	81.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	43.6
Cognitively Disabled	92.5
Physically Disabled	86.7
Heart Attack ER Admissions	10.7
Mental Health Not Good	52.8
Chronic Kidney Disease	85.5
Obesity	50.5
Pedestrian Injuries	19.6
Physical Health Not Good	65.0
Stroke	84.7
Health Risk Behaviors	—

Binge Drinking	15.4
Current Smoker	54.4
No Leisure Time for Physical Activity	62.4
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	51.6
Elderly	87.4
English Speaking	59.0
Foreign-born	27.3
Outdoor Workers	53.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	70.3
Traffic Density	21.2
Traffic Access	23.0
Other Indices	—
Hardship	44.7
Other Decision Support	—
2016 Voting	55.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0
Healthy Places Index Score for Project Location (b)	53.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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	Acreage adjusted based on site plan
Construction: Construction Phases	Schedule adjusted based on data from the Project team.
Construction: Off-Road Equipment	Equipment based on data from the Project team.
Construction: Dust From Material Movement	Assumes 20 acres will be graded per day
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, and Building Construction.
Construction: Architectural Coatings	Project will use super-compliant coatings

14822 Rich Haven Ph2 Construction Mitigated Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14822 Rich Haven Ph2 Construction Mitigated
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	20.8
Location	34.01284450351814, -117.57158813842331
County	San Bernardino-South Coast
City	Ontario
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5261
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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	603	Dwelling Unit	81.3	1,175,850	708,721	—	1,996	—
Condo/Townhouse	2,000	Dwelling Unit	55.9	2,120,000	242,283	—	6,620	—
City Park	27.0	Acre	27.0	0.00	1,176,120	1,176,120	—	—

Regional Shopping Center	526	1000sqft	12.1	525,990	342,382	—	—	—
High Turnover (Sit Down Restaurant)	105	1000sqft	2.42	105,198	0.00	—	—	—
Fast Food Restaurant with Drive Thru	70.1	1000sqft	1.61	70,132	0.00	—	—	—
Gasoline/Service Station	48.0	Pump	0.16	6,776	0.00	—	—	—
Parking Lot	54.5	Acre	54.5	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.	14.0	49.3	73.1	256	0.21	0.85	32.3	33.1	0.81	8.35	8.69	—	51,709	51,709	2.35	2.23	127	52,561
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	13.4	48.6	74.4	215	0.21	0.85	32.3	33.1	0.81	7.65	8.45	—	49,051	49,051	2.00	2.28	3.30	49,771
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.60	22.7	41.8	134	0.12	0.45	21.0	21.5	0.43	4.98	5.41	—	31,329	31,329	1.21	1.55	36.6	31,850

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.57	4.15	7.62	24.5	0.02	0.08	3.84	3.92	0.08	0.91	0.99	—	5,187	5,187	0.20	0.26	6.06	5,273

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.09	2.85	63.2	115	0.21	0.59	18.1	18.5	0.58	8.35	8.69	—	23,736	23,736	1.06	0.60	11.1	23,953
2025	11.7	10.2	63.0	201	0.21	0.59	26.7	27.2	0.58	6.34	6.79	—	41,436	41,436	1.96	2.03	118	42,209
2026	14.0	49.3	73.1	256	0.17	0.85	32.3	33.1	0.81	7.65	8.45	—	51,709	51,709	2.35	2.23	127	52,561
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.07	2.83	63.3	114	0.21	0.63	9.53	10.1	0.59	3.33	3.91	—	23,665	23,665	1.07	0.60	0.29	23,871
2025	11.2	9.69	63.1	164	0.21	0.59	26.7	27.2	0.58	6.34	6.79	—	39,212	39,212	2.00	2.03	3.07	39,870
2026	13.4	48.6	74.4	215	0.17	0.85	32.3	33.1	0.81	7.65	8.45	—	49,051	49,051	1.46	2.28	3.30	49,771
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.78	1.64	36.7	66.2	0.12	0.35	7.96	8.31	0.34	3.36	3.70	—	13,571	13,571	0.61	0.33	2.63	13,686
2025	6.03	5.24	38.2	108	0.11	0.36	14.9	15.2	0.35	3.78	4.13	—	24,512	24,512	1.21	1.11	25.6	24,900
2026	8.60	22.7	41.8	134	0.10	0.45	21.0	21.5	0.43	4.98	5.41	—	31,329	31,329	0.92	1.55	36.6	31,850
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.32	0.30	6.71	12.1	0.02	0.06	1.45	1.52	0.06	0.61	0.68	—	2,247	2,247	0.10	0.05	0.44	2,266
2025	1.10	0.96	6.97	19.8	0.02	0.07	2.72	2.78	0.06	0.69	0.75	—	4,058	4,058	0.20	0.18	4.24	4,122
2026	1.57	4.15	7.62	24.5	0.02	0.08	3.84	3.92	0.08	0.91	0.99	—	5,187	5,187	0.15	0.26	6.06	5,273

3. Construction Emissions Details

3.1. Demolition (2024) - 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	1.24	1.24	35.7	54.5	0.10	0.60	—	0.60	0.57	—	0.57	—	10,276	10,276	0.42	0.08	—	10,311
Demolition	—	—	—	—	—	—	0.30	0.30	—	0.04	0.04	—	—	—	—	—	—	—
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	0.22	0.22	6.36	9.71	0.02	0.11	—	0.11	0.10	—	0.10	—	1,830	1,830	0.07	0.01	—	1,836
Demolition	—	—	—	—	—	—	0.05	0.05	—	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	1.16	1.77	< 0.005	0.02	—	0.02	0.02	—	0.02	—	303	303	0.01	< 0.005	—	304
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.26	2.88	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	594	594	0.03	0.02	0.07	601
Vendor	0.11	0.03	1.24	0.65	0.01	0.01	0.06	0.07	0.01	0.02	0.04	—	1,035	1,035	0.08	0.15	0.07	1,083
Hauling	0.05	0.01	0.48	0.26	< 0.005	0.01	0.03	0.04	< 0.005	0.01	0.01	—	374	374	0.04	0.06	0.02	393
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.05	0.54	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	107	107	0.01	< 0.005	0.20	109
Vendor	0.02	< 0.005	0.22	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	184	184	0.01	0.03	0.22	193
Hauling	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	66.6	66.6	0.01	0.01	0.06	70.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	17.8	17.8	< 0.005	< 0.005	0.03	18.0
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	30.5	30.5	< 0.005	< 0.005	0.04	32.0
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.01	11.6

3.3. Site Preparation (2024) - Unmitigated

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

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

Off-Road Equipment	2.03	2.03	47.1	89.9	0.15	0.31	—	0.31	0.31	—	0.31	—	16,588	16,588	0.67	0.13	—	16,644
Dust From Material Movement	—	—	—	—	—	—	17.0	17.0	—	8.06	8.06	—	—	—	—	—	—	—
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	0.61	14.2	27.1	0.05	0.09	—	0.09	0.09	—	0.09	—	4,999	4,999	0.20	0.04	—	5,016
Dust From Material Movement	—	—	—	—	—	—	5.12	5.12	—	2.43	2.43	—	—	—	—	—	—	—
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	0.11	0.11	2.59	4.94	0.01	0.02	—	0.02	0.02	—	0.02	—	828	828	0.03	0.01	—	830
Dust From Material Movement	—	—	—	—	—	—	0.93	0.93	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.30	0.27	0.25	4.44	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	756	756	0.03	0.03	3.02	767

Vendor	0.18	0.05	1.98	1.06	0.01	0.02	0.10	0.12	0.02	0.04	0.06	—	1,724	1,724	0.13	0.26	4.81	1,809
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.06	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	212	212	0.01	0.01	0.39	215
Vendor	0.05	0.01	0.62	0.32	< 0.005	0.01	0.03	0.04	0.01	0.01	0.02	—	520	520	0.04	0.08	0.62	544
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	0.02	0.01	0.02	0.19	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	35.1	35.1	< 0.005	< 0.005	0.07	35.5
Vendor	0.01	< 0.005	0.11	0.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	86.1	86.1	0.01	0.01	0.10	90.1
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

3.5. Grading (2024) - 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	2.46	59.7	109	0.19	0.55	—	0.55	0.54	—	0.54	—	20,145	20,145	0.82	0.16	—	20,214
Dust From Material Movement	—	—	—	—	—	—	8.01	8.01	—	2.94	2.94	—	—	—	—	—	—	—
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	2.46	59.7	109	0.19	0.55	—	0.55	0.54	—	0.54	—	20,145	20,145	0.82	0.16	—	20,214
Dust From Material Movement	—	—	—	—	—	—	8.01	8.01	—	2.94	2.94	—	—	—	—	—	—	—
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	0.59	0.59	14.3	25.9	0.04	0.13	—	0.13	0.13	—	0.13	—	4,810	4,810	0.20	0.04	—	4,826
Dust From Material Movement	—	—	—	—	—	—	1.91	1.91	—	0.70	0.70	—	—	—	—	—	—	—
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	0.11	0.11	2.60	4.73	0.01	0.02	—	0.02	0.02	—	0.02	—	796	796	0.03	0.01	—	799
Dust From Material Movement	—	—	—	—	—	—	0.35	0.35	—	0.13	0.13	—	—	—	—	—	—	—
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	0.34	0.31	0.29	5.08	0.00	0.00	0.05	0.05	0.00	0.00	0.00	—	864	864	0.04	0.03	3.45	877

Vendor	0.29	0.08	3.13	1.68	0.02	0.04	0.16	0.20	0.04	0.06	0.10	—	2,728	2,728	0.21	0.41	7.61	2,862
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	0.33	0.30	0.34	3.84	0.00	0.00	0.05	0.05	0.00	0.00	0.00	—	792	792	0.04	0.03	0.09	802
Vendor	0.28	0.07	3.26	1.70	0.02	0.04	0.16	0.20	0.04	0.06	0.10	—	2,729	2,729	0.21	0.41	0.20	2,856
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	0.08	0.07	0.08	0.96	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	192	192	0.01	0.01	0.36	194
Vendor	0.07	0.02	0.78	0.40	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	651	651	0.05	0.10	0.78	682
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	0.18	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	31.7	31.7	< 0.005	< 0.005	0.06	32.2
Vendor	0.01	< 0.005	0.14	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	108	108	0.01	0.02	0.13	113
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Grading (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.46	2.46	59.7	109	0.19	0.55	—	0.55	0.54	—	0.54	—	20,146	20,146	0.82	0.16	—	20,215

Dust From Material Movement	—	—	—	—	—	—	8.01	8.01	—	2.94	2.94	—	—	—	—	—	—	—
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	2.46	59.7	109	0.19	0.55	—	0.55	0.54	—	0.54	—	20,146	20,146	0.82	0.16	—	20,215
Dust From Material Movement	—	—	—	—	—	—	8.01	8.01	—	2.94	2.94	—	—	—	—	—	—	—
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	0.58	0.58	14.0	25.5	0.04	0.13	—	0.13	0.13	—	0.13	—	4,731	4,731	0.19	0.04	—	4,747
Dust From Material Movement	—	—	—	—	—	—	1.88	1.88	—	0.69	0.69	—	—	—	—	—	—	—
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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.11	2.56	4.65	0.01	0.02	—	0.02	0.02	—	0.02	—	783	783	0.03	0.01	—	786
Dust From Material Movement	—	—	—	—	—	—	0.34	0.34	—	0.13	0.13	—	—	—	—	—	—	—
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	0.30	0.28	0.26	4.67	0.00	0.00	0.05	0.05	0.00	0.00	0.00	—	845	845	0.04	0.03	3.14	858
Vendor	0.27	0.08	2.98	1.61	0.02	0.04	0.16	0.20	0.04	0.06	0.10	—	2,684	2,684	0.21	0.41	7.55	2,818
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	0.29	0.26	0.29	3.52	0.00	0.00	0.05	0.05	0.00	0.00	0.00	—	775	775	0.04	0.03	0.08	785
Vendor	0.26	0.07	3.11	1.62	0.02	0.04	0.16	0.20	0.04	0.06	0.10	—	2,685	2,685	0.21	0.41	0.20	2,812
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	0.07	0.06	0.07	0.87	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	185	185	0.01	0.01	0.32	187
Vendor	0.06	0.02	0.74	0.38	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	630	630	0.05	0.10	0.77	661
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	0.16	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	30.6	30.6	< 0.005	< 0.005	0.05	31.0
Vendor	0.01	< 0.005	0.13	0.07	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	104	104	0.01	0.02	0.13	109
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 (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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.40	1.34	30.8	48.6	0.08	0.37	—	0.37	0.35	—	0.35	—	7,891	7,891	0.32	0.06	—	7,918
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.34	30.8	48.6	0.08	0.37	—	0.37	0.35	—	0.35	—	7,891	7,891	0.32	0.06	—	7,918
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	0.67	0.64	14.8	23.3	0.04	0.18	—	0.18	0.17	—	0.17	—	3,783	3,783	0.15	0.03	—	3,796
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	0.12	2.70	4.25	0.01	0.03	—	0.03	0.03	—	0.03	—	626	626	0.03	0.01	—	629
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	9.66	8.72	8.36	148	0.00	0.00	1.55	1.55	0.00	0.00	0.00	—	26,789	26,789	1.11	0.94	99.4	27,197
Vendor	0.67	0.19	7.50	4.06	0.05	0.10	0.39	0.49	0.10	0.15	0.25	—	6,756	6,756	0.52	1.02	19.0	7,093
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	9.12	8.17	9.22	112	0.00	0.00	1.55	1.55	0.00	0.00	0.00	—	24,561	24,561	1.15	0.94	2.57	24,873

Vendor	0.66	0.18	7.84	4.07	0.05	0.10	0.39	0.49	0.10	0.15	0.25	—	6,760	6,760	0.52	1.02	0.49	7,078
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	4.33	3.86	4.79	56.5	0.00	0.00	0.74	0.74	0.00	0.00	0.00	—	11,942	11,942	0.55	0.45	20.6	12,111
Vendor	0.32	0.09	3.78	1.93	0.02	0.05	0.19	0.24	0.05	0.07	0.12	—	3,240	3,240	0.25	0.49	3.95	3,396
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	0.79	0.70	0.87	10.3	0.00	0.00	0.14	0.14	0.00	0.00	0.00	—	1,977	1,977	0.09	0.07	3.41	2,005
Vendor	0.06	0.02	0.69	0.35	< 0.005	0.01	0.03	0.04	0.01	0.01	0.02	—	536	536	0.04	0.08	0.65	562
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 (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	1.40	1.34	30.8	48.6	0.08	0.37	—	0.37	0.35	—	0.35	—	7,890	7,890	0.32	0.06	—	7,917
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	1.34	30.8	48.6	0.08	0.37	—	0.37	0.35	—	0.35	—	7,890	7,890	0.32	0.06	—	7,917
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	1.00	0.95	22.0	34.7	0.05	0.26	—	0.26	0.25	—	0.25	—	5,635	5,635	0.23	0.05	—	5,655
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.17	4.02	6.33	0.01	0.05	—	0.05	0.05	—	0.05	—	933	933	0.04	0.01	—	936
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	9.12	8.22	7.50	137	0.00	0.00	1.55	1.55	0.00	0.00	0.00	—	26,242	26,242	1.11	0.90	89.8	26,628
Vendor	0.67	0.14	7.18	3.89	0.05	0.10	0.39	0.49	0.10	0.15	0.25	—	6,643	6,643	0.47	1.02	17.5	6,977
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	8.61	7.67	8.36	103	0.00	0.00	1.55	1.55	0.00	0.00	0.00	—	24,066	24,066	0.38	0.94	2.33	24,359
Vendor	0.66	0.13	7.47	3.95	0.05	0.10	0.39	0.49	0.10	0.15	0.25	—	6,647	6,647	0.47	1.02	0.45	6,964
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	6.15	5.48	6.53	77.7	0.00	0.00	1.11	1.11	0.00	0.00	0.00	—	17,431	17,431	0.27	0.67	27.7	17,666
Vendor	0.47	0.09	5.37	2.80	0.04	0.07	0.28	0.35	0.07	0.11	0.18	—	4,746	4,746	0.34	0.73	5.38	4,978
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	1.12	1.00	1.19	14.2	0.00	0.00	0.20	0.20	0.00	0.00	0.00	—	2,886	2,886	0.04	0.11	4.59	2,925

Vendor	0.09	0.02	0.98	0.51	0.01	0.01	0.05	0.06	0.01	0.02	0.03	—	786	786	0.06	0.12	0.89	824
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	0.69	0.69	21.6	31.8	0.04	0.26	—	0.26	0.24	—	0.24	—	4,532	4,532	0.18	0.04	—	4,547
Paving	—	1.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.69	0.69	21.6	31.8	0.04	0.26	—	0.26	0.24	—	0.24	—	4,532	4,532	0.18	0.04	—	4,547
Paving	—	1.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.17	5.21	7.67	0.01	0.06	—	0.06	0.06	—	0.06	—	1,093	1,093	0.04	0.01	—	1,096
Paving	—	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.95	1.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	181	181	0.01	< 0.005	—	182
Paving	—	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.19	0.18	3.24	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	621	621	0.03	0.02	2.13	630
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	0.20	0.18	0.20	2.45	0.00	0.00	0.04	0.04	0.00	0.00	0.00	—	570	570	0.01	0.02	0.06	577
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	0.05	0.04	0.05	0.62	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	139	139	< 0.005	0.01	0.22	141
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	0.11	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	23.1	23.1	< 0.005	< 0.005	0.04	23.4
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 (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	0.08	0.08	4.28	3.85	0.01	0.12	—	0.12	0.11	—	0.11	—	534	534	0.02	< 0.005	—	536
Architectural Coatings	—	35.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.08	0.08	4.28	3.85	0.01	0.12	—	0.12	0.11	—	0.11	—	534	534	0.02	< 0.005	—	536
Architectural Coatings	—	35.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.04	1.80	1.63	< 0.005	0.05	—	0.05	0.05	—	0.05	—	225	225	0.01	< 0.005	—	226
Architectural Coatings	—	14.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.33	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37.3	37.3	< 0.005	< 0.005	—	37.4

Architect Coatings	—	2.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	1.82	1.64	1.50	27.4	0.00	0.00	0.31	0.31	0.00	0.00	0.00	—	5,248	5,248	0.22	0.18	18.0	5,326
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	1.72	1.53	1.67	20.7	0.00	0.00	0.31	0.31	0.00	0.00	0.00	—	4,813	4,813	0.08	0.19	0.47	4,872
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	0.73	0.65	0.77	9.18	0.00	0.00	0.13	0.13	0.00	0.00	0.00	—	2,059	2,059	0.03	0.08	3.27	2,087
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	0.13	0.12	0.14	1.68	0.00	0.00	0.02	0.02	0.00	0.00	0.00	—	341	341	0.01	0.01	0.54	346
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

4.10. 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	3/31/2024	5.00	65.0	—
Site Preparation	Site Preparation	4/1/2024	8/31/2024	5.00	110	—
Grading	Grading	9/1/2024	4/30/2025	5.00	173	—
Building Construction	Building Construction	5/1/2025	12/31/2026	5.00	436	—
Paving	Paving	9/1/2026	12/31/2026	5.00	88.0	—
Architectural Coating	Architectural Coating	6/1/2026	12/31/2026	5.00	154	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Interim	3.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 4 Interim	9.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	6.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Interim	9.00	8.00	367	0.40

Grading	Excavators	Diesel	Tier 4 Interim	6.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Interim	3.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	3.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 4 Interim	6.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Tier 4 Interim	3.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	9.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 4 Interim	3.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	9.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Interim	3.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Interim	6.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	6.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Interim	6.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	3.00	8.00	37.0	0.48
Site Preparation	Crawler Tractors	Diesel	Tier 4 Interim	12.0	8.00	87.0	0.43
Grading	Crawler Tractors	Diesel	Tier 4 Interim	6.00	8.00	87.0	0.43

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	45.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	33.0	10.2	HHDT,MHDT
Demolition	Hauling	5.31	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	52.5	18.5	LDA,LDT1,LDT2

Site Preparation	Vendor	55.0	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	60.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	87.0	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	1,901	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	219	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	45.0	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	380	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	6,674,096	2,224,699	1,062,144	354,048	142,363

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	30,000	—
Site Preparation	—	—	2,200	0.00	—
Grading	—	—	3,460	0.00	—
Paving	0.00	0.00	0.00	0.00	61.1

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	6.64	0%
Condo/Townhouse	—	0%
City Park	0.00	0%
Regional Shopping Center	0.00	0%

High Turnover (Sit Down Restaurant)	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Gasoline/Service Station	0.00	0%
Parking Lot	54.5	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	532	0.03	< 0.005
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

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	20.0	annual days of extreme heat
Extreme Precipitation	3.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	84.6
AQ-PM	95.6
AQ-DPM	57.0
Drinking Water	93.3
Lead Risk Housing	7.89
Pesticides	64.8
Toxic Releases	71.4
Traffic	14.2
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	81.4
Haz Waste Facilities/Generators	81.9
Impaired Water Bodies	43.8
Solid Waste	35.7
Sensitive Population	—
Asthma	58.6
Cardio-vascular	79.3
Low Birth Weights	68.1
Socioeconomic Factor Indicators	—
Education	51.5
Housing	70.8
Linguistic	15.6
Poverty	40.3
Unemployment	40.6

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	50.9816502
Employed	66.62389324
Median HI	72.65494675
Education	—
Bachelor's or higher	43.46208136
High school enrollment	100
Preschool enrollment	17.18208649
Transportation	—
Auto Access	93.63531374
Active commuting	23.14897985
Social	—
2-parent households	66.79070961
Voting	49.36481458
Neighborhood	—
Alcohol availability	65.76414731
Park access	55.29321186
Retail density	20.00513281
Supermarket access	52.71397408
Tree canopy	13.73027076
Housing	—
Homeownership	73.48902862
Housing habitability	38.94520724
Low-inc homeowner severe housing cost burden	67.22699859

Low-inc renter severe housing cost burden	48.14577185
Uncrowded housing	46.38778391
Health Outcomes	—
Insured adults	44.20633902
Arthritis	84.5
Asthma ER Admissions	52.8
High Blood Pressure	89.6
Cancer (excluding skin)	77.2
Asthma	51.9
Coronary Heart Disease	88.8
Chronic Obstructive Pulmonary Disease	81.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	43.6
Cognitively Disabled	92.5
Physically Disabled	86.7
Heart Attack ER Admissions	10.7
Mental Health Not Good	52.8
Chronic Kidney Disease	85.5
Obesity	50.5
Pedestrian Injuries	19.6
Physical Health Not Good	65.0
Stroke	84.7
Health Risk Behaviors	—
Binge Drinking	15.4
Current Smoker	54.4
No Leisure Time for Physical Activity	62.4
Climate Change Exposures	—

Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	51.6
Elderly	87.4
English Speaking	59.0
Foreign-born	27.3
Outdoor Workers	53.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	70.3
Traffic Density	21.2
Traffic Access	23.0
Other Indices	—
Hardship	44.7
Other Decision Support	—
2016 Voting	55.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0
Healthy Places Index Score for Project Location (b)	53.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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	Acreage adjusted based on site area
Construction: Construction Phases	Construction schedule based on info from the Project team
Construction: Off-Road Equipment	Construction equipment based on data from the Project team.
Construction: Dust From Material Movement	Assumes 20 acres will be graded per day
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, and Building Construction.
Construction: Architectural Coatings	Project will use super-compliant coatings.

APPENDIX 5.2:

CALEEMOD OPERATIONS EMISSIONS MODEL OUTPUTS

14822 Rich Haven Ph1 Ops 2027 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14822 Rich Haven Ph1 Ops 2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	20.8
Location	34.012654365759644, -117.57100716437458
County	San Bernardino-South Coast
City	Ontario
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5261
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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
Office Park	317	1000sqft	7.27	316,725	0.00	—	—	—
Refrigerated Warehouse-No Rail	454	1000sqft	10.4	454,244	0.00	—	—	—

Unrefrigerated Warehouse-No Rail	1,996	1000sqft	45.8	1,996,180	531,432	—	—	—
User Defined Industrial	2,767	User Defined Unit	0.00	0.00	0.00	—	—	—
Condo/Townhouse	3,289	Dwelling Unit	106	3,486,340	1,045,440	—	10,887	—
Single Family Housing	822	Dwelling Unit	72.5	1,602,900	631,620	—	2,721	—
Strip Mall	7.50	1000sqft	0.17	7,500	4,356	—	—	—
Gasoline/Service Station	48.0	Pump	0.16	6,776	0.00	—	—	—
Regional Shopping Center	162	1000sqft	3.72	162,137	109,336	—	—	—
High Turnover (Sit Down Restaurant)	32.4	1000sqft	0.74	32,427	0.00	—	—	—
Fast Food Restaurant with Drive Thru	21.6	1000sqft	0.50	21,618	0.00	—	—	—
City Park	1.30	Acre	1.30	0.00	56,628	56,628	—	—
Parking Lot	58.0	Acre	58.0	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

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.	289	446	348	1,925	4.95	11.8	136	148	11.7	25.2	36.9	5,170	629,697	634,867	557	36.0	1,918	661,438
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	230	389	360	1,357	4.71	11.6	136	148	11.4	25.2	36.5	5,170	606,339	611,509	558	36.3	620	636,882
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	201	367	260	1,265	3.40	6.64	100	107	6.54	18.7	25.2	5,170	437,786	442,956	551	30.6	1,016	466,884
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	36.7	66.9	47.4	231	0.62	1.21	18.3	19.5	1.19	3.41	4.60	856	72,480	73,336	91.3	5.07	168	77,298

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	232	208	247	1,514	4.31	3.76	136	140	3.54	25.2	28.7	—	450,131	450,131	25.2	31.0	1,332	461,322
Area	52.4	236	61.4	387	0.39	4.95	—	4.95	5.04	—	5.04	0.00	74,736	74,736	1.43	0.44	—	74,904
Energy	4.54	2.27	39.9	24.3	0.25	3.14	—	3.14	3.14	—	3.14	—	99,282	99,282	9.13	0.67	—	99,710
Water	—	—	—	—	—	—	—	—	—	—	—	1,579	5,548	7,127	162	3.91	—	12,352
Waste	—	—	—	—	—	—	—	—	—	—	—	3,591	0.00	3,591	359	0.00	—	12,565
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	585	585
Total	289	446	348	1,925	4.95	11.8	136	148	11.7	25.2	36.9	5,170	629,697	634,867	557	36.0	1,918	661,438
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	218	194	262	1,308	4.09	3.76	136	140	3.55	25.2	28.7	—	427,933	427,933	26.1	31.5	34.6	438,017

Area	6.78	193	58.0	24.7	0.37	4.69	—	4.69	4.69	—	4.69	0.00	73,577	73,577	1.39	0.14	—	73,653
Energy	4.54	2.27	39.9	24.3	0.25	3.14	—	3.14	3.14	—	3.14	—	99,282	99,282	9.13	0.67	—	99,710
Water	—	—	—	—	—	—	—	—	—	—	—	1,579	5,548	7,127	162	3.91	—	12,352
Waste	—	—	—	—	—	—	—	—	—	—	—	3,591	0.00	3,591	359	0.00	—	12,565
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	585	585
Total	230	389	360	1,357	4.71	11.6	136	148	11.4	25.2	36.5	5,170	606,339	611,509	558	36.3	620	636,882
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	165	145	214	990	3.12	3.00	100	103	2.83	18.7	21.5	—	327,123	327,123	20.6	25.8	430	335,770
Area	31.7	219	6.31	250	0.04	0.50	—	0.50	0.56	—	0.56	0.00	5,834	5,834	0.13	0.22	—	5,902
Energy	4.54	2.27	39.9	24.3	0.25	3.14	—	3.14	3.14	—	3.14	—	99,282	99,282	9.13	0.67	—	99,710
Water	—	—	—	—	—	—	—	—	—	—	—	1,579	5,548	7,127	162	3.91	—	12,352
Waste	—	—	—	—	—	—	—	—	—	—	—	3,591	0.00	3,591	359	0.00	—	12,565
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	585	585
Total	201	367	260	1,265	3.40	6.64	100	107	6.54	18.7	25.2	5,170	437,786	442,956	551	30.6	1,016	466,884
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	30.0	26.5	39.0	181	0.57	0.55	18.3	18.8	0.52	3.41	3.92	—	54,159	54,159	3.41	4.28	71.3	55,591
Area	5.79	40.0	1.15	45.6	0.01	0.09	—	0.09	0.10	—	0.10	0.00	966	966	0.02	0.04	—	977
Energy	0.83	0.41	7.28	4.44	0.05	0.57	—	0.57	0.57	—	0.57	—	16,437	16,437	1.51	0.11	—	16,508
Water	—	—	—	—	—	—	—	—	—	—	—	261	918	1,180	26.9	0.65	—	2,045
Waste	—	—	—	—	—	—	—	—	—	—	—	595	0.00	595	59.4	0.00	—	2,080
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	96.9	96.9
Total	36.7	66.9	47.4	231	0.62	1.21	18.3	19.5	1.19	3.41	4.60	856	72,480	73,336	91.3	5.07	168	77,298

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	3.09	2.89	1.27	25.1	0.05	0.02	0.26	0.28	0.02	0.08	0.10	—	5,338	5,338	0.21	0.14	15.6	5,401
Refrigerated Warehouse-No Rail	1.96	1.84	0.81	15.9	0.03	0.01	0.17	0.18	0.01	0.05	0.06	—	3,391	3,391	0.13	0.09	9.90	3,431
Unrefrigerated Warehouse-No Rail	15.4	14.4	6.33	125	0.26	0.12	1.30	1.42	0.11	0.39	0.50	—	26,602	26,602	1.06	0.70	77.7	26,916
User Defined Industrial	9.99	2.27	101	59.2	0.88	1.52	8.23	9.75	1.46	2.67	4.12	—	98,266	98,266	7.46	14.8	259	103,113
Condo/Townhouse	70.4	64.8	50.1	472	1.15	0.77	6.70	7.47	0.72	2.07	2.80	—	117,821	117,821	5.86	5.58	362	119,994
Single Family Housing	29.5	27.2	21.0	198	0.48	0.32	2.81	3.13	0.30	0.87	1.17	—	49,416	49,416	2.46	2.34	152	50,327
Strip Mall	1.28	1.17	0.95	9.07	0.02	0.01	0.13	0.15	0.01	0.04	0.05	—	2,303	2,303	0.11	0.11	7.10	2,344
Gasoline/Service Station	16.1	14.7	12.0	114	0.28	0.19	1.65	1.84	0.18	0.51	0.69	—	28,986	28,986	1.39	1.35	89.4	29,512
Regional Shopping Center	45.5	42.9	24.7	217	0.46	0.33	2.64	2.97	0.31	0.82	1.12	—	47,534	47,534	3.14	2.61	143	48,533

High Turnover (Sit Down Restaurant)	10.9	9.96	8.12	77.3	0.19	0.13	1.12	1.25	0.12	0.35	0.47	—	19,617	19,617	0.94	0.91	60.5	19,973
Fast Food Restaurant with Drive Thru	28.2	25.8	21.0	200	0.49	0.33	2.90	3.23	0.31	0.90	1.21	—	50,835	50,835	2.43	2.36	157	51,757
City Park	0.01	0.01	0.01	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.06	20.2
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	0.00	0.00	0.00
Total	232	208	247	1,514	4.31	3.76	27.9	31.7	3.54	8.75	12.3	—	450,131	450,131	25.2	31.0	1,332	461,322
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	2.94	2.74	1.40	21.1	0.05	0.02	0.26	0.28	0.02	0.08	0.10	—	4,922	4,922	0.23	0.15	0.40	4,973
Refrigerated Warehouse-No Rail	1.87	1.74	0.89	13.4	0.03	0.01	0.17	0.18	0.01	0.05	0.06	—	3,127	3,127	0.14	0.10	0.26	3,159
Unrefrigerated Warehouse-No Rail	14.7	13.7	6.99	105	0.24	0.12	1.30	1.42	0.11	0.39	0.50	—	24,525	24,525	1.13	0.75	2.01	24,780
User Defined Industrial	9.91	2.20	105	59.3	0.88	1.52	8.23	9.75	1.46	2.67	4.12	—	98,288	98,288	7.46	14.8	6.71	102,886
Condo/Townhouse	66.0	60.3	53.7	404	1.08	0.77	6.70	7.47	0.72	2.07	2.80	—	110,555	110,555	6.14	5.76	9.39	112,435
Single Family Housing	27.7	25.3	22.5	169	0.45	0.32	2.81	3.13	0.30	0.87	1.17	—	46,368	46,368	2.58	2.42	3.94	47,157

Strip Mall	1.20	1.09	1.02	7.70	0.02	0.01	0.13	0.15	0.01	0.04	0.05	—	2,160	2,160	0.11	0.11	0.18	2,196
Gasoline /Service Station	15.1	13.7	12.9	97.0	0.26	0.19	1.65	1.84	0.18	0.51	0.69	—	27,193	27,193	1.45	1.39	2.32	27,646
Regional Shopping Center	42.5	39.7	26.4	196	0.43	0.33	2.64	2.97	0.31	0.82	1.12	—	44,685	44,685	3.35	2.69	3.70	45,575
High Turnover (Sit Down Restaurant)	10.2	9.28	8.70	65.6	0.18	0.13	1.12	1.25	0.12	0.35	0.47	—	18,403	18,403	0.98	0.94	1.57	18,710
Fast Food Restaurant with Drive Thru	26.4	24.0	22.6	170	0.46	0.33	2.90	3.23	0.31	0.90	1.21	—	47,689	47,689	2.54	2.44	4.06	48,483
City Park	0.01	0.01	0.01	0.07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	18.6	18.6	< 0.005	< 0.005	< 0.005	18.9
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
Total	218	194	262	1,308	4.09	3.76	27.9	31.7	3.55	8.75	12.3	—	427,933	427,933	26.1	31.5	34.6	438,017
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	0.47	0.43	0.23	3.49	0.01	< 0.005	0.04	0.05	< 0.005	0.01	0.02	—	722	722	0.03	0.02	0.97	730
Refrigerated Warehouse-No Rail	0.29	0.27	0.15	2.21	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	458	458	0.02	0.01	0.62	463
Unrefrigerated Warehouse-No Rail	2.53	2.35	1.25	18.9	0.04	0.02	0.23	0.25	0.02	0.07	0.09	—	3,921	3,921	0.18	0.12	5.29	3,967
User Defined Industrial	1.70	0.38	18.2	10.1	0.15	0.26	1.41	1.67	0.25	0.46	0.71	—	15,286	15,286	1.16	2.30	17.4	16,017

Condo/T	10.4	9.51	8.66	66.4	0.17	0.12	1.07	1.19	0.11	0.33	0.44	—	16,118	16,118	0.89	0.84	22.6	16,412
Single Family Housing	4.92	4.49	4.09	31.4	0.08	0.06	0.50	0.56	0.05	0.16	0.21	—	7,611	7,611	0.42	0.40	10.7	7,750
Strip Mall	0.18	0.17	0.16	1.24	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	307	307	0.02	0.02	0.43	312
Gasoline /Service Station	1.75	1.63	1.16	8.82	0.02	0.01	0.12	0.14	0.01	0.04	0.05	—	1,862	1,862	0.13	0.11	2.56	1,900
Regional Shopping Center	3.95	3.70	2.44	18.4	0.04	0.03	0.24	0.26	0.03	0.07	0.10	—	3,661	3,661	0.28	0.22	4.98	3,739
High Turnover (Sit Down Restaurant)	1.14	1.06	0.79	6.01	0.01	0.01	0.09	0.10	0.01	0.03	0.04	—	1,312	1,312	0.09	0.07	1.81	1,338
Fast Food Restaurant with Drive Thru	2.69	2.51	1.80	13.7	0.03	0.02	0.19	0.21	0.02	0.06	0.08	—	2,899	2,899	0.20	0.17	3.98	2,958
City Park	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.41	2.41	< 0.005	< 0.005	< 0.005	2.45
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
Total	30.0	26.5	39.0	181	0.57	0.55	3.92	4.47	0.52	1.23	1.75	—	54,159	54,159	3.41	4.28	71.3	55,591

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Office Park	—	—	—	—	—	—	—	—	—	—	—	—	5,243	5,243	0.50	0.06	—	5,273
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	9,433	9,433	0.90	0.11	—	9,488
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	8,745	8,745	0.83	0.10	—	8,796
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	15,125	15,125	1.44	0.17	—	15,214
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	5,933	5,933	0.57	0.07	—	5,967
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	69.2	69.2	0.01	< 0.005	—	69.6
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	—	61.3	61.3	0.01	< 0.005	—	61.7
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	1,496	1,496	0.14	0.02	—	1,505
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,079	1,079	0.10	0.01	—	1,085
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	719	719	0.07	0.01	—	723

City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	2,099	2,099	0.20	0.02	—	2,111
Total	—	—	—	—	—	—	—	—	—	—	—	—	50,002	50,002	4.77	0.58	—	50,294
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	5,243	5,243	0.50	0.06	—	5,273
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	9,433	9,433	0.90	0.11	—	9,488
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	8,745	8,745	0.83	0.10	—	8,796
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	15,125	15,125	1.44	0.17	—	15,214
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	5,933	5,933	0.57	0.07	—	5,967
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	69.2	69.2	0.01	< 0.005	—	69.6
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	—	61.3	61.3	0.01	< 0.005	—	61.7
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	1,496	1,496	0.14	0.02	—	1,505

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	1,079	1,079	0.10	0.01	—	1,085
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	719	719	0.07	0.01	—	723
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	2,099	2,099	0.20	0.02	—	2,111
Total	—	—	—	—	—	—	—	—	—	—	—	—	50,002	50,002	4.77	0.58	—	50,294
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	868	868	0.08	0.01	—	873
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,562	1,562	0.15	0.02	—	1,571
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	1,448	1,448	0.14	0.02	—	1,456
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	2,504	2,504	0.24	0.03	—	2,519
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	982	982	0.09	0.01	—	988

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	—	10.1	10.1	< 0.005	< 0.005	—	10.2
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	248	248	0.02	< 0.005	—	249
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	179	179	0.02	< 0.005	—	180
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	119	119	0.01	< 0.005	—	120
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	348	348	0.03	< 0.005	—	350
Total	—	—	—	—	—	—	—	—	—	—	—	—	8,278	8,278	0.79	0.10	—	8,327

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	0.26	0.13	2.33	1.96	0.01	0.18	—	0.18	0.18	—	0.18	—	2,785	2,785	0.25	0.01	—	2,793
Refrigerated Warehouse-No Rail	0.35	0.18	3.21	2.70	0.02	0.24	—	0.24	0.24	—	0.24	—	3,835	3,835	0.34	0.01	—	3,846

Unrefrige Warehouse-No Rail	1.12	0.56	10.2	8.56	0.06	0.77	—	0.77	0.77	—	0.77	—	12,162	12,162	1.08	0.02	—	12,196
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	1.83	0.92	15.6	6.66	0.10	1.27	—	1.27	1.27	—	1.27	—	19,861	19,861	1.76	0.04	—	19,916
Single Family Housing	0.76	0.38	6.49	2.76	0.04	0.53	—	0.53	0.53	—	0.53	—	8,243	8,243	0.73	0.02	—	8,266
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.2	14.2	< 0.005	< 0.005	—	14.2
Gasoline /Service Station	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	93.1	93.1	0.01	< 0.005	—	93.4
Regional Shopping Center	0.03	0.01	0.26	0.22	< 0.005	0.02	—	0.02	0.02	—	0.02	—	306	306	0.03	< 0.005	—	307
High Turnover (Sit Down Restaurant)	0.11	0.05	1.00	0.84	0.01	0.08	—	0.08	0.08	—	0.08	—	1,188	1,188	0.11	< 0.005	—	1,191
Fast Food Restaurant with Drive Thru	0.07	0.04	0.66	0.56	< 0.005	0.05	—	0.05	0.05	—	0.05	—	792	792	0.07	< 0.005	—	794
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
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
Total	4.54	2.27	39.9	24.3	0.25	3.14	—	3.14	3.14	—	3.14	—	49,280	49,280	4.36	0.09	—	49,416
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Office Park	0.26	0.13	2.33	1.96	0.01	0.18	—	0.18	0.18	—	0.18	—	2,785	2,785	0.25	0.01	—	2,793
Refrigerated Warehouse-No Rail	0.35	0.18	3.21	2.70	0.02	0.24	—	0.24	0.24	—	0.24	—	3,835	3,835	0.34	0.01	—	3,846
Unrefrigerated Warehouse-No Rail	1.12	0.56	10.2	8.56	0.06	0.77	—	0.77	0.77	—	0.77	—	12,162	12,162	1.08	0.02	—	12,196
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	1.83	0.92	15.6	6.66	0.10	1.27	—	1.27	1.27	—	1.27	—	19,861	19,861	1.76	0.04	—	19,916
Single Family Housing	0.76	0.38	6.49	2.76	0.04	0.53	—	0.53	0.53	—	0.53	—	8,243	8,243	0.73	0.02	—	8,266
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.2	14.2	< 0.005	< 0.005	—	14.2
Gasoline/Service Station	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	93.1	93.1	0.01	< 0.005	—	93.4
Regional Shopping Center	0.03	0.01	0.26	0.22	< 0.005	0.02	—	0.02	0.02	—	0.02	—	306	306	0.03	< 0.005	—	307
High Turnover (Sit Down Restaurant)	0.11	0.05	1.00	0.84	0.01	0.08	—	0.08	0.08	—	0.08	—	1,188	1,188	0.11	< 0.005	—	1,191
Fast Food Restaurant with Drive Thru	0.07	0.04	0.66	0.56	< 0.005	0.05	—	0.05	0.05	—	0.05	—	792	792	0.07	< 0.005	—	794

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
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
Total	4.54	2.27	39.9	24.3	0.25	3.14	—	3.14	3.14	—	3.14	—	49,280	49,280	4.36	0.09	—	49,416
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	0.05	0.02	0.43	0.36	< 0.005	0.03	—	0.03	0.03	—	0.03	—	461	461	0.04	< 0.005	—	462
Refrigerated Warehouse-No Rail	0.06	0.03	0.59	0.49	< 0.005	0.04	—	0.04	0.04	—	0.04	—	635	635	0.06	< 0.005	—	637
Unrefrigerated Warehouse-No Rail	0.20	0.10	1.86	1.56	0.01	0.14	—	0.14	0.14	—	0.14	—	2,014	2,014	0.18	< 0.005	—	2,019
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	0.33	0.17	2.86	1.22	0.02	0.23	—	0.23	0.23	—	0.23	—	3,288	3,288	0.29	0.01	—	3,297
Single Family Housing	0.14	0.07	1.19	0.50	0.01	0.10	—	0.10	0.10	—	0.10	—	1,365	1,365	0.12	< 0.005	—	1,368
Strip Mall	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.35
Gasoline/Service Station	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.5
Regional Shopping Center	0.01	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	50.7	50.7	< 0.005	< 0.005	—	50.9

High Turnover (Sit Down Restaurant)	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	197	197	0.02	< 0.005	—	197
Fast Food Restaurant with Drive Thru	0.01	0.01	0.12	0.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	131	131	0.01	< 0.005	—	131
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
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
Total	0.83	0.41	7.28	4.44	0.05	0.57	—	0.57	0.57	—	0.57	—	8,159	8,159	0.72	0.02	—	8,181

4.3. Area Emissions by Source

4.3.2. 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	6.78	3.39	58.0	24.7	0.37	4.69	—	4.69	4.69	—	4.69	0.00	73,577	73,577	1.39	0.14	—	73,653
Consumer Products	—	173	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	16.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	45.7	42.7	3.41	363	0.02	0.27	—	0.27	0.35	—	0.35	—	1,160	1,160	0.05	0.30	—	1,251
Total	52.4	236	61.4	387	0.39	4.95	—	4.95	5.04	—	5.04	0.00	74,736	74,736	1.43	0.44	—	74,904

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	6.78	3.39	58.0	24.7	0.37	4.69	—	4.69	4.69	—	4.69	0.00	73,577	73,577	1.39	0.14	—	73,653
Consumer Products	—	173	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	16.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.78	193	58.0	24.7	0.37	4.69	—	4.69	4.69	—	4.69	0.00	73,577	73,577	1.39	0.14	—	73,653
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.08	0.04	0.72	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	0.00	834	834	0.02	< 0.005	—	835
Consumer Products	—	31.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	3.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	5.71	5.34	0.43	45.3	< 0.005	0.03	—	0.03	0.04	—	0.04	—	132	132	0.01	0.03	—	142
Total	5.79	40.0	1.15	45.6	0.01	0.09	—	0.09	0.10	—	0.10	0.00	966	966	0.02	0.04	—	977

4.4. Water Emissions by Land Use

4.4.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	108	363	471	11.1	0.27	—	828
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	201	678	880	20.7	0.50	—	1,546
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	885	3,023	3,908	91.0	2.19	—	6,835
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	263	988	1,251	27.0	0.65	—	2,121
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	65.7	284	349	6.76	0.16	—	567
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.06	3.94	5.00	0.11	< 0.005	—	8.53
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	1.22	4.12	5.34	0.13	< 0.005	—	9.38
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	23.0	86.4	109	2.37	0.06	—	186
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	18.9	63.6	82.4	1.94	0.05	—	145

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.6	42.4	54.9	1.29	0.03	—	96.5
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	10.2	10.2	< 0.005	< 0.005	—	10.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,579	5,548	7,127	162	3.91	—	12,352
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	108	363	471	11.1	0.27	—	828
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	201	678	880	20.7	0.50	—	1,546
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	885	3,023	3,908	91.0	2.19	—	6,835
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	263	988	1,251	27.0	0.65	—	2,121
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	65.7	284	349	6.76	0.16	—	567
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.06	3.94	5.00	0.11	< 0.005	—	8.53

Gasoline /Service	—	—	—	—	—	—	—	—	—	—	—	1.22	4.12	5.34	0.13	< 0.005	—	9.38
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	23.0	86.4	109	2.37	0.06	—	186
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	18.9	63.6	82.4	1.94	0.05	—	145
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	12.6	42.4	54.9	1.29	0.03	—	96.5
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	10.2	10.2	< 0.005	< 0.005	—	10.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,579	5,548	7,127	162	3.91	—	12,352
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	17.9	60.2	78.0	1.84	0.04	—	137
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	33.3	112	146	3.43	0.08	—	256
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	146	501	647	15.1	0.36	—	1,132
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	43.5	164	207	4.48	0.11	—	351
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	10.9	47.0	57.8	1.12	0.03	—	93.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.18	0.65	0.83	0.02	< 0.005	—	1.41
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.20	0.68	0.88	0.02	< 0.005	—	1.55
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	3.81	14.3	18.1	0.39	0.01	—	30.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	3.12	10.5	13.6	0.32	0.01	—	24.0
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	2.08	7.01	9.10	0.21	0.01	—	16.0
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	1.68	1.68	< 0.005	< 0.005	—	1.69
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	261	918	1,180	26.9	0.65	—	2,045

4.5. Waste Emissions by Land Use

4.5.2. 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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	159	0.00	159	15.9	0.00	—	555
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	230	0.00	230	23.0	0.00	—	805
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	1,011	0.00	1,011	101	0.00	—	3,538
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	1,311	0.00	1,311	131	0.00	—	4,586
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	428	0.00	428	42.8	0.00	—	1,498
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.24	0.00	4.24	0.42	0.00	—	14.8
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	—	48.8
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	91.8	0.00	91.8	9.17	0.00	—	321
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	134	0.00	134	13.4	0.00	—	470
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3,591	0.00	3,591	359	0.00	—	12,565
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	159	0.00	159	15.9	0.00	—	555
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	230	0.00	230	23.0	0.00	—	805
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	1,011	0.00	1,011	101	0.00	—	3,538
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	1,311	0.00	1,311	131	0.00	—	4,586
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	428	0.00	428	42.8	0.00	—	1,498
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.24	0.00	4.24	0.42	0.00	—	14.8

Gasoline /Service	—	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	—	48.8
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	91.8	0.00	91.8	9.17	0.00	—	321
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	208	0.00	208	20.8	0.00	—	728
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	134	0.00	134	13.4	0.00	—	470
City Park	—	—	—	—	—	—	—	—	—	—	—	0.06	0.00	0.06	0.01	0.00	—	0.21
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3,591	0.00	3,591	359	0.00	—	12,565
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	26.3	0.00	26.3	2.63	0.00	—	92.0
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	38.1	0.00	38.1	3.81	0.00	—	133
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	167	0.00	167	16.7	0.00	—	586
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	217	0.00	217	21.7	0.00	—	759
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	70.9	0.00	70.9	7.08	0.00	—	248
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.70	0.00	0.70	0.07	0.00	—	2.46
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	2.31	0.00	2.31	0.23	0.00	—	8.08
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	15.2	0.00	15.2	1.52	0.00	—	53.1
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	34.4	0.00	34.4	3.44	0.00	—	120
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	22.2	0.00	22.2	2.22	0.00	—	77.7
City Park	—	—	—	—	—	—	—	—	—	—	—	0.01	0.00	0.01	< 0.005	0.00	—	0.03
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	595	0.00	595	59.4	0.00	—	2,080

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.77	0.77
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	463	463
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.0	25.0
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.5	11.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.78	0.78
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	50.6	50.6
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	585	585
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.77	0.77

Refrigerated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	463	463
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25.0	25.0
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.5	11.5
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.78	0.78
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	50.6	50.6
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	585	585
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Office Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.7	76.7
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.13	4.13
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.90	1.90

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.39	8.39
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.59	5.59
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	96.9	96.9

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

5.9. 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
Office Park	888	669	327	283,479	7,525	5,670	2,769	2,401,918
Refrigerated Warehouse-No Rail	564	319	306	179,702	4,780	2,706	2,594	1,522,619
Unrefrigerated Warehouse-No Rail	4,426	3,725	3,675	1,539,648	37,498	31,561	31,138	13,045,437
User Defined Industrial	1,143	927	874	391,883	35,782	29,024	27,378	12,269,872
Condo/Townhouse	18,580	11,370	9,101	5,911,360	142,672	87,311	69,884	45,393,329

Single Family Housing	7,755	7,793	6,971	2,791,565	59,549	59,839	53,527	21,436,426
Strip Mall	330	237	75.2	102,332	2,796	2,011	637	867,056
Gasoline/Service Station	2,496	4,154	4,154	1,083,962	5,649	35,198	35,198	5,143,326
Regional Shopping Center	5,320	13,204	8,133	2,499,577	20,262	56,219	34,626	10,019,460
High Turnover (Sit Down Restaurant)	1,662	2,155	2,811	692,267	5,554	18,260	23,821	3,642,197
Fast Food Restaurant with Drive Thru	4,074	7,285	4,182	1,660,093	11,305	61,729	35,436	8,013,735
City Park	2.00	2.55	2.85	803	16.9	21.6	24.1	6,800
Parking Lot	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)
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	2796
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	329
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	699

Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	82

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)
10305711	3,435,237	4,496,411	1,498,804	151,589

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)
Office Park	5,527,449	346	0.0330	0.0040	8,690,939
Refrigerated Warehouse-No Rail	9,945,872	346	0.0330	0.0040	11,966,710
Unrefrigerated Warehouse-No Rail	9,219,763	346	0.0330	0.0040	37,948,738
User Defined Industrial	0.00	346	0.0330	0.0040	0.00
Condo/Townhouse	15,946,932	346	0.0330	0.0040	61,972,315
Single Family Housing	6,255,109	346	0.0330	0.0040	25,720,146
Strip Mall	72,963	346	0.0330	0.0040	44,216

Gasoline/Service Station	64,628	346	0.0330	0.0040	290,596
Regional Shopping Center	1,577,323	346	0.0330	0.0040	955,877
High Turnover (Sit Down Restaurant)	1,137,107	346	0.0330	0.0040	3,705,461
Fast Food Restaurant with Drive Thru	758,071	346	0.0330	0.0040	2,470,307
City Park	0.00	346	0.0330	0.0040	0.00
Parking Lot	2,213,196	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Office Park	56,292,721	0.00
Refrigerated Warehouse-No Rail	105,043,925	0.00
Unrefrigerated Warehouse-No Rail	461,616,625	8,534,332
User Defined Industrial	0.00	0.00
Condo/Townhouse	137,089,385	20,519,706
Single Family Housing	34,261,926	12,397,322
Strip Mall	555,544	69,954
Gasoline/Service Station	637,531	0.00
Regional Shopping Center	12,009,896	1,755,840
High Turnover (Sit Down Restaurant)	9,842,688	0.00
Fast Food Restaurant with Drive Thru	6,561,792	0.00
City Park	0.00	2,020,880
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Office Park	295	0.00
Refrigerated Warehouse-No Rail	427	0.00
Unrefrigerated Warehouse-No Rail	1,876	0.00
User Defined Industrial	0.00	0.00
Condo/Townhouse	735	0.00
Single Family Housing	240	0.00
Strip Mall	7.88	0.00
Gasoline/Service Station	25.9	0.00
Regional Shopping Center	170	0.00
High Turnover (Sit Down Restaurant)	386	0.00
Fast Food Restaurant with Drive Thru	249	0.00
City Park	0.11	0.00
Parking Lot	0.00	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
Office Park	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Office Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Refrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 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
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	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	R-410A	2,088	< 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
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	R-410A	2,088	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	R-410A	2,088	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

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	20.0	annual days of extreme heat
Extreme Precipitation	3.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	84.6
AQ-PM	95.6
AQ-DPM	57.0
Drinking Water	93.3
Lead Risk Housing	7.89
Pesticides	64.8
Toxic Releases	71.4
Traffic	14.2
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	81.4
Haz Waste Facilities/Generators	81.9
Impaired Water Bodies	43.8
Solid Waste	35.7
Sensitive Population	—
Asthma	58.6
Cardio-vascular	79.3
Low Birth Weights	68.1
Socioeconomic Factor Indicators	—
Education	51.5
Housing	70.8

Linguistic	15.6
Poverty	40.3
Unemployment	40.6

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	50.9816502
Employed	66.62389324
Median HI	72.65494675
Education	—
Bachelor's or higher	43.46208136
High school enrollment	100
Preschool enrollment	17.18208649
Transportation	—
Auto Access	93.63531374
Active commuting	23.14897985
Social	—
2-parent households	66.79070961
Voting	49.36481458
Neighborhood	—
Alcohol availability	65.76414731
Park access	55.29321186
Retail density	20.00513281
Supermarket access	52.71397408
Tree canopy	13.73027076

Housing	—
Homeownership	73.48902862
Housing habitability	38.94520724
Low-inc homeowner severe housing cost burden	67.22699859
Low-inc renter severe housing cost burden	48.14577185
Uncrowded housing	46.38778391
Health Outcomes	—
Insured adults	44.20633902
Arthritis	84.5
Asthma ER Admissions	52.8
High Blood Pressure	89.6
Cancer (excluding skin)	77.2
Asthma	51.9
Coronary Heart Disease	88.8
Chronic Obstructive Pulmonary Disease	81.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	43.6
Cognitively Disabled	92.5
Physically Disabled	86.7
Heart Attack ER Admissions	10.7
Mental Health Not Good	52.8
Chronic Kidney Disease	85.5
Obesity	50.5
Pedestrian Injuries	19.6
Physical Health Not Good	65.0
Stroke	84.7
Health Risk Behaviors	—

Binge Drinking	15.4
Current Smoker	54.4
No Leisure Time for Physical Activity	62.4
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	51.6
Elderly	87.4
English Speaking	59.0
Foreign-born	27.3
Outdoor Workers	53.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	70.3
Traffic Density	21.2
Traffic Access	23.0
Other Indices	—
Hardship	44.7
Other Decision Support	—
2016 Voting	55.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0
Healthy Places Index Score for Project Location (b)	53.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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	Acreage based on Project site plan
Operations: Vehicle Data	Updated based on Project traffic study
Operations: Fleet Mix	Fleet mix adjusted based on Project traffic study
Operations: Hearths	No wood-burning stoves or fireplaces per SCAQMD Rule 445
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater

14822 Rich Haven Ph2 Ops Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	14822 Rich Haven Ph2 Ops
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	20.8
Location	34.01248843179461, -117.57182350609266
County	San Bernardino-South Coast
City	Ontario
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5261
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

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	603	Dwelling Unit	81.3	1,175,850	708,721	—	1,996	—
Condo/Townhouse	2,000	Dwelling Unit	55.9	2,120,000	242,283	—	6,620	—
City Park	27.0	Acre	27.0	0.00	1,176,120	1,176,120	—	—

Regional Shopping Center	526	1000sqft	12.1	525,990	342,382	—	—	—
High Turnover (Sit Down Restaurant)	105	1000sqft	2.42	105,198	0.00	—	—	—
Fast Food Restaurant with Drive Thru	70.1	1000sqft	1.61	70,132	0.00	—	—	—
Gasoline/Service Station	48.0	Pump	0.16	6,776	0.00	—	—	—
Parking Lot	54.5	Acre	54.5	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

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.	294	363	244	1,941	4.54	7.50	144	152	7.36	25.7	33.1	2,920	529,145	532,064	321	22.0	1,437	548,067
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	257	327	256	1,519	4.27	7.41	144	152	7.24	25.7	33.0	2,920	502,251	505,171	322	22.6	156	520,102
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	180	260	142	1,028	2.28	3.45	77.0	80.5	3.37	13.7	17.1	2,920	275,935	278,855	312	13.6	424	291,117

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	32.9	47.4	25.9	188	0.42	0.63	14.1	14.7	0.62	2.50	3.12	483	45,684	46,168	51.6	2.25	70.3	48,198

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	268	247	185	1,736	4.17	2.81	144	147	2.63	25.7	28.3	—	428,503	428,503	21.9	20.5	1,315	436,487
Area	23.5	114	38.4	194	0.24	3.06	—	3.06	3.09	—	3.09	0.00	47,109	47,109	0.90	0.14	—	47,172
Energy	2.36	1.18	20.6	11.4	0.13	1.63	—	1.63	1.63	—	1.63	—	51,901	51,901	4.77	0.35	—	52,125
Water	—	—	—	—	—	—	—	—	—	—	—	386	1,633	2,018	39.7	0.96	—	3,297
Waste	—	—	—	—	—	—	—	—	—	—	—	2,534	0.00	2,534	253	0.00	—	8,866
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	121	121
Total	294	363	244	1,941	4.54	7.50	144	152	7.36	25.7	33.1	2,920	529,145	532,064	321	22.0	1,437	548,067
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	251	230	198	1,492	3.91	2.81	144	147	2.64	25.7	28.4	—	402,131	402,131	22.9	21.2	34.1	409,057
Area	4.29	96.3	36.7	15.6	0.23	2.97	—	2.97	2.97	—	2.97	0.00	46,587	46,587	0.88	0.09	—	46,635
Energy	2.36	1.18	20.6	11.4	0.13	1.63	—	1.63	1.63	—	1.63	—	51,901	51,901	4.77	0.35	—	52,125
Water	—	—	—	—	—	—	—	—	—	—	—	386	1,633	2,018	39.7	0.96	—	3,297
Waste	—	—	—	—	—	—	—	—	—	—	—	2,534	0.00	2,534	253	0.00	—	8,866
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	121	121
Total	257	327	256	1,519	4.27	7.41	144	152	7.24	25.7	33.0	2,920	502,251	505,171	322	22.6	156	520,102
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	164	152	117	893	2.13	1.55	77.0	78.6	1.45	13.7	15.2	—	218,854	218,854	14.0	12.2	303	223,147
Area	13.4	107	3.66	123	0.02	0.27	—	0.27	0.29	—	0.29	0.00	3,548	3,548	0.08	0.04	—	3,562
Energy	2.36	1.18	20.6	11.4	0.13	1.63	—	1.63	1.63	—	1.63	—	51,901	51,901	4.77	0.35	—	52,125
Water	—	—	—	—	—	—	—	—	—	—	—	386	1,633	2,018	39.7	0.96	—	3,297
Waste	—	—	—	—	—	—	—	—	—	—	—	2,534	0.00	2,534	253	0.00	—	8,866
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	121	121
Total	180	260	142	1,028	2.28	3.45	77.0	80.5	3.37	13.7	17.1	2,920	275,935	278,855	312	13.6	424	291,117
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	30.0	27.8	21.4	163	0.39	0.28	14.1	14.3	0.26	2.50	2.77	—	36,234	36,234	2.32	2.02	50.1	36,944
Area	2.45	19.5	0.67	22.5	< 0.005	0.05	—	0.05	0.05	—	0.05	0.00	587	587	0.01	0.01	—	590
Energy	0.43	0.22	3.75	2.07	0.02	0.30	—	0.30	0.30	—	0.30	—	8,593	8,593	0.79	0.06	—	8,630
Water	—	—	—	—	—	—	—	—	—	—	—	63.9	270	334	6.57	0.16	—	546
Waste	—	—	—	—	—	—	—	—	—	—	—	420	0.00	420	41.9	0.00	—	1,468
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.1	20.1
Total	32.9	47.4	25.9	188	0.42	0.63	14.1	14.7	0.62	2.50	3.12	483	45,684	46,168	51.6	2.25	70.3	48,198

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	21.7	19.9	15.4	145	0.35	0.24	2.06	2.30	0.22	0.64	0.86	—	36,251	36,251	1.80	1.72	111	36,919
Condo/Townhouse	42.4	39.0	30.1	284	0.69	0.46	4.03	4.49	0.43	1.25	1.68	—	70,885	70,885	3.53	3.36	218	72,192
City Park	0.23	0.21	0.17	1.63	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	413	413	0.02	0.02	1.27	420
Regional Shopping Center	60.6	57.1	32.9	290	0.62	0.44	3.52	3.95	0.41	1.09	1.50	—	63,315	63,315	4.18	3.48	190	64,645
High Turnover (Sit Down Restaurant)	35.3	32.3	26.3	251	0.62	0.41	3.63	4.04	0.39	1.12	1.51	—	63,688	63,688	3.05	2.96	196	64,843
Fast Food Restaurant with Drive Thru	91.5	83.8	68.2	650	1.61	1.07	9.40	10.5	1.00	2.91	3.92	—	164,965	164,965	7.89	7.67	509	167,956
Gasoline /Service Station	16.1	14.7	12.0	114	0.28	0.19	1.65	1.84	0.18	0.51	0.69	—	28,986	28,986	1.39	1.35	89.4	29,512
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
Total	268	247	185	1,736	4.17	2.81	24.3	27.1	2.63	7.53	10.2	—	428,503	428,503	21.9	20.5	1,315	436,487
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	20.3	18.5	16.5	124	0.33	0.24	2.06	2.30	0.22	0.64	0.86	—	34,015	34,015	1.89	1.77	2.89	34,593
Condo/Townhouse	39.7	36.3	32.3	243	0.65	0.46	4.03	4.49	0.43	1.25	1.68	—	66,513	66,513	3.69	3.47	5.65	67,644
City Park	0.21	0.20	0.18	1.38	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	387	387	0.02	0.02	0.03	394

Regional Shopping Center	56.6	52.9	35.1	261	0.58	0.44	3.52	3.95	0.41	1.09	1.50	—	59,520	59,520	4.47	3.59	4.93	60,705
High Turnover (Sit Down Restaurant)	33.1	30.1	28.3	213	0.58	0.41	3.63	4.04	0.39	1.12	1.51	—	59,747	59,747	3.18	3.06	5.09	60,742
Fast Food Restaurant with Drive Thru	85.8	78.0	73.2	552	1.51	1.07	9.40	10.5	1.00	2.91	3.92	—	154,756	154,756	8.23	7.91	13.2	157,334
Gasoline /Service Station	15.1	13.7	12.9	97.0	0.26	0.19	1.65	1.84	0.18	0.51	0.69	—	27,193	27,193	1.45	1.39	2.32	27,646
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
Total	251	230	198	1,492	3.91	2.81	24.3	27.1	2.64	7.53	10.2	—	402,131	402,131	22.9	21.2	34.1	409,057
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.61	3.29	3.00	23.0	0.06	0.04	0.37	0.41	0.04	0.11	0.15	—	5,583	5,583	0.31	0.29	7.82	5,685
Condo/Townhouse	6.26	5.71	5.20	39.9	0.10	0.07	0.64	0.71	0.07	0.20	0.27	—	9,683	9,683	0.53	0.50	13.6	9,860
City Park	0.02	0.02	0.02	0.14	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	34.7	34.7	< 0.005	< 0.005	0.05	35.4
Regional Shopping Center	5.92	5.55	3.63	27.3	0.06	0.04	0.35	0.39	0.04	0.11	0.15	—	5,404	5,404	0.42	0.33	7.35	5,521
High Turnover (Sit Down Restaurant)	3.69	3.43	2.57	19.5	0.05	0.03	0.28	0.31	0.03	0.09	0.12	—	4,261	4,261	0.28	0.24	5.88	4,346

Fast Food Restaurant with Drive Thru	8.73	8.13	5.85	44.3	0.10	0.07	0.61	0.68	0.07	0.19	0.26	—	9,406	9,406	0.65	0.54	12.9	9,598
Gasoline /Service Station	1.75	1.63	1.16	8.82	0.02	0.01	0.12	0.14	0.01	0.04	0.05	—	1,862	1,862	0.13	0.11	2.56	1,900
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
Total	30.0	27.8	21.4	163	0.39	0.28	2.37	2.65	0.26	0.73	1.00	—	36,234	36,234	2.32	2.02	50.1	36,944

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	—	—	—	—	—	—	—	—	—	—	—	—	4,352	4,352	0.41	0.05	—	4,378
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	9,198	9,198	0.88	0.11	—	9,251
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	4,853	4,853	0.46	0.06	—	4,882
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	3,499	3,499	0.33	0.04	—	3,519

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	2,333	2,333	0.22	0.03	—	2,346
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	—	61.3	61.3	0.01	< 0.005	—	61.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	1,973	1,973	0.19	0.02	—	1,984
Total	—	—	—	—	—	—	—	—	—	—	—	—	26,268	26,268	2.50	0.30	—	26,421
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	4,352	4,352	0.41	0.05	—	4,378
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	9,198	9,198	0.88	0.11	—	9,251
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	4,853	4,853	0.46	0.06	—	4,882
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	3,499	3,499	0.33	0.04	—	3,519
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	2,333	2,333	0.22	0.03	—	2,346
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	—	61.3	61.3	0.01	< 0.005	—	61.7

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	1,973	1,973	0.19	0.02	—	1,984
Total	—	—	—	—	—	—	—	—	—	—	—	—	26,268	26,268	2.50	0.30	—	26,421
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	721	721	0.07	0.01	—	725
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	1,523	1,523	0.15	0.02	—	1,532
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	804	804	0.08	0.01	—	808
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	579	579	0.06	0.01	—	583
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	386	386	0.04	< 0.005	—	388
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	—	10.1	10.1	< 0.005	< 0.005	—	10.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	327	327	0.03	< 0.005	—	328
Total	—	—	—	—	—	—	—	—	—	—	—	—	4,349	4,349	0.41	0.05	—	4,374

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	0.56	0.28	4.76	2.03	0.03	0.39	—	0.39	0.39	—	0.39	—	6,047	6,047	0.54	0.01	—	6,064
Condo/Townhouse	1.11	0.56	9.51	4.05	0.06	0.77	—	0.77	0.77	—	0.77	—	12,077	12,077	1.07	0.02	—	12,111
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
Regional Shopping Center	0.09	0.05	0.83	0.70	< 0.005	0.06	—	0.06	0.06	—	0.06	—	994	994	0.09	< 0.005	—	997
High Turnover (Sit Down Restaurant)	0.36	0.18	3.23	2.71	0.02	0.25	—	0.25	0.25	—	0.25	—	3,853	3,853	0.34	0.01	—	3,863
Fast Food Restaurant with Drive Thru	0.24	0.12	2.15	1.81	0.01	0.16	—	0.16	0.16	—	0.16	—	2,568	2,568	0.23	< 0.005	—	2,576
Gasoline /Service Station	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	93.1	93.1	0.01	< 0.005	—	93.4
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
Total	2.36	1.18	20.6	11.4	0.13	1.63	—	1.63	1.63	—	1.63	—	25,632	25,632	2.27	0.05	—	25,703
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.56	0.28	4.76	2.03	0.03	0.39	—	0.39	0.39	—	0.39	—	6,047	6,047	0.54	0.01	—	6,064

Condo/Townhouse	1.11	0.56	9.51	4.05	0.06	0.77	—	0.77	0.77	—	0.77	—	12,077	12,077	1.07	0.02	—	12,111
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
Regional Shopping Center	0.09	0.05	0.83	0.70	< 0.005	0.06	—	0.06	0.06	—	0.06	—	994	994	0.09	< 0.005	—	997
High Turnover (Sit Down Restaurant)	0.36	0.18	3.23	2.71	0.02	0.25	—	0.25	0.25	—	0.25	—	3,853	3,853	0.34	0.01	—	3,863
Fast Food Restaurant with Drive Thru	0.24	0.12	2.15	1.81	0.01	0.16	—	0.16	0.16	—	0.16	—	2,568	2,568	0.23	< 0.005	—	2,576
Gasoline/Service Station	0.01	< 0.005	0.08	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01	—	93.1	93.1	0.01	< 0.005	—	93.4
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
Total	2.36	1.18	20.6	11.4	0.13	1.63	—	1.63	1.63	—	1.63	—	25,632	25,632	2.27	0.05	—	25,703
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.10	0.05	0.87	0.37	0.01	0.07	—	0.07	0.07	—	0.07	—	1,001	1,001	0.09	< 0.005	—	1,004
Condo/Townhouse	0.20	0.10	1.74	0.74	0.01	0.14	—	0.14	0.14	—	0.14	—	2,000	2,000	0.18	< 0.005	—	2,005
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
Regional Shopping Center	0.02	0.01	0.15	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	165	165	0.01	< 0.005	—	165

High Turnover (Sit Down Restaurant)	0.06	0.03	0.59	0.49	< 0.005	0.04	—	0.04	0.04	—	0.04	—	638	638	0.06	< 0.005	—	640
Fast Food Restaurant with Drive Thru	0.04	0.02	0.39	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	425	425	0.04	< 0.005	—	426
Gasoline /Service Station	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.5
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
Total	0.43	0.22	3.75	2.07	0.02	0.30	—	0.30	0.30	—	0.30	—	4,244	4,244	0.38	0.01	—	4,255

4.3. Area Emissions by Source

4.3.2. 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	4.29	2.15	36.7	15.6	0.23	2.97	—	2.97	2.97	—	2.97	0.00	46,587	46,587	0.88	0.09	—	46,635
Consumer Products	—	86.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	7.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	19.2	18.0	1.67	179	0.01	0.09	—	0.09	0.12	—	0.12	—	521	521	0.02	0.05	—	536

Total	23.5	114	38.4	194	0.24	3.06	—	3.06	3.09	—	3.09	0.00	47,109	47,109	0.90	0.14	—	47,172
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	4.29	2.15	36.7	15.6	0.23	2.97	—	2.97	2.97	—	2.97	0.00	46,587	46,587	0.88	0.09	—	46,635
Consumer Products	—	86.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	7.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	4.29	96.3	36.7	15.6	0.23	2.97	—	2.97	2.97	—	2.97	0.00	46,587	46,587	0.88	0.09	—	46,635
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.05	0.03	0.46	0.20	< 0.005	0.04	—	0.04	0.04	—	0.04	0.00	528	528	0.01	< 0.005	—	529
Consumer Products	—	15.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	1.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.40	2.25	0.21	22.3	< 0.005	0.01	—	0.01	0.02	—	0.02	—	59.1	59.1	< 0.005	0.01	—	60.8
Total	2.45	19.5	0.67	22.5	< 0.005	0.05	—	0.05	0.05	—	0.05	0.00	587	587	0.01	0.01	—	590

4.4. Water Emissions by Land Use

4.4.2. 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	—	—	—	—	—	—	—	—	—	—	—	48.2	232	280	4.96	0.12	—	440
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	160	562	722	16.4	0.40	—	1,251
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	211	211	0.02	< 0.005	—	212
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	74.7	279	354	7.68	0.19	—	601
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	61.2	206	267	6.29	0.15	—	470
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	40.8	137	178	4.20	0.10	—	313
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	1.22	4.12	5.34	0.13	< 0.005	—	9.38
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	386	1,633	2,018	39.7	0.96	—	3,297
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	48.2	232	280	4.96	0.12	—	440

Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	160	562	722	16.4	0.40	—	1,251
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	211	211	0.02	< 0.005	—	212
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	74.7	279	354	7.68	0.19	—	601
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	61.2	206	267	6.29	0.15	—	470
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	40.8	137	178	4.20	0.10	—	313
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	1.22	4.12	5.34	0.13	< 0.005	—	9.38
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	386	1,633	2,018	39.7	0.96	—	3,297
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.97	38.5	46.4	0.82	0.02	—	72.9
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	26.4	93.1	120	2.72	0.07	—	207
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	35.0	35.0	< 0.005	< 0.005	—	35.2
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	12.4	46.2	58.6	1.27	0.03	—	99.5

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	10.1	34.1	44.3	1.04	0.03	—	77.8
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	6.75	22.8	29.5	0.69	0.02	—	51.9
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	0.20	0.68	0.88	0.02	< 0.005	—	1.55
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	63.9	270	334	6.57	0.16	—	546

4.5. Waste Emissions by Land Use

4.5.2. 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	—	—	—	—	—	—	—	—	—	—	—	314	0.00	314	31.4	0.00	—	1,099
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	797	0.00	797	79.7	0.00	—	2,789
City Park	—	—	—	—	—	—	—	—	—	—	—	1.25	0.00	1.25	0.13	0.00	—	4.38
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	298	0.00	298	29.7	0.00	—	1,041

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	675	0.00	675	67.4	0.00	—	2,360
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	435	0.00	435	43.5	0.00	—	1,523
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	—	48.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2,534	0.00	2,534	253	0.00	—	8,866
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	314	0.00	314	31.4	0.00	—	1,099
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	797	0.00	797	79.7	0.00	—	2,789
City Park	—	—	—	—	—	—	—	—	—	—	—	1.25	0.00	1.25	0.13	0.00	—	4.38
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	298	0.00	298	29.7	0.00	—	1,041
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	675	0.00	675	67.4	0.00	—	2,360
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	435	0.00	435	43.5	0.00	—	1,523

Gasoline Station	—	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	—	48.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2,534	0.00	2,534	253	0.00	—	8,866
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	52.0	0.00	52.0	5.20	0.00	—	182
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	132	0.00	132	13.2	0.00	—	462
City Park	—	—	—	—	—	—	—	—	—	—	—	0.21	0.00	0.21	0.02	0.00	—	0.72
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	49.3	0.00	49.3	4.93	0.00	—	172
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	112	0.00	112	11.2	0.00	—	391
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	72.1	0.00	72.1	7.20	0.00	—	252
Gasoline /Service Station	—	—	—	—	—	—	—	—	—	—	—	2.31	0.00	2.31	0.23	0.00	—	8.08
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	420	0.00	420	41.9	0.00	—	1,468

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.53	7.53
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.6	13.6
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.00	2.00
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	59.0	59.0
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.3	39.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	121	121
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.53	7.53
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.6	13.6

Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.00	2.00
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	59.0	59.0
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.3	39.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	121	121
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.25	1.25
Condo/Townhouse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.25	2.25
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.33	0.33
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.77	9.77
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.51	6.51
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.1	20.1

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

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	5,688	5,716	5,113	2,047,670	43,679	43,897	39,266	15,724,054
Condo/Townhouse	11,178	6,798	5,418	3,551,241	85,836	52,202	41,605	27,269,982
City Park	22.0	52.9	59.1	11,580	186	448	501	98,114
Regional Shopping Center	10,311	17,588	2,846	3,753,717	39,270	74,884	12,118	14,774,788
High Turnover (Sit Down Restaurant)	5,399	6,998	9,127	2,248,423	18,042	59,296	77,336	11,828,194
Fast Food Restaurant with Drive Thru	13,218	23,642	13,575	5,386,702	36,678	200,316	115,021	26,005,007
Gasoline/Service Station	2,496	4,154	4,154	1,083,962	5,649	35,198	35,198	5,143,326
Parking Lot	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	513

Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	60
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	1700
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	200

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)
6674096.25	2,224,699	1,062,144	354,048	142,441

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	4,588,602	346	0.0330	0.0040	18,867,699
Condo/Townhouse	9,697,131	346	0.0330	0.0040	37,684,594

City Park	0.00	346	0.0330	0.0040	0.00
Regional Shopping Center	5,117,006	346	0.0330	0.0040	3,100,969
High Turnover (Sit Down Restaurant)	3,688,943	346	0.0330	0.0040	12,021,066
Fast Food Restaurant with Drive Thru	2,459,295	346	0.0330	0.0040	8,014,044
Gasoline/Service Station	64,628	346	0.0330	0.0040	290,596
Parking Lot	2,079,642	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	25,133,749	13,910,646
Condo/Townhouse	83,362,350	4,755,487
City Park	0.00	41,972,125
Regional Shopping Center	38,961,406	5,498,355
High Turnover (Sit Down Restaurant)	31,931,139	0.00
Fast Food Restaurant with Drive Thru	21,287,426	0.00
Gasoline/Service Station	637,531	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	176	0.00
Condo/Townhouse	447	0.00

City Park	2.32	0.00
Regional Shopping Center	552	0.00
High Turnover (Sit Down Restaurant)	1,252	0.00
Fast Food Restaurant with Drive Thru	808	0.00
Gasoline/Service Station	25.9	0.00
Parking Lot	0.00	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
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	User Defined	750	< 0.005	2.50	2.50	10.0
Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
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
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

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	20.0	annual days of extreme heat
Extreme Precipitation	3.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	2	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	N/A	N/A	N/A	N/A
Air Quality	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	84.6
AQ-PM	95.6
AQ-DPM	57.0
Drinking Water	93.3
Lead Risk Housing	7.89
Pesticides	64.8
Toxic Releases	71.4
Traffic	14.2
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	81.4
Haz Waste Facilities/Generators	81.9

Impaired Water Bodies	43.8
Solid Waste	35.7
Sensitive Population	—
Asthma	58.6
Cardio-vascular	79.3
Low Birth Weights	68.1
Socioeconomic Factor Indicators	—
Education	51.5
Housing	70.8
Linguistic	15.6
Poverty	40.3
Unemployment	40.6

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	50.9816502
Employed	66.62389324
Median HI	72.65494675
Education	—
Bachelor's or higher	43.46208136
High school enrollment	100
Preschool enrollment	17.18208649
Transportation	—
Auto Access	93.63531374
Active commuting	23.14897985

Social	—
2-parent households	66.79070961
Voting	49.36481458
Neighborhood	—
Alcohol availability	65.76414731
Park access	55.29321186
Retail density	20.00513281
Supermarket access	52.71397408
Tree canopy	13.73027076
Housing	—
Homeownership	73.48902862
Housing habitability	38.94520724
Low-inc homeowner severe housing cost burden	67.22699859
Low-inc renter severe housing cost burden	48.14577185
Uncrowded housing	46.38778391
Health Outcomes	—
Insured adults	44.20633902
Arthritis	84.5
Asthma ER Admissions	52.8
High Blood Pressure	89.6
Cancer (excluding skin)	77.2
Asthma	51.9
Coronary Heart Disease	88.8
Chronic Obstructive Pulmonary Disease	81.8
Diagnosed Diabetes	68.9
Life Expectancy at Birth	43.6
Cognitively Disabled	92.5

Physically Disabled	86.7
Heart Attack ER Admissions	10.7
Mental Health Not Good	52.8
Chronic Kidney Disease	85.5
Obesity	50.5
Pedestrian Injuries	19.6
Physical Health Not Good	65.0
Stroke	84.7
Health Risk Behaviors	—
Binge Drinking	15.4
Current Smoker	54.4
No Leisure Time for Physical Activity	62.4
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	51.6
Elderly	87.4
English Speaking	59.0
Foreign-born	27.3
Outdoor Workers	53.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	70.3
Traffic Density	21.2
Traffic Access	23.0
Other Indices	—
Hardship	44.7
Other Decision Support	—

2016 Voting	55.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0
Healthy Places Index Score for Project Location (b)	53.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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	Acreage adjusted based on Project site plan
Operations: Vehicle Data	Trip rates adjusted based on Project traffic study
Operations: Hearths	Project will not use wood fireplaces or wood stoves per SCAQMD Rule 445
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Beginning 1 January 2025, all new air conditioning equipment may not use refrigerants with a GWP of 750 or greater.

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