Appendix C. Air Quality and Greenhouse Gas Impact Assessment

This Page Intentionally Left Blank

Air Quality & Greenhouse Gas Impact Assessment

For

Recycled Water Conveyance Project

Soledad, CA

August 2024

Prepared By:

AMBIENT
AIR QUALITY & NOISE CONSULTING

75 Higuera Street, Suite 105
San Luis Obispo, CA 93401

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

LIST OF COMMON TERMS & ACRONYMS

AAM	*Annual Arithmetic Mean*
AAQS	*Ambient air quality standards*
ACM	*Asbestos containing material*
AHERA	*Asbestos Hazard Emergency Response Act*
AMBAG	*Association of Monterey Bay Area Governments*
APNs	*Assessor's Parcel Numbers*
APS	*alternative planning strategy*
AQI	*Air Quality Index*
AQMP	*Air Quality Management Plan*
ARB	*California Air Resources Board*
BAAQMD	*Bay Area Air Quality Management District*
BODR	*Basis of Design Report*
BSC	*Building Standards Code*
CAAQS	*California Ambient Air Quality Standards*
CalEEMod	*California Emissions Estimator Model*
CalEPA	*California Environmental Protection Agency*
Carollo	*Carollo Engineers, Inc.*
CBC	*California building code*
CBSC	*California Building Standards Code*
CCAA	*California Clean Air Act*
CCAAP	*Community Climate Action and Adaptation Plan*
CCR	*California Code of Regulations*
CDCR	*California Department of Corrections and Rehabilitation*
CEQA	*California Environmental Quality Act*
CEQA	*California Environmental Quality Act*
CH_4	*Methane*
City	*City of Soledad*
CO	*Carbon Monoxide*
CO_2	*Carbon Dioxide*
CO_2e	*Carbon Dioxide Equivalent*
CO_2e	*Carbon dioxide equivalent*
CY	*cubic yards*
DPM	*Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM*
DRRP	*Diesel Risk Reduction Plan*
DWR	*Department of Water Resources*
EV	*electric vehicle*
FCAA	*Federal Clean Air Act*
FIP	*Federal Implementation Plan*
GHG	*Greenhouse Gases*
GWP	*Global warming potential*
H_2S	*Hydrogen Sulfide*
HAP	*Hazardous Air Pollutant*
HFCs	*Hydrofluorocarbons*
HI	*Hazard index*
Highway 101	*U.S. 101*
hp	*horsepower*
kW	*kilowatts*
LEA	*Local Education Agencies*
LF	*linear feet*
MBARD	*Monterey Bay Air Resources District*

MBUAPCD	Monterey Bay Unified Air Pollution Control District
MGD	million gallons per day
MMT	Million metric tons
MPOs	Metropolitan Planning Organizations
MT	Metric tons
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NCCAB	North Central Coast Air Basin
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen Dioxide
NOA	Naturally-occurring asbestos
NO_x	Oxides of Nitrogen
O_3	Ozone
OS	Open Space Element
Pb	Lead
PFCs	Perfluorocarbons
PM	Particulate Matter
PM_{10}	Particulate Matter (10 μm or less)
$PM_{2.5}$	Particulate Matter (2.5 μm or less)
ppb	Parts per Billion
ppm	Parts per Million
Project	Recycled Water Conveyance Project
PVC	Polyvinyl Chloride
ROG	Reactive Organic Gases
ROW	rights of way
SB 32	Senate Bill 32
SB 97	Senate Bill 97
SCS	sustainable communities strategy
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SLCPs	Short-lived climate pollutants
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur Dioxide
SO_4^{2-}	Sulfates
SR 146	State Route 146
State	California
SUSD	Soledad Unified School District
TAC	Toxic Air Contaminant
TCE	temporary construction easements
TCSA	Toxic Substances Control Act
TOG	Total Organic Gases
U.S. EPA	United States Environmental Protection Agency
UCDR	Urban Community Drought Relief
UFP	Ultrafine particles
VCM	Vinyl Chloride
VMT	vehicle miles traveled
VOC	Volatile Organic Gases
WRF	Water Reclamation Facility
μg/m³	Micrograms per cubic meter

INTRODUCTION

This report provides an evaluation of potential air quality and greenhouse gas (GHG) impacts associated with the proposed Recycled Water Conveyance Project (Project). An overview of the existing environmental setting related to air quality and GHGs, including a summary of the existing regulatory framework has also been included. The analysis was prepared in accordance with the Monterey Bay Air Resources District (MBARD)-recommended guidance.

BACKGROUND

The City of Soledad (City) retained Carollo Engineers, Inc. (Carollo) to develop preliminary and final design documents for the Project. The Project is being funded by the Department of Water Resources (DWR) under the Urban Community Drought Relief (UCDR) Grant and is subjected to the terms and conditions set forth in the Grant Agreement between the State of California (State) DWR and the City (Agreement No. 4600015016, UCDR Grant). A Basis of Design Report (BODR) prepared by Carollo (May 2024) described existing site conditions, existing and proposed system components, design criteria, and technical and engineering decisions to be used for the preparation of the final design documents for the Project. The Project is intended to provide Title 22 recycled water from the City's Water Reclamation Facility (WRF) to 20 schools and parks throughout the City and is part of a larger multi-phase City water conveyance project, consisting of the following phases:

- Phase 1 (completed in 2010): Design and construction of a new 5.5 million gallons per day (MGD) water reclamation facility and approximately 10,200 linear feet (LF) of 8-inch diameter recycled water transmission pipeline.

- Phase 2 (completed in 2018): Design and construction of approximately 3,800 LF of 12-inch diameter recycled water transmission pipeline to connect all the existing Phase 1 8-inch pipeline.

- Phase 3 (Project): Design and construction of a city-wide distribution system to irrigated landscaped areas within twenty City's parks and schools. Details of the required facilities are provided below in Project description.

- Phase 4 (Future): New transmission pipeline to provide recycled water to the California Department of Corrections and Rehabilitation (CDCR) facilities within an Incorporated City "Island" three (3) miles north of the City.

The existing facilities are shown in Figure 1. The pipeline constructed during Phases 1 and 2 is referred to as the transmission pipeline. The pipelines to be constructed within the City during Phase 3 are referred to as the distribution system.

The WRF is owned and operated by the City and treats wastewater from the City and CDCR facilities. It produces disinfected, tertiary treated effluent that meets Title 22, Division 4, Chapter 3, California Code of Regulations (CCR) for recycled water. It is operating around 2.45 MGD average daily flow and the effluent is currently being discharged to rapid infiltration basins adjacent to the WRF for aquifer recharge. The current discharge permit limits recharge to 4.3 MGD with the remaining 1.2 MGD of peak flow capacity designated for non-potable reuse.

PROJECT DESCRIPTION

PROJECT LOCATION

The Project is located within the City in Monterey County, as shown in Figure 2, and is subject to the requirements contained in the City's 2005 General Plan. The City is in the process of updating the General Plan, anticipated for adoption in 2025, but the Project will comply with the adopted 2005

Figure 1. Existing Facilities

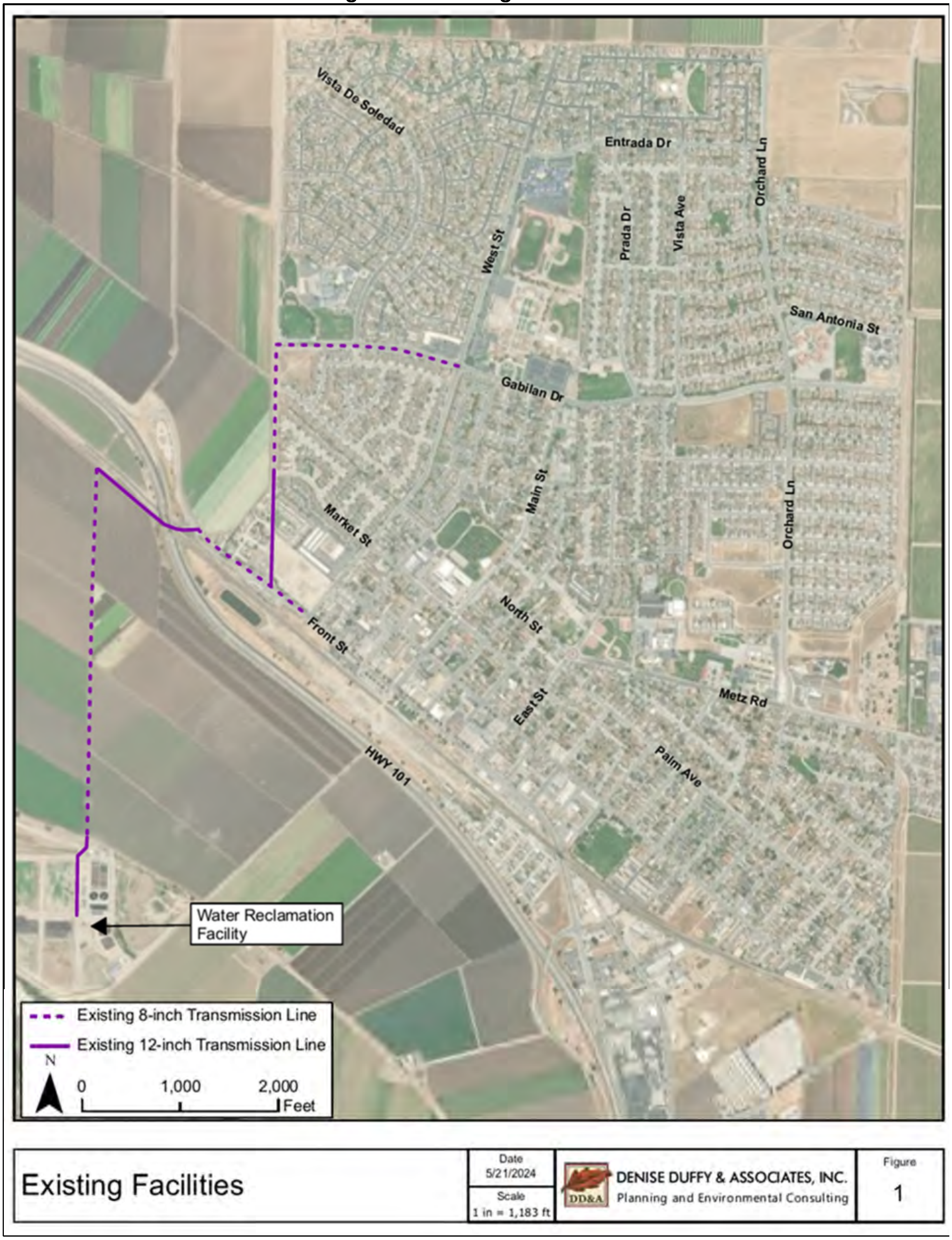


Figure 2. Project Location

Project Location	Date 5/21/2024	DENISE DUFFY & ASSOCIATES, INC. Planning and Environmental Consulting	Figure 2
	Scale 1 in = 17 ft		

General Plan that is currently in effect. The Project would provide recycled water from the City's WRF, located at 34520 Morisoli Road (Assessor's Parcel Numbers [APNs] 257-082-018, 257-082-020, and 257-082-021) to schools and parks throughout the City. The majority of proposed facilities are located within the City's WRF property and in City rights of way (ROW) and would not require additional property. The City has a 20-foot-wide easement for the existing transmission main running from the WRF to Front Street, which is located within farmland. The existing easement would be reviewed during final design to determine if additional permanent and temporary easements are required. Regional access to the Project area is provided from U.S. 101 (Highway 101) and State Route 146 (SR 146). Local access to the Project area is provided by roadways throughout the City. Access to the WRF is provided via Morisoli Road to a one-half mile driveway connecting Morisoli Road to the WRF main gate.

The Project location is depicted in Figure 1. The Project site plan is depicted in Figure 2.

PROJECT

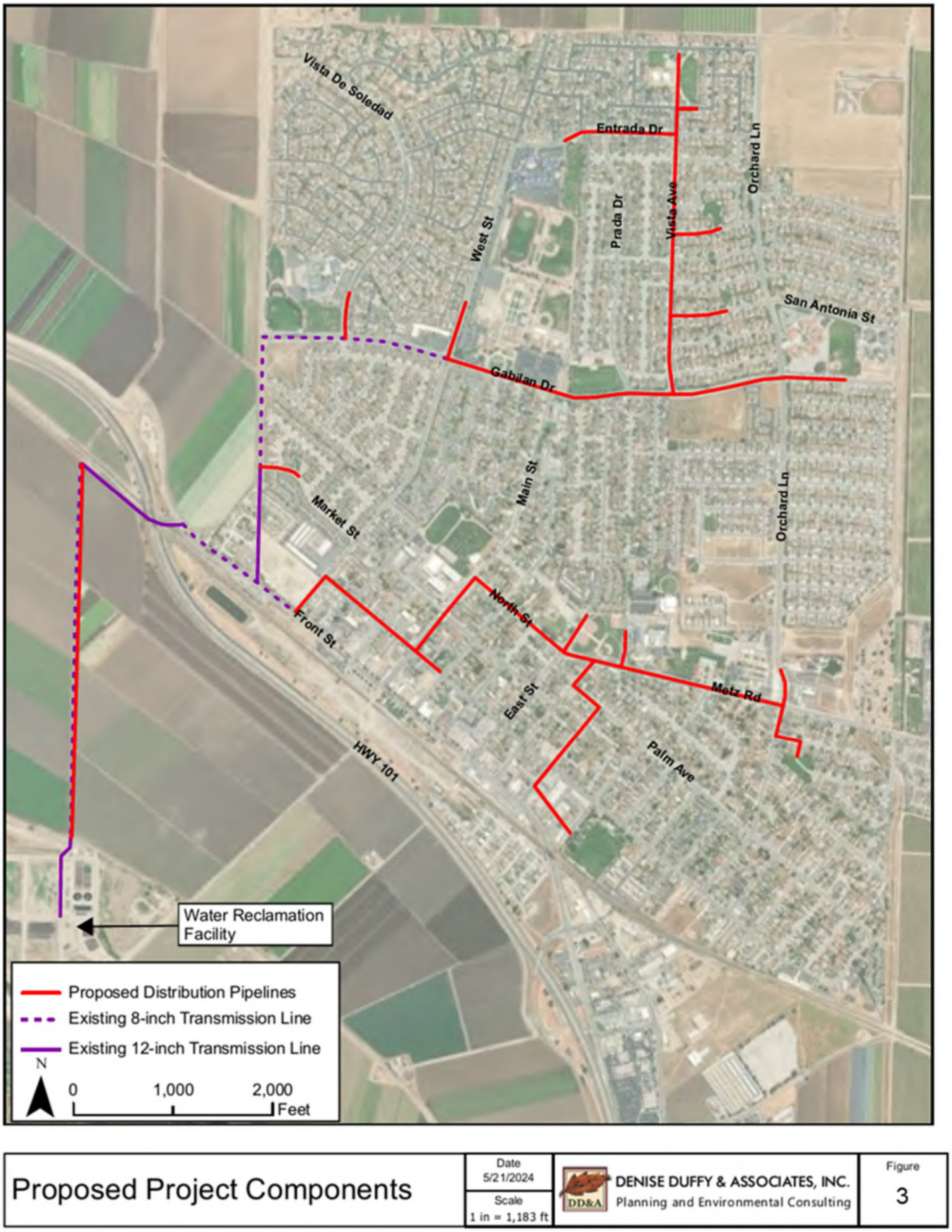
The Project consists of installing and operating infrastructure necessary to convey Title 22 recycled water from the City's WRF to up to 20 parks and schools throughout the City. The Project includes construction of a pump station facility at the WRF, distribution piping system and appurtenances, new or converted irrigation systems, and cross connection prevention assemblies as well as construction management, environmental work, planning and design. The expansion would replace a minimum of 165 acre-feet (54 million gallons) per year of groundwater pumping with recycled water to offset the use of potable water to irrigate sports fields and reduce groundwater use.

The Project would provide recycled water to the following parks and schools in the City, which are currently irrigated with potable water and/or non-potable well water:

- Lum Memorial Park
- Peverini Park
- Santa Barbara Park
- San Antonio Park
- Jack Franscioni Elementary
- Toledo Park (under development)
- Blas Santana Park
- Soledad High School
- Rose Ferrero Elementary
- Frank Ledesma Elementary
- Veterans Park
- Joe O. Ledesma Park
- Main Street Middle School
- Albert Bill Ramus Park
- Little League Park
- Jesse Gallardo Park
- San Vicente/Gabilan Elementary (one service connection)
- Orchard Lane Park
- Aurelio N. Ramirez Park
- Vosti Park

Key components of the Project are described in further detail below and are shown in Figure 3.

Figure 3. Project Components



- Recycled water pump station at the City's WRF.
- Approximately 3,800 feet of a 12-inch diameter recycled water transmission pipeline from the WRF to Front Street. The pipeline diameter may be upsized to approximately 16 inches in diameter during final design.
- Approximately 22,700 feet of recycled water distribution pipelines ranging from 4 to 8 inches in diameter.
- Conversion or replacement of existing on-site irrigation systems to meet recycled water standards.

Recycled Water Pump Station
The pump station would be located at the City's WRF, as shown in Figure 3. The pump station would draw recycled water from existing WRF facilities to supply the recycled water to the City's parks and schools. The new pump station is proposed at the southeast corner of the sludge drying pond area west of the flocculation tanks. The pump station includes a below-ground wet well structure with vertical turbine pumps. The wet well feed pipe crosses several existing utilities and penetrates through one earthen berm. The discharge header penetrates one earthen berm, extends north at the access road, and continues toward a connection to the existing 12-inch recycled water transmission main. Pipe penetrations through earthen berms would be watertight and designed to maintain structural integrity of the berm.

Recycled Water Transmission Pipeline - WRF to Front Street
The existing transmission pipeline is composed of 8-inch and 12-inch diameter pipes, as shown on Figure 3. The existing 8-inch transmission pipeline from the WRF to Front Street, which runs through farmland, is undersized for the overall Project. A new 12-inch pipeline would be constructed parallel to the existing 8-inch pipeline as part of the Project. This would tie into the existing 12-inch transmission pipeline at the WRF on the south end and the existing 12-inch transmission pipeline on the north end before the railroad crossing. Additional easements may be required for the transmission pipeline through farmland, which will be confirmed during final design. In addition, construction work restrictions may include a work window that reduces any impacts to farming operations.

Recycled Water Distribution Pipelines
The distribution system would be divided into two pipeline systems – to the northern and southern parts of the City. At the intersection of San Vicente Road and Front Street, the existing transmission main bifurcates with a pipeline continuing east along Front Street until it intersects West Street and terminates. At this location the distribution pipeline would connect to the existing transmission main to serve the City parks and schools located in the southern half of the City. The second segment of the existing transmission pipeline continues north along San Vicente Road then east and along Gabilan Drive until it intersects West Street and terminates. At this location, the distribution pipeline would tie into the existing transmission mains to serve the City parks and schools located in the northern half of the City.

PROJECT CONSTRUCTION

Project construction is proposed primarily on existing roadway ROWs and the WRF property. The proposed pipeline segment running from the WRF to Front Street would be constructed within an easement on existing farmland. Additional construction is proposed within temporary construction easements (TCEs) and on Soledad Unified School District (SUSD) properties.

Site Preparation
Site preparation would primarily involve initial grading and trenching for pipeline installation. Construction would involve open-trenching, which typically includes clearing and grading the ground surface along the pipeline alignments; excavating the trench; preparing and installing pipeline sections; installing vaults, air valves, blowoffs, and other pipeline components; backfilling the trench with non-expansive fills; restoring preconstruction contours; and revegetating or paving the pipeline alignments, as appropriate. Site preparation activities are anticipated to be completed within approximately 18 to 24 months.

Grading
The Project would disturb a total of approximately 189,320 square feet (4.35 acres) of previously disturbed land. A total of approximately 3,800 LF of 12-inch pipeline, 6,200 LF of 8-inch pipe, 5,620 of 6-inch pipe, and

10,850 LF of 4-inch pipe would be constructed. Project construction would require approximately 31,400 cubic yards (CY) of cut and 31,100 CY of fill.

Schedule

Project construction is expected to last approximately 18-24 months. Construction would occur between the hours of 8:00 AM and 5:00 PM, Monday through Friday. No nighttime construction is proposed.

Equipment and Personnel

To complete Project construction, approximately 10 construction personnel would be present onsite at any given time. Additionally, the types of equipment that would be used during construction may include, but not be limited to, the following:

- Excavator
- Backhoe
- Dump Truck
- Delivery Truck
- Water Truck
- Crane

Access and Circulation

The Project site is within the City. Highway 101 and SR 146 provide regional access to the Project site, and local access is provided via local roadways throughout the City. Access to the WRF is provided via Morisoli Road. Daily lay-down areas would be located along pipeline alignments within existing roadway ROWs. Longer-term equipment staging would be located at the WRF, off of Morisoli Road. Vehicle trips generated by construction of the Project have not yet been determined.

Tree Removal

Construction of the Project is not expected to require removal of any trees.

OPERATIONS AND MAINTENANCE

The City manages the current water system and would be responsible for operating and maintaining the new infrastructure for the recycled water system as part of ongoing operations and maintenance activities. The Project would serve the identified existing parks and schools, and operation would not result in increased water use or changes in existing land use.

AIR QUALITY

EXISTING SETTING

The Project is located within the North Central Coast Air Basin (NCCAB) and within the jurisdiction of the MBARD. Air quality in a region is affected by its topography, meteorology, and climate. These factors are discussed in more detail in the following sections:

TOPOGRAPHY

The NCCAB encompasses Santa Cruz, San Benito, and Monterey counties. The NCCAB is generally bounded by the Diablo Range to the northeast, which together with the southern portion of the Santa Cruz Mountains forms the Santa Clara Valley which extends into the northeastern tip of the NCCAB. Further south, the Santa Clara Valley transitions into the San Benito Valley, which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley which extends from Salinas at the northwest end to King City at the southeast end. The northwest portion of the NCCAB is dominated by the Santa Cruz Mountain.

METEOROLOGY AND CLIMATE

The climate of the NCCAB is dominated by a semi-permanent high-pressure cell over the Pacific Ocean. In the summer, the dominant high-pressure cell results in persistent west and northwest winds across the majority of coastal California. As air descends in the Pacific high-pressure cell, a stable temperature inversion is formed. As temperatures increase, the warmer air aloft expands, forcing the coastal layer of air to move onshore producing a moderate sea breeze over the coastal plains and valleys. Temperature inversions inhibit vertical air movement and often result in increased transport of air pollutants to inland receptor areas. Predominant wind flow during most times of the year is typically from the west to the east.

In the winter, when the high-pressure cell is weakest and farthest south, the inversion associated with the Pacific high-pressure cell is typically absent in the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito valleys in the NCCAB. The predominant offshore flow during this time of year tends to aid in pollutant dispersal producing relatively healthy to moderate air quality throughout the majority of the region. Conditions during this time are often characterized by afternoon and evening land breezes and occasional rainstorms. However, local inversions caused by the cooling of air close to the ground can form in some areas during the evening and early morning hours.

Winter daytime temperatures in the NCCAB typically average in the mid-50s during the day, with nighttime temperatures averaging in the low 40s. Summer daytime temperatures typically average in the 60s during the day, with nighttime temperatures averaging in the 50s. Precipitation varies within the region, but in general, annual rainfall is lowest in the coastal plains and inland valleys, higher in the foothills, and highest in the mountains.

CRITERIA AIR POLLUTANTS

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of air pollutants that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. The health effects of common criteria air pollutants are also summarized in Table 1.

Ozone (O_3) is a reactive gas consisting of three atoms of oxygen. In the troposphere, it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when NO_X and volatile organic compounds (VOCs), also referred to as reactive organic gases (ROGs), react in the presence of sunlight. O_3 at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, O_3 exists naturally and shields Earth from harmful incoming ultraviolet radiation.

High concentrations of ground-level O_3 can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. O_3 also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Table 1. Summary of Criteria Air Pollutants and Health Effects

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
Ozone (O_3)	Formed by a chemical reaction between volatile organic compounds (VOCs) and nitrous oxides (NOx) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles, and dyes.
Particulate Matter (PM_{10} & $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles, and others.	Can get deep into your lungs or even enter your blood stream and cause serious health problems; Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Carbon Monoxide (CO)	Formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	Fuel combustion in motor vehicles and industrial sources. Motor vehicles; electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Sulfur Dioxide (SO_2)	Formed when fuel containing sulfur, such as coal and oil, is burned; when gasoline is extracted from oil; or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, large ships, and fuel combustion in diesel engines.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron, and steel; damage crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Source: ARB 2024a		

Reactive Organic Gas (ROG) is a reactive chemical gas, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment. Total Organic Gases (TOGs) include all of the ROGs, in addition to low reactivity organic compounds like methane and acetone. ROGs and VOCs are subsets of TOGs.

Volatile Organic Compounds (VOCs) are hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and may also be toxic. VOC emissions are a major precursor to the formation of ozone. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Oxides of Nitrogen (NO_X) are a family of gaseous nitrogen compounds and are a precursor to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperatures and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Particulate Matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. U.S. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. U.S. EPA groups particle pollution into three categories based on their size and where they are deposited:

- Inhalable coarse particulate matter (PM_{10}), such as those found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. PM_{10} are deposited in the thoracic region of the lungs.
- Fine particulate matter ($PM_{2.5}$), such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- Ultrafine particles (UFP) are very small particles less than 0.1 micrometers in diameter largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, its high surface area, deep lung penetration, and transfer into the bloodstream can result in disproportionate health impacts relative to their mass.

PM_{10}, $PM_{2.5}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust.

Numerous scientific studies have linked both long- and short-term particle pollution exposure to a variety of health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis, and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and also acute (short-term) bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short term exposures, although they may experience temporary minor irritation when particle levels are elevated.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO is on-road motor vehicles. Other CO sources include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources. Because of the local nature of CO problems, the California Air Resources Board (ARB) and U.S. EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM_{10}. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled, with the introduction of new automotive emission controls and fleet turnover.

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. However, like airborne NO_X, suspended sulfur oxides (SO_X) particles contribute to poor visibility. These SO_X particles can also combine with other pollutants to form $PM_{2.5}$. The prevalence of low-sulfur fuel use has minimized problems from this pollutant.

Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically.

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. H_2S is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death). OSHA regulates workplace exposure to H_2S.

Other Pollutants

The State has established air quality standards for some pollutants not addressed by Federal standards. The ARB has established State standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health, and other effects, sources, and the extent of the problems.

Sulfates (SO_4^{2-}) are the fully oxidized ionic form of sulfur. SO_4^{2-} occurs in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to SO_4^{2-} takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility, and, since they are usually acidic, can harm ecosystems and damage materials and property.

Visibility Reducing Particles are a mixture of suspended PM consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Vinyl Chloride (VCM) is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. VCM is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

ODORS

Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (i.e. irritation, anger, or anxiety) to physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact, an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor, and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The MBARD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to MBARD *Rule 402, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the MBARD.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA) and are thus not subject to NAAQS or California ambient air quality standards (CAAQS), respectively. Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with MBARD rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40 percent of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB 2024b).

In October 2000, the ARB issued a report entitled: "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles", which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to the year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRRP will significantly reduce emissions from both old and new diesel-fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2024b, ARB 2000).

Exposure to DPM can have immediate health effects. DPM can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. In California, DPM has been identified as a carcinogen.

Acetaldehyde is a federal hazardous air pollutant. The ARB identified acetaldehyde as a TAC in April 1993. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. A majority of the statewide acetaldehyde emissions can be attributed to mobile sources, including on-road motor vehicles, construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area sources of emissions include the burning of wood in residential fireplaces and wood stoves. The primary stationary sources of acetaldehyde are from fuel combustion from the petroleum industry (ARB 2024b).

Acute exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic intoxication of acetaldehyde resemble those of alcoholism. The U.S. EPA has classified acetaldehyde as a probable human carcinogen. In California, acetaldehyde was classified on April 1, 1988, as a chemical known to the State to cause cancer (U.S. EPA 2024a; ARB 2024b).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 88 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products. The primary area sources include residential combustion of various types such as cooking and water heating (ARB 2024b).

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on developing fetuses have been observed in animal tests. Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as a known human carcinogen for all routes of exposure (U.S. EPA 2018a).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for the majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2024b).

Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a carcinogen.

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program . The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risks (ARB 2024b).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produce liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride is limited. Studies in animals have shown that the ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a carcinogen.

Hexavalent Chromium was identified as a TAC in 1986. Sources of hexavalent chromium include industrial metal finishing processes, such as chrome plating and chromic acid anodizing, and firebrick lining of glass furnaces. Other sources include mobile sources, including gasoline motor vehicles, trains, and ships (ARB 2024b).

The respiratory tract is the major target organ for hexavalent chromium toxicity, for acute and chronic inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to hexavalent chromium, while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled hexavalent chromium is a human carcinogen, resulting in an increased risk of lung cancer. In California, hexavalent chromium has been identified as a carcinogen.

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions (U.S. EPA 2024a).

Acute exposure to para-dichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. The U.S. EPA has classified para-dichlorobenzene as a possible human carcinogen.

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2024b).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. Formaldehyde is classified as a probable human carcinogen.

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2024b).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data is inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a carcinogen.

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft parts, equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners, tire sealants, and inflators (ARB 2024b).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a carcinogen.

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, are abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The Project site, however, is not located in an area of known ultramafic rock (DOC 2000).

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rocks when they are broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900s; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos-containing products.

Naturally-occurring asbestos (NOA) was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures that prohibit the use of serpentine or ultramafic rock for unpaved surfacing and control dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related diseases, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

REGULATORY FRAMEWORK

Air quality within the NCCAB is regulated by several jurisdictions including the U.S. EPA, ARB, and the MBARD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish NAAQS and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has the responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) first authorized the U.S. EPA to regulate asbestos in schools and Public and Commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA requires Local Education Agencies (LEAs) to inspect their schools for ACBM and prepare management plans to reduce the asbestos hazard. The Act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the NESHAPs. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Table 2. Summary of National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards*	National Standards* (Primary)
Ozone (O_3)	1-hour	0.09 ppm	–
	8-hour	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	AAM	20 µg/m³	–
	24-hour	50 µg/m³	150 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m³	12 µg/m³
	24-hour	No Standard	35 µg/m³
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9 ppm	9 ppm
	8-hour (Lake Tahoe)	6 ppm	–
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppb
Sulfur Dioxide (SO_2)	AAM	–	0.03 ppm
	24-hour	0.04 ppm	0.14 ppm
	3-hour	–	0.5 ppm (1300 µg/m³)**
	1-hour	0.25 ppm	75 ppb
Lead	30-day Average	1.5 µg/m³	–
	Calendar Quarter	–	1.5 µg/m³
	Rolling 3-Month Average	–	0.15 µg/m³
Sulfates	24-hour	25 µg/m³	No Federal Standards
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m³)	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m³)	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.	

ppm=parts per million; ppb=parts per billion; AAM=Annual Arithmetic Mean; µg/m³=micrograms per cubic meter
** For more information on standards visit: http//www.arb.ca.gov.research/aaqs/aaqs2.pdf*
***Secondary Standard*
Source: ARB 2024c

STATE

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO_2, and NO_2 by the earliest practicable date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

California Building Standards Code

The California Building Standards Code (CBSC), commonly referred to as Title 24, contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. Included in the CBSC are energy efficiency standards, which are commonly referred to as green building standards or CalGreen standards. The CBSC is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBSC was most recently updated in 2022.

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA of 1988. Other ARB duties include monitoring air quality in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing CAAQS, which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel, and engine used.

REGIONAL

Monterey Bay Air Resources District

The MBARD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the NCCAB, within which the Project is located. Responsibilities of the MBARD include but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting, and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution, and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. In an attempt to achieve NAAQS and CAAQS and maintain air quality, the MBARD has completed several air quality plans including the 2014 *Plug-In Electric Vehicle Readiness Plan*, the *2012-2015 Air Quality Management Plan (AQMP)* for achieving the state ozone standards and the *2007 Federal Maintenance Plan* for maintaining federal ozone standards.

To achieve and maintain ambient air quality standards, the MBARD has adopted various rules and regulations for the control of airborne pollutants. The MBARD Rules and Regulations that apply to the Project include, but are not limited to, the following:

- **Rule 400 (Visible Emissions).** The purpose of this rule is to provide limits for visible emissions from sources within the district.
- **Rule 402 (Nuisances).** The purpose of this rule is to prohibit emissions that may create a public nuisance. Applies to any source operation that emits or may emit air contaminants or other materials.
- **Rule 425 (Use of Cutback Asphalt).** The purpose of this rule is to limit the emissions of vapors of organic compounds from the use of cutback and emulsified asphalt. This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations.

Monterey County General Plan

The Conservation and Open Space Element (OS) contained within the County of Monterey's General Plan aims to guide the County of Monterey toward long-term conservation and preservation of open space lands and natural resources. These elements includes numerous policies related to air quality to help provide for the protection and enhancement of Monterey County's Air quality. Relevant policies relating to the Project include, but are not limited to, the following (County of Monterey 2010):

- **OS-10.6** The Monterey Bay Unified Air Pollution Control District's air pollution control strategies, air quality monitoring, and enforcement activities shall be supported.
- **OS-10.7** Use of the best available technology for reducing air pollution emissions shall be encouraged.
- **OS-10.8** Air quality shall be protected from naturally occurring asbestos by requiring mitigation measures to control dust and emissions during construction, grading, quarrying, or surface mining operations. This policy shall not apply to Routine and Ongoing Agricultural Activities except as required by state and federal law.
- **OS-10.9** The County of Monterey shall require that future development implement applicable Monterey Bay Unified Air Pollution Control District (MBUAPCD) control measures. Applicants for discretionary projects shall work with the MBUAPCD to incorporate feasible measures that assure that health-based standards for diesel particulate emissions are met. The County of Monterey will require that future construction operate and implement MBUAPCD PM_{10} control measures to ensure that construction related PM_{10} emissions do not exceed the MBUAPCD's daily threshold for PM_{10}. The County of Monterey shall implement MBUAPCD measures to address off-road mobile source and heavy-duty equipment emissions as conditions of approval for future development to ensure that construction-related NO_X emissions from non-typical construction equipment do not exceed the MBUAPCD's daily threshold for NO_X.

REGULATORY ATTAINMENT DESIGNATIONS

An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation(s) was caused by an exceptional event, as defined in the criteria. Unclassified designations indicate insufficient data is available to determine attainment status.

The attainment status of the NCCAB is summarized in Table 3. Under the CCAA, the basin is designated as a nonattainment transitional area for the ozone CAAQS and nonattainment for the PM_{10} CAAQS. The basin is designated attainment or unclassified for the remaining CAAQS and NAAQS.

Table 3. NCCAB Attainment Status Designations

Pollutant	State Designation	National Designation
Ozone (O_3)	Nonattainment-Transitional[1]	Attainment/Unclassified[2]
Inhalable Particulate Matter (PM_{10})	Nonattainment	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Attainment	Attainment/Unclassified[3]
Carbon Monoxide (CO)	Monterey County-Attainment	Attainment/Unclassified
Nitrogen Dioxide (NO_2)	Attainment	Attainment/Unclassified[4]
Sulfur Dioxide (SO_2)	Attainment	Attainment/Unclassified[5]
Lead (Pb)	Attainment	Attainment/Unclassified[6]

Notes
1) Effective July 26, 2007, the ARB designated the NCCAB a nonattainment area for the State ozone standard, which was revised in 2006 to include an 8-hour standard of 0.070 ppm.
2) In 2015, EPA adopted a new 8-hour ozone standard of 0.070 ppm.
3) This includes the 2006 24-hour standard of 35 µg/m3 and the 2012 annual standard of 12 µg/m3.
4) In 2012, EPA designated the entire state as attainment/unclassified for the 2010 NO_2 standard.
5) In June 2011, the ARB recommended to EPA that the entire state be designated as attainment for the 2010 primary SO_2 standard. Final designations to be addressed in future EPA actions.
6) On October 15, 2008, EPA lowered the NAAQS for lead to 0.15 µg/m^3. Final designations were made by EPA in November 2011.
Source: ARB 2024d, MBARD 2018a.

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in Monterey County. The "King City-415 Pearl Street" station is the closest representative monitoring site to the Project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. This monitoring station monitors ambient concentrations of O_3, PM_{10}, and $PM_{2.5}$. Ambient monitoring data for NO_2 was obtained from the "Salinas #3 Monitoring Station." CO standards have not been exceeded in years and, as a result, are no longer monitored in Monterey County. Ambient monitoring data for the last three years of available measurement data (i.e., 2021 through 2023) are summarized in Table 4. As depicted, state and federal standards for O_3, NO_2, and $PM_{2.5}$ have not exceeded ambient air quality standards during the last three years of available data. The NAAQS for PM_{10} has not been exceeded during the last three years. However, PM_{10} concentrations have exceeded the CAAQS 13, 16, and 7 times in 2021, 2022, and 2023, respectively.

Table 4. Summary of Ambient Air Quality Monitoring Data[1]

	2021	2022	2023
Ozone (O_3)[1]			
Maximum concentration, ppm (1-hour/8-hour average)	0.078 / 0.064	0.070 / 0.057	0.063 / 0.057
Number of days state/national 1-hour standard exceeded	0 / 0	0 / 0	0 / 0
Number of days state/national 8-hour standard exceeded	0 / 0	0 / 0	0 / 0
Nitrogen Dioxide (NO_2)[2]			
Maximum concentration, ppb (1-hour average)	27.0	30.0	31.0
Annual average	3	NA	3
Number of days state/national standard exceeded	0 / 0	0 / 0	0 / 0
Suspended Particulate Matter (PM_{10})[1]			
Maximum concentration, µg/m³ (state/national)	94.9 / 77.2	64.5 / 64.4	84.7 / 81.8
Annual Average	24.0	23.1	18.4
Number of days state/national standard exceeded	13 / 0	16 / 0	7 / 0
Suspended Particulate Matter ($PM_{2.5}$)[1]			
Maximum concentration, µg/m³ (state/national)	19.3 / 19.3	24.4 / 24.4	35.4 / 35.4
Annual Average	6.6	5.1	4.5
Number of days national standard exceeded (measured/calculated[3])	0 / 0	0 / 0	0 / 0

ppm = parts per million by volume, ppb = parts per billion by volume, µg/m³ = micrograms per cubic meter, NA = not available
1. Data obtained from the King City-415 Pearl Street Station.
2. Data obtained from the Salinas-#3 Station.
3. Measured days are those days that an actual measurement was greater than the standard. Calculated days are the estimated number of days that measurement would have been greater than the level of the standard had measurements been collected every day.
** = Insufficient data available to determine the value.*
Source: ARB 2024e

AIR QUALITY INDEX

The health effects of ambient air pollutant concentrations can be evaluated and presented in various ways. The most common method is the use of the Air Quality Index (AQI). The U.S. EPA developed the AQI as an easy-to-understand measure of health impacts based on measured ambient air quality in comparison to established ambient air quality standards. Tables 5 and 6 present a summary of the health impacts for O_3 and $PM_{2.5}$, respectively, based on the U.S. EPA's AQI.

Table 5. Air Quality Index Summary for Ozone & Related Health Effects

Air Quality Index / 8-hour Ozone Concentration	Health Effects Description
AQI 51-100: Moderate Ambient Ozone Concentrations: 55-70 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Unusually sensitive individuals may experience respiratory symptoms. Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI 101-150: Unhealthy for Sensitive Groups Ambient Ozone Concentrations: 71-85 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI 151–200: Unhealthy Ambient Ozone Concentrations: 86-105 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI 201-300: Very Unhealthy Ambient Ozone Concentrations: 106-200 ppb	Sensitive Groups: Children and people with asthma are the groups at most risk. Health Effects Statements: Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population. Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid outdoor exertion; everyone else, especially children, should limit outdoor exertion.
An AQI of 50 and below is categorized as "Good" and air quality is satisfactory and poses little or no risk. An AQI of 301 or higher is categorized as "Hazardous" having a health warning of emergency conditions: everyone is more likely to be affected. Outdoor activities should be avoided for all individuals. *AQI = Air quality index, ppb = parts per billion* *Source: U.S. EPA 2024c*	

Table 6. Air Quality Index Summary for Fine Particulate Matter & Related Health Effects

Air Quality Index / 8-hour Ozone Concentration	Health Effects Description
AQI 51-100: Moderate Ambient Concentrations: 12.1-35.4 µg/m³	Sensitive Groups: Some people who may be unusually sensitive to particulate. Health Effects Statements: Unusually sensitive people should consider reducing prolonged or heavy exertion. Cautionary Statements: Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.
AQI 101-150: Unhealthy for Sensitive Groups Ambient Concentrations: 35.5-55.4 µg/m³	Sensitive Groups: People with heart or lung disease, older adults, children, and teenagers. Health Effects Statements: Increasing likelihood of respiratory symptoms for sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly. Cautionary Statements: If you have heart disease: Symptoms such as palpations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact a health care provider.
AQI 151–200: Unhealthy Ambient Concentrations: 55.5-150.4 µg/m³	Sensitive Groups: Everyone. Health Effects Statements: Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly; increased respiratory effects in general population. Cautionary Statements: Sensitive groups: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
AQI 201-300: Very Unhealthy Ambient Concentrations: 150.5-250.4 µg/m³	Sensitive Groups: Everyone. Health Effects Statements: Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly; significant increase in respiratory effects in general population. Cautionary Statements: Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or reschedule to a time when air quality is better.

An AQI of 50 and below is categorized as “Good” and air quality is satisfactory and poses little or no risk. An AQI of 301 or higher is categorized as “Hazardous” having a health warning of emergency conditions: everyone is more likely to be affected. Outdoor activities should be avoided for all individuals.
AQI = Air quality index, µg/m3 = micrograms per cubic meter
Source: U.S. EPA 2024c

A summary of the annual AQI for the Project area, based on monitoring data obtained from the Monterey County monitoring area for the last three years of available data, is provided in Table 7. As depicted in Table 7, the Project area typically experiences "Good” air quality with the total number of days ranging from 274 to 299 days per year. Days classified as “Moderate” AQI ranged from 66 to 105 days per year. Information for the “Unhealthy for Sensitive Groups”, “Unhealthy”, “Very Unhealthy”, and “Hazardous” classifications was generally not available (U.S. EPA 2024d).

Table 7. Air Quality Index Annual Historical Summary for Monterey County

Year	Air Quality Index (AQI) - Number of Days					
	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy	Hazardous
2023	274	90	1	NA	NA	NA
2022	299	66	NA	NA	NA	NA
2021	261	105	NA	NA	NA	NA
Represents overall air quality taking into account all criteria pollutants measured. *Source: U.S. EPA 2024d*						

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

The Project site is surrounded by residential, commercial, public facilities (i.e., parks and schools), and agricultural land uses. Residential uses surrounding the Project primarily consist of single-family residences. Commercial use surrounding the Project primarily comprises retail businesses and a segment of general commercial area along Front Street and Highway 101. Sensitive receptors located near the Project site consist predominantly of schools and residential land uses. The nearest schools and residential land uses are located adjacent the Project.

PROJECT IMPACTS

THRESHOLDS OF SIGNIFICANCE

Criteria for determining the significance of air quality impacts were developed based on information contained in the California Environmental Quality Act (CEQA) Guidelines (Appendix G). According to those guidelines, a project may have a significant effect on the environment if it would result in the following conditions:

1. Conflict with or obstruct implementation of any applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

To assist local jurisdictions in the evaluation of air quality impacts, the MBARD has published the *CEQA Air Quality Guidelines* (MBARD 2008). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, TAC, and cumulative air quality impacts. These thresholds were developed taking into consideration potential impacts on regional and local air quality and related public-health concerns. The following MBARD-recommended thresholds of significance were relied upon for the determination of impact significance:

- **Short-term Emissions of Criteria Air Pollutants**. Construction impacts would be significant if the project would emit greater than 82 pounds per day of PM_{10} or would cause a violation of PM_{10} National or State AAQS at nearby receptors. Construction-generated emissions of ozone precursors (i.e., ROG or

NO_X) are accommodated in the emission inventories of State and federally-required air plans. For this reason, the MBARD has not identified recommended thresholds of significance for construction-generated ozone precursors (i.e., ROG and NO_X).

- **Long-Term Emissions of Criteria Air Pollutants**. Emissions of 137 pounds per day or more of direct and indirect VOC emissions would have a significant impact on regional air quality by emitting substantial amounts of ozone precursors (i.e., ROG and NO_x) (MBARD 2008). Such projects would significantly impact attainment and maintenance of O_3 AAQS. In addition, operational impacts would be significant if the project would emit greater than 82 lbs/day of PM_{10}, or if the project would contribute to local PM_{10} concentrations that exceed AAQS. Emissions of SO_X would be significant if the project generates direct emissions greater than 150 lbs/day.
- **Local Mobile-Source CO Concentrations**. Local mobile-source impacts would be significant if the project generates direct emissions of greater than 550 lbs/day of CO or if the project would contribute to local CO concentrations that exceed the CAAQS of 9.0 parts per million (ppm) for 8 hours or 20 ppm for 1 hour. Indirect emissions are typically considered to include mobile sources that access the project site but generally emit off-site; direct emissions typically include sources that are emitted on-site (e.g., stationary sources, on-site mobile equipment).
- **Toxic Air Contaminants**. TAC impacts would be significant if the project would expose the public to substantial levels of TACs so that the probability of contracting cancer for the Maximally Exposed Individual would exceed 10 in 1 million and/or so that ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index (HI) greater than 1 for the Maximally Exposed Individual.
- **Odorous Emissions**. Odor impacts would be significant if the project has the potential to frequently expose members of the public to objectionable odors.

METHODOLOGY

Short-term Construction

Short-term construction emissions associated with the Project were quantified using the California Emissions Estimator Model (CalEEMod), version 2022.1.1.26. Emissions modeling included the analysis of the distribution system pipelines. Emissions associated with the Project were quantified based on project-specific data provided and default modeling parameters contained in the model for Monterey County. Construction emissions modeling assumes that approximately 100 percent of travel would occur predominantly on paved roads. Onsite travel for construction vehicles was assumed to be on unpaved surfaces. Refer to Appendix A for emissions modeling assumptions and results. Construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors, and front-end loaders that temporarily emit precursors of ozone [i.e., VOCs or NO_x], are accommodated in the emission inventories of state- and federally-required air plans and would not have a significant impact on the attainment and maintenance of O_3 AAQS (MBARD 2008). As a result, construction-generated emissions of other criteria air pollutants, including ROG and NOx, are presented for informational purposes only.

Long-term Operation

Long-term operation of the Project would require the use of two below ground electric powered vertical turbine water pumps. Operational emissions associated with electricity use would occur off-site and largely outside of Monterey County, criteria pollutants were not calculated for long-term operation.

PROJECT IMPACTS

Impact AQ-1:	Conflict with or obstruct implementation of any applicable air quality plan.

The NCCAB is currently classified as nonattainment for the state's PM_{10} standard and nonattainment transitional for the state's 8-hour and 1-hour O_3 standards. MBARD has adopted the 2012-2015 Air Quality Management Plan for the purpose of enforcing state and federal air quality standards (MBARD 2018b). Consistency with the AQMP is assessed by comparing the proposed growth associated with a project with the population and dwelling unit forecasts adopted by the Association of Monterey Bay Area Governments (AMBAG). These projections are used to generate emission forecasts upon which the AQMP is based. Projects that are consistent with AMBAG's regional forecasts would be considered consistent with the AQMP. In addition, projects that would result in a significant increase in emissions, in excess of MBARD significance thresholds, would also be considered to potentially conflict with or obstruct implementation of the AQMP.

The Project is not expected to result in a substantial increase in population growth. In addition, as noted in Impact AQ-2, the Project would not result in a change in regional vehicle miles traveled (VMT) and associated long-term operational emissions. PM_{10} emissions associated with multiple overlapping construction activities would not exceed MBARD's significance threshold of 82 lbs/day. For these reasons, implementation of the Project could result in a substantial increase in either direct or indirect emissions that could conflict with or obstruct implementation of the AQMP. This impact would be considered **less than significant**.

Impact AQ-2:	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Construction Emissions

Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but possess the potential to represent a significant air quality impact. The construction of the Project would result in the temporary generation of emissions resulting from site preparation, grading, foundation/concrete, pump station installation, asphalt paving, trenching, and motor vehicle exhaust associated with construction equipment and on-road vehicle trips. Emissions of PM are largely associated with ground disturbance and the movement of construction vehicles and equipment on unpaved surfaces.

Construction-generated emissions associated with the Project are summarized in Table 8. As depicted in Table 8, short-term construction associated with the Project could generate up to approximately 9 lbs/day of PM_{10}, which would not exceed MBARD's significance threshold of 82 lbs/day. As a result, this impact would be considered **less than significant.** Furthermore, compliance with existing MBARD rules and regulations, such as Rule 400 (Visible Emissions), Rule 402 (Nuisances), and Rule 400 (Visible Emissions) would further minimize emissions of PM_{10} during construction.

Table 8. Construction Emissions of Criteria Air Pollutants

Facilities	Emissions (lbs/day)[1]				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Foundation/Concrete - Unmitigated	0.57	0.43	4.99	0.37	0.1
Grading - Unmitigated	1.46	1.16	12.33	7.05	3.5
Pump Station Install - Unmitigated	0.47	0.4	3.75	0.08	0.01
Asphalt Paving - Unmitigated	0.38	0.24	3.84	0.51	0.13
Trenching - Unmitigated	0.46	0.31	4.4	0.5	0.13
Total All Facilities	3.34	2.54	29.31	8.51	3.87
MBARD Significance Threshold[2]:	--	--	--	82	--
Exceeds Threshold/Significant Impact?	--	--	--	No	--

1. Based on the highest daily emissions during summer or winter conditions without the implementation of fugitive dust control measures. Assumes foundation/concrete, pump station install, trenching (2025) and asphalt paving could potentially occur simultaneously.
2. The MBARD has not identified significance thresholds for ROG, NO_X, CO or $PM_{2.5}$. Emissions of ROG and NO_X are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS. Emissions of $PM_{2.5}$ are a component of PM_{10}.
Refer to Appendix A for emissions modeling assumptions and results.

Operational Emissions

Daily activities associated with long-term operations of the Project would not generate emissions of criteria air pollutants and precursors from mobile, energy use, and area sources. Daily operational emissions of criteria pollutants would not exceed any MBARD emissions thresholds and would not have a significant impact on regional air quality or attainment and maintenance of O_3 ambient air quality standards (AAQS). For these reasons, operational emissions would not be anticipated to result in a significant adverse impact on public health. As a result, long-term operational activities would be considered to have a **less-than-significant** air quality impact.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.

Short-term and long-term pollutants of primary concern with regard to potential health-related impacts include construction-generated emissions of TACs, NOA, PM, and CO. Short-term and long-term localized air quality impacts are discussed in greater detail, as follows:

Short-term Construction

Naturally-Occurring Asbestos

The ARB identifies NOA as a TAC. In accordance with ARB Air Toxics Control Measure, prior to any grading activities, a geologic evaluation should be conducted to determine if NOA is present within the area that would be disturbed. If NOA is not present, an exemption request form, along with a copy of the geologic report, must be filed with the local air district. If NOA is found at the site, the applicant must comply with all requirements outlined in the Asbestos Air Toxics Control Measure. The Project site is not located within an area identified as having a potential for naturally-occurring ultramafic rock and serpentine soils. As a result, this impact would be considered **less than significant**.

Asbestos-Containing Materials

Demolition activities can have potential negative air quality impacts, including issues surrounding the proper handling, demolition, and disposal of asbestos-containing material (ACM). ACM could be encountered during the demolition of existing buildings, particularly older structures constructed prior to 1970. Asbestos can also be found in various building products, including (but not limited to) utility pipes/pipelines (transit pipes or insulation on pipes). If a project involves the disturbance or potential disturbance of ACM, various regulatory requirements may apply, including the requirements stipulated in the NESHAP (40CFR61, Subpart M-Asbestos). The Project would not include the demolition of existing on-site structures. As a result, this impact would be considered **less than significant.**

TACs (DPM Emissions)

The primary TAC of concern associated with short-term construction activities is DPM. Implementation of the Project would result in the generation of DPM emissions during construction associated with the use of off-road diesel equipment for site grading, paving, and other construction activities. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and the associated risk of contracting cancer. For off-site work and residential land uses, the calculation of cancer risk associated with exposure to TACs is typically calculated based on a 25-year and 30-year period of exposure, respectively. The use of diesel-powered construction equipment would be temporary and episodic, typically only occurring over a short period (i.e., weeks or months). For this reason and given the highly dispersive nature of DPM, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 10 in one million or a HI greater than 1). As a result, this impact would be considered **less than significant.**

Fugitive Dust Emissions

Implementation of the Project would result in short-term emissions of fugitive PM associated with ground disturbance. However, compliance with applicable MBARD rules and regulations, including but not limited to Rule 402 for the control of nuisance–related emissions would minimize potential impacts to occupants of nearby land uses. Furthermore, as noted in Impact AQ-2, construction-generated PM_{10} would be significantly less than MBARD's daily significance threshold of 82 lbs/day. As previously noted, MBARD has determined that emissions below 82 lbs/day would not be expected to exceed AAQS.
As a result, this impact would be considered **less than significant.**

Mitigation Measure

Implement Mitigation Measure AQ-1.

Significance After Mitigation

Mitigation Measure AQ-1 would include measures to reduce air pollutant emissions from construction activities. With mitigation, emissions of fugitive dust would be reduced by approximately 50 percent or more. With mitigation, emissions associated with construction would not exceed the air district's significance threshold of 82 lbs/day for PM_{10}. With mitigation, this impact would be considered **less than significant**.

Long-term Operation

The Project would not result in the installation or operation of any major stationary sources of emissions. As a result, this impact would be considered **less than significant**.

Impact AQ-4:	***Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.***

Other emissions potentially associated with the Project would be predominantly associated with the generation of odors during Project construction. The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Construction of the Project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. In addition, pavement coatings used during Project construction would also emit temporary odors. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. In addition, no major sources of odors have been identified in the Project area. This impact would be considered **less than significant**.

GREENHOUSE GASES AND CLIMATE CHANGE

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the Earth's surface temperature. Solar radiation enters the Earth's atmosphere from space and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- **Carbon Dioxide**. Carbon dioxide (CO_2) is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2024a).

- **Methane**. Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. CH_4 is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 into the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2024a).

- **Nitrous Oxide**. Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years (U.S. EPA 2024a).

- **Hydrofluorocarbons.** Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 270 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2024a).

- **Perfluorocarbons.** Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and non-toxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F1_4). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for PFCs ranges from 2,600 to 50,000 years (U.S. EPA 2024a).

- **Nitrogen Trifluoride**. Nitrogen trifluoride (NF_3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. NF_3 is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin-film solar cells. It has a global warming potential of 16,100 carbon dioxide equivalents (CO_2e). While NF_3 may have a lower global warming potential than other chemical etchants, it is still a potent GHG. In 2009, NF_3 was listed by California as a high global warming potential GHG to be listed and regulated under AB 32 (Section 38505 Health and Safety Code).

- **Sulfur Hexafluoride**. Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, non-toxic, and generally non-flammable. SF_6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80 percent of all SF_6 produced worldwide. Leaks of SF_6 occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (U.S. EPA 2024a).

- **Black Carbon**. Black carbon is the strongest light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands) (CCAC 2018, U.S. EPA 2024b).

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in CO_2e, which weighs each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Table 11 provides a summary of the GWP for GHG emissions of typical concern with regard to community development projects, based on a 100-year time horizon. As indicated, CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHGs with high GWP include NF_3, SF_6, PFCs, and black carbon.

Table 9. Global Warming Potential for GHGs

Greenhouse Gas	Global Warming Potential (100-year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Dioxide (N_2O)	298
Based on IPCC GWP values for a 100-year time horizon *Source: IPCC 2007*	

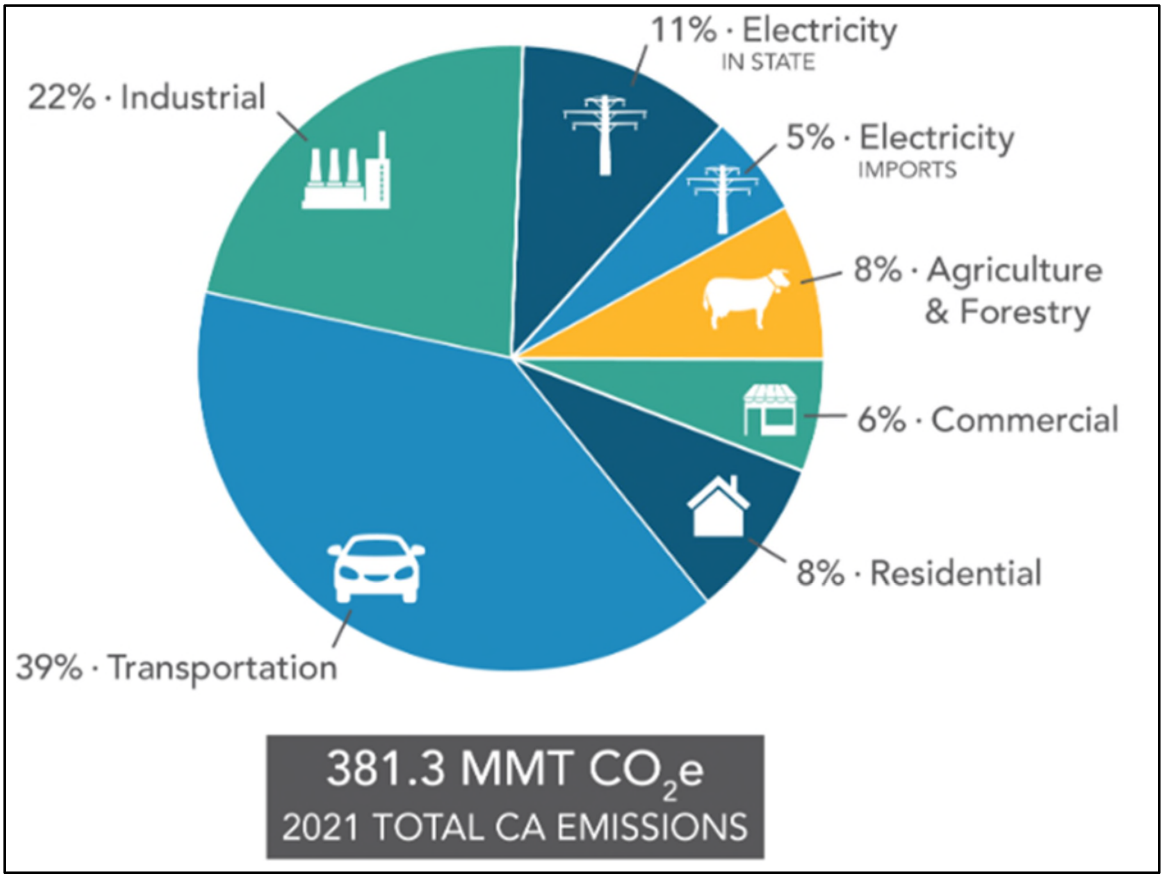
SOURCES OF GHG EMISSIONS

REGIONAL

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. Worldwide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2024b).

In 2021, GHG emissions within California totaled 381.3 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 4. In California, the transportation sector is the largest contributor, accounting for approximately 39 percent of the total state-wide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 22 percent. Electricity generation totaled roughly 11 percent (ARB 2024f).

Figure 4. California 2000-2021 GHG Inventory (2023 Edition)



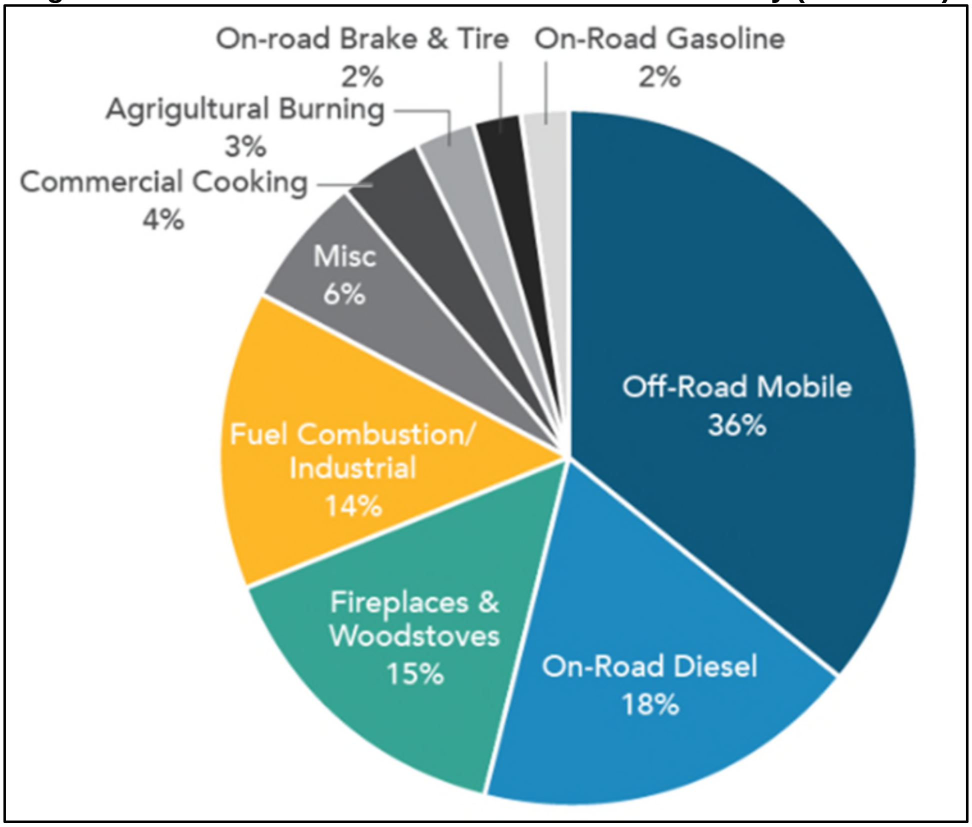
Source: ARB 2024f

Short-Lived Climate Pollutants

Short-lived climate pollutants (SLCPs), such as black carbon, fluorinated gases, and CH_4 also have a dramatic effect on climate change. Though short-lived, these pollutants create a warming influence on the climate that is many times more potent than that of carbon dioxide.

As part of the ARB's efforts to address SLCPs, the ARB has developed a statewide emission inventory for black carbon. The black carbon inventory will help support the implementation of the SLCP Strategy, but it is not part of the State's GHG Inventory that tracks progress towards the State's climate targets. The most recent inventory for year 2013 conditions is depicted in Figure 5. As depicted, off-road mobile sources account for a majority of black carbon emissions totaling roughly 36 percent of the inventory. Other major anthropogenic sources of black carbon include on-road transportation, residential wood burning, fuel combustion, and industrial processes (ARB 2024f).

Figure 5. California Black Carbon Emissions Inventory (Year 2013)



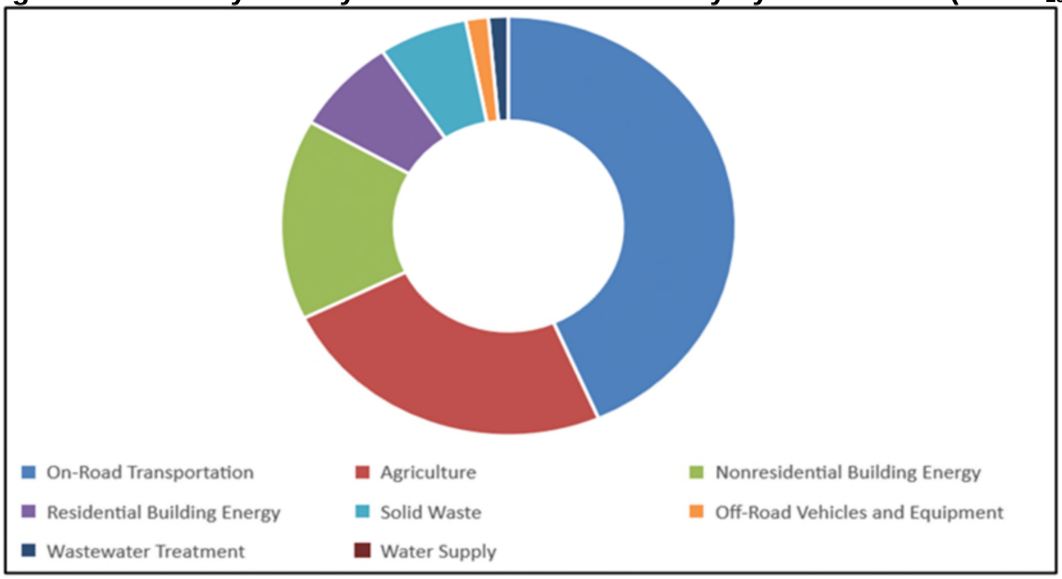
Source: ARB 2024g

LOCAL

COUNTY OF MONTEREY

Within the County of Monterey, GHG emissions are predominantly associated with transportation, agriculture, and building energy. In 2019, GHG emissions within Monterey County totaled 1,101,405 metric tons (MT) of CO_2e. GHG emissions, by sector, are summarized in Figure 6. Within Monterey County, the transportation sector is the largest contributor, accounting for approximately 43 percent of the total county-wide GHG emissions. Emissions associated with agriculture uses are the second largest contributor, totaling roughly 24 percent. Building energy generation both non-residential and residential totaled roughly 23 percent (MCHD 2024).

Figure 6. Monterey County GHG Emissions Inventory by Sector 2019 ($MTCO_{2e}$)



Source: MCHDC 2024

EFFECTS OF GLOBAL CLIMATE CHANGE

There are uncertainties as to exactly what climate changes would occur in various local areas of Earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea-level rise, the spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records depict an increasing trend toward earlier snowmelt in the Sierra Nevada. This snowpack is a principal supply of water for the state, providing roughly 50 percent of the State's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during the spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack may force electricity producers to switch to more costly or non-renewable forms of electricity generation during the spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate would likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (ARB 2017).

REGULATORY FRAMEWORK

FEDERAL

Executive Order 13514

Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs, and operations. In addition, the executive order directs federal agencies to participate in the Interagency

Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the FCAA and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not 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 U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator found 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 found 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.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's "Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles", which was published on September 15, 2009. On May 7, 2010, the final "Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards" was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards would cut GHG emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

STATE

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply; an increase in air pollution caused by higher temperatures; harm to agriculture; an increase in wildfires; damage to the coastline; and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the FCAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

In 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government, and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, NF_3, and SF_6. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that were phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions (ARB 2018).

Climate Change Scoping Plan

In October 2008, ARB published its *Climate Change Proposed Scoping Plan*, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory.

The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementing the Low Carbon Fuel Standard program, implementing energy efficiency measures in buildings and appliances, the widespread development of combined heat and power systems, and developing a renewable portfolio standard for electricity production.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with the implementation of Senate Bill (SB) 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008, and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals., The *2017 Climate Change Scoping Plan*, was released in November 2017. The *2017 Climate Change Scoping Plan* incorporates strategies for achieving the 2030 GHG-reduction target established in Senate Bill 32 (SB 32) and EO B-30-15. Most notably, the *2017 Climate Change Scoping Plan* encourages zero net increases in GHG emissions. However, the *2017 Climate Change Scoping Plan* recognizes that achieving net zero increases in GHG emissions may not be possible or appropriate for all projects and that the inability of a project to mitigate its GHG emissions to zero would not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.

On November 16, 2022, the ARB approved the *2022 Scoping Plan for Achieving Carbon Neutrality*. The 2022 Scoping Plan continues the path to achieve the SB 32 2030 target and expands upon earlier plans by targeting an 85 percent reduction in GHG below 1990 levels by 2045 (ARB 2022).

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

SB 1078 (Public Utilities Code Sections 387, 390.1, 399.25, and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum of 20 percent of their supply from renewable sources by 2017. This SB will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the State to come from renewable energy by 2020. Statute SB X1-2 superseded this Executive Order in 2011, which obligated all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The California Energy Commission and California Public Utilities Commission serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

The California Global Warming Solutions Act (AB 32, 2006) requires the reporting of GHGs by major sources to the ARB. Major sources required to report GHG emissions include industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the State's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80 percent reduction from 1990 levels by 2050.

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from the year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 375

SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will address land-use allocation in that MPOs regional transportation plan. ARB, in consultation with MPOs, establishes regional reduction targets for GHGs emitted by passenger cars and light trucks for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, funding for transportation projects may be withheld.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvements to real property. The CBC is adopted every three years by the BSC. In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green building standards are indistinguishable from any other building standards. Both standards are contained in the CBC and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods.

The 2019 Building Energy Efficiency Standards (2019 Standards), which were adopted in May 2018, address several important areas including smart residential photovoltaic systems, updated thermal envelope standards to prevent heat transfer, residential and nonresidential ventilation requirements, and non-residential lighting requirements. While the 2019 standards led to notable energy reductions, homes may still utilize other energy sources like natural gas. Actual energy savings depend on various factors such as building orientation and sun exposure. Non-residential buildings can expect around 30 percent energy reduction primarily due to lighting upgrades.

More recently, the 2022 Building Energy Efficiency Standards (2022 Standards) were approved in December 2021 to further enhance energy efficiency in buildings. These standards promote efficient electric heat pumps, establish electric-ready requirements when installing natural gas, support future battery storage installation, and expand solar photovoltaic and battery storage standards. Notably, the 2022 standards extend solar PV system requirements and battery storage capabilities to various land uses, including high-rise multi-family and non-residential structures like office buildings, schools, restaurants, warehouses, theaters, and grocery stores. The sizing of solar systems for these structures should aim to meet targets of up to 60 percent of the building's loads. These new solar requirements came into effect on January 1, 2023, aligning with California's goal of achieving a net-zero carbon footprint by 2045 (CEC 2021).

Senate Bill 97

SB 97 was enacted in 2007. SB 97 required OPR to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project’s GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project’s potential energy use (including transportation-related energy), sources of energy supply, and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

Short-Lived Climate Pollutant Reduction Strategy

In March 2017, the ARB adopted the “Short-Lived Climate Pollutant Reduction Strategy” (*SLCP Strategy*) establishing a path to decrease GHG emissions and displace fossil-based natural gas use. Strategies include avoiding landfill methane emissions by reducing the disposal of organics through edible food recovery, composting, in-vessel digestion, and other processes; and recovering methane from wastewater treatment facilities, and manure methane at dairies, and using the methane as a renewable source of natural gas to fuel vehicles or generate electricity. The *SLCP Strategy* also identifies steps to reduce natural gas leaks from oil and gas wells, pipelines, valves, and pumps to improve safety, avoid energy losses, and reduce methane emissions associated with natural gas use. Lastly, the *SLCP Strategy* also identifies measures that can reduce HFC emissions at national and international levels, in addition to State-level action that includes an incentive program to encourage the use of low-GWP refrigerants, and limitations on the use of high-GWP refrigerants in new refrigeration and air-conditioning equipment (ARB 2017).

Association of Monterey Bay Area Governments 2022-2045 MTP/SCS

The AMBAG 2022-2045 MTP/SCS seeks to ensure that transportation within the County of Monterey operates and will continue to operate efficiently. The metropolitan transportation plan focuses on regional transportation infrastructure needs while the SCS addresses planned growth patterns. Linking MTP and SCS ensures that future changes to the regional transportation network will address both existing and future needs. Key State goals, policies, and Executive Orders considered in the 2045 MTP/SCS include but are not limited to the following:

• SB 375 and SCS Program and Evaluation Guidelines
• 2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations
• California Transportation Plan 2050
• California SB 32 (Pavley, 2016): Reduce GHG emissions 40% below 1990 levels by 2030
• EO B-55-18: Carbon Neutrality by 2045
• EO S-3-05: Reduce GHG emissions 80% below 1990 levels by 2050
• EO N-19-19: empowers the California State Transportation Agency to leverage discretionary state transportation funds to help meet the state's climate goals.
• EO N-79-20: 100% zero-emission vehicle sales by 2035

PROJECT IMPACTS

THRESHOLDS OF SIGNIFICANCE

In accordance with CEQA Guidelines, a project would be considered to have a significant impact on climate change if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or,

b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As of August 2024, the County of Monterey Community Climate Action and Adaptation Plan (CCAAP) was still being developed and has not yet been adopted. The proposed CCAAP establishes strategies and provides guidance on reducing GHG emissions but does not provide a recommended significance threshold or offer a method of analysis for projects subject to CEQA review.

MBARD has not adopted a CEQA-compliant GHG reduction plan. In addition, MBARD has not issued recommended guidance for the evaluation of GHG impacts associated with projects subject to CEQA review. However, other air districts in the State have recently released guidance for the evaluation of GHG impacts. For instance, the Bay Area Air Quality Management District (BAAQMD) has recently released recommended GHG significance thresholds that are based on a "fair share" approach for achieving carbon neutrality goals and to ensure consistency with the State's GHG-reduction efforts, including the State's Climate Change Scoping Plan. Consistent with this approach, new land use development projects would be considered to be consistent with the State's carbon neutrality goals and would be considered to have a less than significant impact if: 1) the project is deemed consistent with regional VMT-reduction targets; 2) the project reduces the need for natural gas infrastructure; and 3) the project would not result in a wasteful, inefficient, or unnecessary energy use as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. Similarly, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has also recently released Best Management Practices (BMPs), which also include the prohibited installation of natural gas infrastructure for development projects as well as a requirement that projects meet current CalGreen Tier 2 standards for electric-vehicle (EV) spaces, except that EV-capable spaces shall instead be electric vehicle (EV) ready. This additional requirement requires the installation of electrical infrastructure sufficient to service the future installation of EV chargers. The BAAQMD and SMAQMD thresholds are based on an approach endorsed by the Supreme Court in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015). Although not located within these jurisdictions, development in Monterey County and associated GHG emissions are comparable to those generated by developments within other areas of the state, including the BAAQMD and SMAQMD jurisdictions. Given that climate change is inherently a cumulative impact that occurs on a global scale, these BMPs would, likewise, be considered representative of the project's "fair share" of what would be required to meet the State's long-term climate goals, including achieving carbon neutrality by 2045, and ensuring consistency with the State's Climate Change Scoping Plan. It is also important to note that the ARB 2022 Scoping Plan states that under the Lead Agencies discretion with supporting evidence projects that incorporate some but not all applicable key attributes could be found by the lead agency as being consistent with the State's Scoping Plan. Project related operational GHG impacts were assessed based on consistency with the State's 2022 Climate Scoping Plan and contributing its fair share of meeting the State's long-term climate goals.

METHODOLOGY

Short-term Construction

Short-term construction emissions associated with the Project were quantified using the CalEEMod, version 2022.1.1.26. Emissions modeling included the analysis of proposed foundation/concrete, grading, pump station installation, asphalt paving, and trenching. Emissions were quantified based on project-specific data provided, and default modeling parameters contained in the model for Monterey County. Since equipment may not be used everyday of the construction phase, phase durations in CalEEMod were based on the number of days of equipment use. CalEEMod offsite worker emissions were scaled based on the number of working days in the phase. Emissions calculations are included in Appendix A of this report. Construction-generated GHG emissions were amortized over an approximate 30-year project life and included with operational emissions estimates. Construction-generated GHG emissions attributable to the Project are presented for informational purposes. Refer to Appendix A for emissions modeling assumptions and results.

Long-term Operation

Long-term operational emissions of the Project were quantified using energy intensity factors for Monterey County from CalEEMod, version 2022.1.1.26. CalEEMod does not provide adjusted energy intensity factors to account for anticipated reductions in energy use in future years. Therefore, year 2027 energy intensity factors were conservatively used for turbine pump emission calculations. Two turbine water pumps would be in use during standard operation and the third used as a back-up. Based on information provided by the Project proponent, the water pumps would operate at 150 horsepower (hp) each. This is the equivalent of approximately 112 kW (kilowatts) per pump. Each of the two primary pumps were estimated to operate approximately 1,664 hours annually. Refer to Appendix A for turbine pump operation schedule, emissions modeling assumptions and results.

PROJECT IMPACTS

Impact GHG-A	***Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? or Would the project conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?***

Implementation of the Project would contribute to increases in GHG emissions that are associated with global climate change. Short-term and long-term GHG emissions associated with the development of the Project are discussed in greater detail, as follows:

Short-term Greenhouse Gas Emissions

Short-term annual GHG emissions are summarized in Table 10. Based on the modeling conducted, emissions of GHGs associated with the construction of the Project would total approximately 396 $MTCO_2e$. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Actual emissions would vary, depending on various factors including construction schedules, equipment required, and activities conducted. Assuming an average project life of 30 years, amortized construction-generated GHG emissions would total approximately 13 $MTCO_2e$/yr.

Table 10. Amortized Construction GHG Emissions

Construction	GHG Emissions ($MTCO_2e$)
Foundation/Concrete	5.73
Grading	62.15
Pump Station Install	2.01
Asphalt Paving	70.03
Trenching	256.48
Total:	396.39
Amortized Construction Emissions:	13.21
Based on CalEEMod computer modeling. Amortized construction-generated GHG emissions assume a 30-year project life. Refer to Appendix A for modeling results and assumptions.	

Long-term Greenhouse Gas Emissions

Estimated long-term increases in GHG emissions for future target years 2027 and year 2045 were calculated to ensure consistency with SB 32 and are depicted in Tables 11. As depicted in Table 11, annual operational GHG emissions associated with the Project would total approximately 35 $MTCO_2e$/year. With the inclusion of amortized construction emissions, operational GHG emissions would total approximately 48 $MTCO_2e$/year.

Table 11. Annual Operational GHG Emissions - Unmitigated

Emissions Source	GHG Emissions ($MTCO_2e$/year) [1]
Turbine Water Pumps[2]	34.8
Total Project Operational Emissions:	34.8
Amortized Construction Emissions:	13.2
Total with Amortized Construction Emissions:	48.0
1. Project-generated emissions were quantified using intensity factors from the CalEEMod computer program. *2. Includes operation of two electrified 150 hp (112 kW) turbine water pumps for an annual total of 3,328 hours.* *Refer to Appendix A for modeling results and assumptions.*	

As mentioned above quantified emissions are provided for informational purposes only. Project impacts relating to GHG emissions are discussed below and assessed by determining consistency with the State's 2022 Climate Scoping Plan and contributing its fair share of what would be required to meet the State's long-term climate goals, including achieving carbon neutrality by 2045.

<u>Consistency with Applicable Plans</u>

Applicable GHG-reduction plans include the AMBAG 2022-245 MTP/SCS and ARB's Climate Change Scoping Plan. Project consistency with these plans is discussed in greater detail, as follows:

AMBAG 2022-2045 MTP/SCS Consistency

To support the State's GHG-reduction goals, including the goals mandated by SB 32, California established the Sustainable Communities and Climate Protection Act (SB 375). SB 375 requires regional metropolitan planning organizations, such as AMBAG, to develop SCSs that align transportation, housing, and land use decisions toward achieving the State's GHG emissions-reduction targets. Under SB 375, the development and implementation of SCSs, which link transportation, land use, housing, and climate policy at the regional level, are designed to reduce per capita mobile-source GHG emissions, which is accomplished through the implementation of measures that would result in reductions in per capita VMT.

As previously noted, the AMBAG 2022-2045 MTP/SCS was developed in accordance with state and federal requirements including SB 375 which aims to reduce GHG emissions related to mobile sources. Based on AMBAG guidelines, the Project would not have an impact on regional VMT. As a result, the Project would not conflict with any goals or objectives identified in the AMBAG 2022-2045 MTP/SCS.

Climate Change Scoping Plan

The previously adopted 2017 Climate Change Scoping Plan incorporated the State's GHG emissions reduction target of 40 percent below 1990 emissions levels by 2030, as mandated by SB 32. On November 16, 2022, the ARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality. The recently adopted 2022 Scoping Plan continues the path to achieve the SB 32 2030 target and expands upon earlier Scoping Plans by targeting an 85 percent reduction in GHG below 1990 levels by 2045. A significant part of achieving the SB 32 goals are strategies to promote sustainable communities, such as the promotion of zero net energy buildings, and improved transportation choices that result in reducing VMT. Other measures include the increased use of low-carbon fuels and cleaner vehicles, as well as, measures that promote the conservation of energy and water use.

California has started to implement major policies to build resilience to combat the effects of climate change, including droughts. Such policies include the Sustainable Groundwater Management Act of 2014, the governor's Water Resilience Portfolio (2020), the governor's Water and Supply Strategy (August 2022), and new standards for indoor, outdoor, and industrial water use. In addition, Executive Order B-55-18 establishes a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter. As part of this effort, policies and programs undertaken to achieve this goal include the protection of the state's water supply through, in part, the promotion of efforts to build a climate-resilient water infrastructure to insulate our communities from increasing and more intense drought conditions. The increased use of recycled water promotes a long-term reliable water supply sources and is an important water resource strategy for increasing drought resiliency in regions throughout California. Water recycling is also a critically important environmental and water use efficient strategy for the state. By effectively reusing water for potable and/or non-potable purposes, many areas of the state are able to reduce existing and future reliance on environmentally stressed imported water sources. The State Water Resources Control Board (Water Board) recently updated California's Recycled Water Policy and added new ambitious recycled water goals for the state (ARB 2022, WateReuse 2019). Implementation of the proposed Project would help to support the state's energy and water-conservation efforts. As a result, this impact would be considered ***less than significant***.

REFERENCES

Air Quality

California Air Resources Board (ARB). 2000. *Diesel Risk Reduction Plan*. Available at url: https://ww2.arb.ca.gov/our-work/programs/diesel-risk-reduction-plan.

———. Accessed August 2024a. Criteria Pollutant Emission Inventory Data. Website url: https://ww2.arb.ca.gov/criteria-pollutant-emission-inventory-data

———. Accessed August 2024b. Toxic Air Contaminant Identification Reports. Website url: https://ww2.arb.ca.gov/resources/documents/toxic-air-contaminant-identification-reports

———. Accessed August 2024c. Ambient Air Quality Standards. Website url: https://ww2.arb.ca.gov/resources/documents/ambient-air-quality-standards-0

———. Accessed August 2024d. Air Quality Standards and Area Designations. Website url: https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations.

———. Accessed August 2024e. Air Quality Data. Website url: http://www.arb.ca.gov/adam/index.html.

California Department of Conservation (DOC). August 2000. *A General Location Guide for Ultramafic Rocks in California-Areas More Likely to Contain Naturally Occurring Asbestos. Open File Report 2000-19.*

County of Monterey. October 26th, 2010. *Monterey County General Plan.* Available at website url: https://www.co.monterey.ca.us/government/departments-a-h/housing-community-development/planning-services/current-planning/general-info/2010-monterey-county-general-plan-adopted-october-26-2010.

Monterey Bay Air Resources District (MBARD). 2008. *CEQA Air Quality Guidelines*. Available at website url: http://mbard.org/programs-resources/planning/ceqa/

———. 2018a. NCCAB Area Designations and Attainment Status. Website url: http://mbard.org/programs-resources/planning/ceqa/

———. 2018b. Air Quality Plans. Website url: https://www.mbard.org/files/6632732f5/2012-2015-AQMP_FINAL.pdf.

U.S. Environmental Protection Agency (U.S. EPA). Accessed August 2024a. *Health Effects Notebook for Hazardous Air Pollutants.* Website url: https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants.

———. Accessed August 2024b. Black Carbon Research. Website url: https://19january2017snapshot.epa.gov/air-research/black-carbon-research_.html.

———. Accessed August 2024c. Air Quality and Your Health. Website url: https://www.airnow.gov/air-quality-and-your-health-publications/.

———. Accessed August 2024d. Air Quality Index Report. Website url: https://www.epa.gov/outdoor-air-quality-data/air-quality-index-report

Greenhouse Gases and Climate Change

California Air Resources Board (ARB). 2017. Short-Lived Climate Pollutant Reduction Strategy. Website URL: https://ww3.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf.

———. September 28, 2018. AB 32 Global Warming Solutions Act of 2006. Website url: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006.

———. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Website url: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

———. Accessed August 2024f. Greenhouse Gas Emissions Inventory: 2023 Edition. Website url: https://ww2.arb.ca.gov/ghg-inventory-data.

———. Accessed August 2024g. GHG Short-Lived Climate Pollutant Inventory. Website url: https://ww2.arb.ca.gov/ghg-slcp-inventory

California Energy Commission (CEC). August 11, 2021. 2022 Building Energy Efficiency Standards. Available at website url: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency

Climate & Clean Air Coalition (CCAC). 2018. *Black Carbon*. Website url: http://www.ccacoalition.org/en/slcps/black-carbon.

APPENDIX A

Emissions Modeling

CalEEMod Output

Soledad Recycled Water Facility (Construction and Opening Intensity Factors) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Soledad Recycled Water Facility (Construction and Opening Intensity Factors)
Construction Start Date	5/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	5.00
Location	36.42096987505816, -121.34023647608893
County	Monterey
City	Soledad
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3211
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.26

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
User Defined Linear	5.01	Mile	4.32	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

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.	1.47	1.16	13.2	12.9	0.05	0.48	7.05	7.53	0.44	3.50	3.94	—	6,449	6,449	0.34	0.69	9.91	6,674
Mit.	0.84	0.56	14.8	15.1	0.05	0.45	2.19	2.52	0.42	1.01	1.31	—	6,449	6,449	0.34	0.69	9.91	6,674
% Reduced	43%	52%	-12%	-17%	—	5%	69%	66%	6%	71%	67%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.45	0.31	4.53	5.19	0.02	0.12	0.50	0.62	0.12	0.13	0.25	—	2,263	2,263	0.12	0.25	0.09	2,342
Mit.	0.30	0.19	5.33	5.43	0.02	0.16	0.49	0.65	0.15	0.13	0.28	—	2,263	2,263	0.12	0.25	0.09	2,342
% Reduced	35%	38%	-18%	-5%	—	-29%	2%	-4%	-27%	1%	-12%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.29	3.71	3.68	0.01	0.12	1.04	1.16	0.11	0.46	0.57	—	1,550	1,550	0.08	0.16	1.02	1,602
Mit.	0.21	0.14	3.73	3.76	0.01	0.11	0.50	0.62	0.11	0.18	0.29	—	1,550	1,550	0.08	0.16	1.02	1,602

% Reduced	48%	52%	> -0.5%	-2%	—	5%	52%	47%	6%	60%	49%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.05	0.68	0.67	< 0.005	0.02	0.19	0.21	0.02	0.08	0.10	—	257	257	0.01	0.03	0.17	265
Mit.	0.04	0.03	0.68	0.69	< 0.005	0.02	0.09	0.11	0.02	0.03	0.05	—	257	257	0.01	0.03	0.17	265
% Reduced	48%	52%	> -0.5%	-2%	—	5%	52%	47%	6%	60%	49%	—	—	—	—	—	—	—

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.47	1.16	13.2	12.9	0.05	0.48	7.05	7.53	0.44	3.50	3.94	—	6,449	6,449	0.34	0.69	9.91	6,674
2026	0.43	0.29	4.20	5.19	0.02	0.11	0.50	0.61	0.10	0.13	0.24	—	2,235	2,235	0.11	0.25	3.40	2,317
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.45	0.31	4.53	5.19	0.02	0.12	0.50	0.62	0.12	0.13	0.25	—	2,263	2,263	0.12	0.25	0.09	2,342
2026	0.43	0.29	4.31	5.12	0.02	0.11	0.50	0.61	0.10	0.13	0.24	—	2,230	2,230	0.11	0.25	0.09	2,309
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.40	0.29	3.71	3.68	0.01	0.12	1.04	1.16	0.11	0.46	0.57	—	1,550	1,550	0.08	0.16	1.02	1,602
2026	0.13	0.09	1.27	1.52	< 0.005	0.03	0.15	0.18	0.03	0.04	0.07	—	663	663	0.03	0.08	0.44	687
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.07	0.05	0.68	0.67	< 0.005	0.02	0.19	0.21	0.02	0.08	0.10	—	257	257	0.01	0.03	0.17	265
2026	0.02	0.02	0.23	0.28	< 0.005	0.01	0.03	0.03	0.01	0.01	0.01	—	110	110	0.01	0.01	0.07	114

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.84	0.56	14.8	15.1	0.05	0.45	2.19	2.52	0.42	1.01	1.31	—	6,449	6,449	0.34	0.69	9.91	6,674
2026	0.29	0.19	5.14	5.43	0.02	0.16	0.49	0.65	0.15	0.13	0.28	—	2,235	2,235	0.11	0.25	3.40	2,317
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.30	0.19	5.33	5.43	0.02	0.16	0.49	0.65	0.15	0.13	0.28	—	2,263	2,263	0.12	0.25	0.09	2,342
2026	0.28	0.19	5.25	5.36	0.02	0.16	0.49	0.65	0.15	0.13	0.28	—	2,230	2,230	0.11	0.25	0.09	2,309
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.21	0.14	3.73	3.76	0.01	0.11	0.50	0.62	0.11	0.18	0.29	—	1,550	1,550	0.08	0.16	1.02	1,602
2026	0.08	0.06	1.55	1.59	< 0.005	0.05	0.15	0.19	0.04	0.04	0.08	—	663	663	0.03	0.08	0.44	687
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.04	0.03	0.68	0.69	< 0.005	0.02	0.09	0.11	0.02	0.03	0.05	—	257	257	0.01	0.03	0.17	265
2026	0.02	0.01	0.28	0.29	< 0.005	0.01	0.03	0.04	0.01	0.01	0.02	—	110	110	0.01	0.01	0.07	114

3. Construction Emissions Details

3.1. Foundation/Concrete (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	0.45	0.38	3.66	3.12	0.01	0.15	—	0.15	0.14	—	0.14	—	990	990	0.04	0.01	—	994
Dust From Material Movement	—	—	—	—	—	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.25	2.25	< 0.005	< 0.005	—	2.25
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
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	0.09	0.02	1.29	0.47	0.01	0.02	0.27	0.29	0.02	0.08	0.09	—	1,054	1,054	0.06	0.17	2.18	1,107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.26	1.26	< 0.005	< 0.005	< 0.005	1.28
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	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.01	15.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.39	2.39	< 0.005	< 0.005	< 0.005	2.51

3.2. Foundation/Concrete (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.17	4.35	4.88	0.01	0.17	—	0.17	0.15	—	0.15	—	990	990	0.04	0.01	—	994

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.25	2.25	< 0.005	< 0.005	—	2.25
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1

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	0.09	0.02	1.29	0.47	0.01	0.02	0.27	0.29	0.02	0.08	0.09	—	1,054	1,054	0.06	0.17	2.18	1,107
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.26	1.26	< 0.005	< 0.005	< 0.005	1.28
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	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.4	14.4	< 0.005	< 0.005	0.01	15.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
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	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.39	2.39	< 0.005	< 0.005	< 0.005	2.51

3.3. Grading (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.31	1.10	10.4	9.63	0.02	0.45	—	0.45	0.41	—	0.41	—	1,703	1,703	0.07	0.01	—	1,709
Dust From Material Movement	—	—	—	—	—	—	6.56	6.56	—	3.37	3.37	—	—	—	—	—	—	—
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	0.14	0.12	1.14	1.06	< 0.005	0.05	—	0.05	0.05	—	0.05	—	187	187	0.01	< 0.005	—	187
Dust From Material Movement	—	—	—	—	—	—	0.72	0.72	—	0.37	0.37	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.9	30.9	< 0.005	< 0.005	—	31.0
Dust From Material Movement	—	—	—	—	—	—	0.13	0.13	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.0	61.0	< 0.005	0.01	0.17	63.9
Hauling	0.12	0.03	1.82	0.66	0.01	0.03	0.38	0.40	0.03	0.11	0.13	—	1,479	1,479	0.09	0.23	3.06	1,554
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.02	10.3
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	6.99
Hauling	0.01	< 0.005	0.21	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	162	162	0.01	0.03	0.15	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.70
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.16
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.8	26.8	< 0.005	< 0.005	0.02	28.2

3.4. Grading (2025) - Mitigated

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	0.32	0.32	7.76	8.97	0.02	0.30	—	0.30	0.27	—	0.27	—	1,703	1,703	0.07	0.01	—	1,709
Dust From Material Movement	—	—	—	—	—	—	1.71	1.71	—	0.88	0.88	—	—	—	—	—	—	—
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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.04	0.03	0.85	0.98	< 0.005	0.03	—	0.03	0.03	—	0.03	—	187	187	0.01	< 0.005	—	187
Dust From Material Movement	—	—	—	—	—	—	0.19	0.19	—	0.10	0.10	—	—	—	—	—	—	—
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	0.16	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.9	30.9	< 0.005	< 0.005	—	31.0
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.0	61.0	< 0.005	0.01	0.17	63.9
Hauling	0.12	0.03	1.82	0.66	0.01	0.03	0.38	0.40	0.03	0.11	0.13	—	1,479	1,479	0.09	0.23	3.06	1,554
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.1	10.1	< 0.005	< 0.005	0.02	10.3
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	6.99
Hauling	0.01	< 0.005	0.21	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	162	162	0.01	0.03	0.15	170
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.70
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.16
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.8	26.8	< 0.005	< 0.005	0.02	28.2

3.5. Pump Station Install (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	0.45	0.38	3.66	3.12	0.01	0.15	—	0.15	0.14	—	0.14	—	990	990	0.04	0.01	—	994
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.43	5.43	< 0.005	< 0.005	—	5.45
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.90	0.90	< 0.005	< 0.005	—	0.90
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.6	58.6	< 0.005	< 0.005	0.25	59.5
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.0	61.0	< 0.005	0.01	0.17	63.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	< 0.005	0.35
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
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

3.6. Pump Station Install (2025) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.17	4.35	4.88	0.01	0.17	—	0.17	0.15	—	0.15	—	990	990	0.04	0.01	—	994
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.43	5.43	< 0.005	< 0.005	—	5.45
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.90	0.90	< 0.005	< 0.005	—	0.90
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.32	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.6	58.6	< 0.005	< 0.005	0.25	59.5
Vendor	< 0.005	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	61.0	61.0	< 0.005	0.01	0.17	63.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.33	0.33	< 0.005	< 0.005	< 0.005	0.35
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
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. Asphalt Paving (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	0.22	0.18	1.84	2.28	< 0.005	0.09	—	0.09	0.09	—	0.09	—	350	350	0.01	< 0.005	—	352
Dust From Material Movement	—	—	—	—	—	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.30	0.37	< 0.005	0.02	—	0.02	0.01	—	0.01	—	57.6	57.6	< 0.005	< 0.005	—	57.8
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.57

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
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	0.13	0.03	1.96	0.71	0.01	0.03	0.41	0.43	0.03	0.11	0.14	—	1,591	1,591	0.10	0.25	3.29	1,672
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.2	15.2	< 0.005	< 0.005	0.03	15.4
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	0.02	0.01	0.33	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	262	262	0.02	0.04	0.23	275
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.51	2.51	< 0.005	< 0.005	< 0.005	2.55
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	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.04	45.5

3.8. Asphalt Paving (2025) - Mitigated

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	0.09	0.09	1.90	2.43	< 0.005	0.08	—	0.08	0.07	—	0.07	—	350	350	0.01	< 0.005	—	352
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.31	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	57.6	57.6	< 0.005	< 0.005	—	57.8
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.57
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
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	0.13	0.03	1.96	0.71	0.01	0.03	0.41	0.43	0.03	0.11	0.14	—	1,591	1,591	0.10	0.25	3.29	1,672
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.2	15.2	< 0.005	< 0.005	0.03	15.4
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	0.02	0.01	0.33	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	262	262	0.02	0.04	0.23	275
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.51	2.51	< 0.005	< 0.005	< 0.005	2.55
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	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.04	45.5

3.9. Trenching (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	0.30	0.25	2.45	4.03	0.01	0.09	—	0.09	0.09	—	0.09	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.25	2.45	4.03	0.01	0.09	—	0.09	0.09	—	0.09	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.88	1.45	< 0.005	0.03	—	0.03	0.03	—	0.03	—	222	222	0.01	< 0.005	—	222
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.02	0.02	0.16	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.7	36.7	< 0.005	< 0.005	—	36.8
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
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	0.13	0.03	1.91	0.69	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,555	1,555	0.09	0.25	3.21	1,634
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.05	0.46	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	91.9	91.9	< 0.005	< 0.005	0.01	93.0
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	0.12	0.03	2.02	0.70	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,556	1,556	0.09	0.25	0.08	1,632
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.2	33.2	< 0.005	< 0.005	0.06	33.7
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	0.05	0.01	0.71	0.25	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	560	560	0.03	0.09	0.50	588
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.50	5.50	< 0.005	< 0.005	0.01	5.58
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	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	92.7	92.7	0.01	0.01	0.08	97.3

3.10. Trenching (2025) - Mitigated

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	0.14	0.13	3.26	4.27	0.01	0.13	—	0.13	0.12	—	0.12	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.13	3.26	4.27	0.01	0.13	—	0.13	0.12	—	0.12	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	1.17	1.54	< 0.005	0.05	—	0.05	0.04	—	0.04	—	222	222	0.01	< 0.005	—	222

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.21	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.7	36.7	< 0.005	< 0.005	—	36.8
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.54	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.6	97.6	< 0.005	< 0.005	0.41	99.1
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	0.13	0.03	1.91	0.69	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,555	1,555	0.09	0.25	3.21	1,634
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.05	0.46	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	91.9	91.9	< 0.005	< 0.005	0.01	93.0
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	0.12	0.03	2.02	0.70	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,556	1,556	0.09	0.25	0.08	1,632
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.2	33.2	< 0.005	< 0.005	0.06	33.7
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	0.05	0.01	0.71	0.25	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	560	560	0.03	0.09	0.50	588
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.50	5.50	< 0.005	< 0.005	0.01	5.58
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	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	92.7	92.7	0.01	0.01	0.08	97.3

3.11. Trenching (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	0.28	0.23	2.32	4.03	0.01	0.08	—	0.08	0.07	—	0.07	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.23	2.32	4.03	0.01	0.08	—	0.08	0.07	—	0.07	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.69	1.20	< 0.005	0.02	—	0.02	0.02	—	0.02	—	183	183	0.01	< 0.005	—	184
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.13	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	30.3	30.3	< 0.005	< 0.005	—	30.4
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.50	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.8	95.8	< 0.005	< 0.005	0.38	97.3
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	0.12	0.03	1.85	0.66	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,524	1,524	0.08	0.25	3.02	1,603
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.43	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	90.1	90.1	< 0.005	< 0.005	0.01	91.2

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	0.03	1.95	0.67	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,525	1,525	0.08	0.25	0.08	1,600
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.05	27.3
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	0.03	0.01	0.57	0.20	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	453	453	0.02	0.07	0.39	476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.46	4.46	< 0.005	< 0.005	0.01	4.52
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	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	0.01	0.06	78.9

3.12. Trenching (2026) - Mitigated

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	0.14	0.13	3.26	4.27	0.01	0.13	—	0.13	0.12	—	0.12	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.14	0.13	3.26	4.27	0.01	0.13	—	0.13	0.12	—	0.12	—	615	615	0.02	< 0.005	—	617
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.97	1.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	183	183	0.01	< 0.005	—	184
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.18	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	30.3	30.3	< 0.005	< 0.005	—	30.4
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.50	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.8	95.8	< 0.005	< 0.005	0.38	97.3
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	0.12	0.03	1.85	0.66	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,524	1,524	0.08	0.25	3.02	1,603
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.43	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	90.1	90.1	< 0.005	< 0.005	0.01	91.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	0.03	1.95	0.67	0.01	0.03	0.40	0.42	0.03	0.11	0.14	—	1,525	1,525	0.08	0.25	0.08	1,600
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.9	26.9	< 0.005	< 0.005	0.05	27.3
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	0.03	0.01	0.57	0.20	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	453	453	0.02	0.07	0.39	476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.46	4.46	< 0.005	< 0.005	0.01	4.52
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	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	75.1	75.1	< 0.005	0.01	0.06	78.9

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Foundation/Concrete	Linear, Grubbing & Land Clearing	7/1/2025	7/7/2025	5.00	5.00	Crane
Grading	Linear, Grading & Excavation	5/1/2025	6/25/2025	5.00	40.0	—
Pump Station Install	Linear, Drainage, Utilities, & Sub-Grade	8/1/2025	8/4/2025	5.00	2.00	Crane
Asphalt Paving	Linear, Paving	7/1/2025	9/22/2025	5.00	60.0	—
Trenching	Linear, Trenching	7/1/2025	6/1/2026	5.00	240	—

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
Foundation/Concrete	Cranes	Diesel	Average	1.00	8.00	367	0.29
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Pump Station Install	Cranes	Diesel	Average	1.00	8.00	367	0.29
Asphalt Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Asphalt Paving	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

Trenching	Tractors/Loaders/Back	Diesel	Average	1.00	8.00	84.0	0.37
Trenching	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Foundation/Concrete	Cranes	Diesel	Tier 3	1.00	8.00	367	0.29
Grading	Rubber Tired Dozers	Diesel	Tier 3	1.00	8.00	367	0.40
Grading	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Grading	Tractors/Loaders/Back hoes	Diesel	Tier 3	1.00	8.00	84.0	0.37
Pump Station Install	Cranes	Diesel	Tier 3	1.00	8.00	367	0.29
Asphalt Paving	Pavers	Diesel	Tier 3	1.00	8.00	81.0	0.42
Asphalt Paving	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Trenching	Tractors/Loaders/Back hoes	Diesel	Tier 3	1.00	8.00	84.0	0.37
Trenching	Tractors/Loaders/Back hoes	Diesel	Tier 3	1.00	8.00	84.0	0.37
Trenching	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	5.00	26.0	LDA,LDT1,LDT2
Grading	Vendor	0.75	26.0	HHDT,MHDT
Grading	Hauling	16.0	26.0	HHDT
Grading	Onsite truck	—	—	HHDT
Foundation/Concrete	—	—	—	—

Foundation/Concrete	Worker	5.00	26.0	LDA,LDT1,LDT2
Foundation/Concrete	Vendor	0.00	6.03	HHDT,MHDT
Foundation/Concrete	Hauling	11.4	26.0	HHDT
Foundation/Concrete	Onsite truck	—	—	HHDT
Pump Station Install	—	—	—	—
Pump Station Install	Worker	3.00	26.0	LDA,LDT1,LDT2
Pump Station Install	Vendor	0.75	26.0	HHDT,MHDT
Pump Station Install	Hauling	0.00	20.0	HHDT
Pump Station Install	Onsite truck	—	—	HHDT
Asphalt Paving	—	—	—	—
Asphalt Paving	Worker	5.00	26.0	LDA,LDT1,LDT2
Asphalt Paving	Vendor	0.00	6.03	HHDT,MHDT
Asphalt Paving	Hauling	17.2	26.0	HHDT
Asphalt Paving	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	26.0	LDA,LDT1,LDT2
Trenching	Vendor	—	6.03	HHDT,MHDT
Trenching	Hauling	16.8	26.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	5.00	26.0	LDA,LDT1,LDT2
Grading	Vendor	0.75	26.0	HHDT,MHDT
Grading	Hauling	16.0	26.0	HHDT
Grading	Onsite truck	—	—	HHDT
Foundation/Concrete	—	—	—	—

Foundation/Concrete	Worker	5.00	26.0	LDA,LDT1,LDT2
Foundation/Concrete	Vendor	0.00	6.03	HHDT,MHDT
Foundation/Concrete	Hauling	11.4	26.0	HHDT
Foundation/Concrete	Onsite truck	—	—	HHDT
Pump Station Install	—	—	—	—
Pump Station Install	Worker	3.00	26.0	LDA,LDT1,LDT2
Pump Station Install	Vendor	0.75	26.0	HHDT,MHDT
Pump Station Install	Hauling	0.00	20.0	HHDT
Pump Station Install	Onsite truck	—	—	HHDT
Asphalt Paving	—	—	—	—
Asphalt Paving	Worker	5.00	26.0	LDA,LDT1,LDT2
Asphalt Paving	Vendor	0.00	6.03	HHDT,MHDT
Asphalt Paving	Hauling	17.2	26.0	HHDT
Asphalt Paving	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	26.0	LDA,LDT1,LDT2
Trenching	Vendor	—	6.03	HHDT,MHDT
Trenching	Hauling	16.8	26.0	HHDT
Trenching	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)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Foundation/Concrete	238	211	0.00	0.00	—
Grading	2,585	2,530	4.32	0.00	—
Pump Station Install	0.00	0.00	0.00	0.00	—
Asphalt Paving	4,378	3,879	0.00	0.00	—
Trenching	17,130	15,180	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Linear	3.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	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

5.18.1.2. Mitigated

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

5.18.1.2. Mitigated

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)

5.18.2.2. Mitigated

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	20.7	annual days of extreme heat
Extreme Precipitation	1.30	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	27.9	annual hectares burned

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

6.2. Initial Climate Risk Scores

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

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

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores 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	24.9
AQ-PM	0.83
AQ-DPM	2.64
Drinking Water	56.3
Lead Risk Housing	79.4

Pesticides	82.0
Toxic Releases	0.21
Traffic	4.83
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	14.3
Haz Waste Facilities/Generators	39.8
Impaired Water Bodies	58.7
Solid Waste	63.7
Sensitive Population	—
Asthma	38.0
Cardio-vascular	54.9
Low Birth Weights	74.2
Socioeconomic Factor Indicators	—
Education	99.0
Housing	45.0
Linguistic	90.7
Poverty	97.2
Unemployment	10.7

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	12.06210702
Employed	19.33786732
Median HI	19.44052355
Education	—

Bachelor's or higher	11.58732196
High school enrollment	100
Preschool enrollment	33.99204414
Transportation	—
Auto Access	26.42114718
Active commuting	34.99294238
Social	—
2-parent households	27.37071731
Voting	20.96753497
Neighborhood	—
Alcohol availability	29.84729886
Park access	46.19530348
Retail density	2.027460542
Supermarket access	52.86795842
Tree canopy	11.4718337
Housing	—
Homeownership	30.27075581
Housing habitability	33.94071603
Low-inc homeowner severe housing cost burden	55.24188374
Low-inc renter severe housing cost burden	59.54061337
Uncrowded housing	9.90632619
Health Outcomes	—
Insured adults	15.69357115
Arthritis	0.0
Asthma ER Admissions	70.8
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	28.4
Cognitively Disabled	91.4
Physically Disabled	49.3
Heart Attack ER Admissions	55.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	2.5
SLR Inundation Area	0.0
Children	1.9
Elderly	82.5
English Speaking	2.1
Foreign-born	89.9
Outdoor Workers	0.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	69.6
Traffic Density	5.7

Traffic Access	0.0
Other Indices	—
Hardship	91.5
Other Decision Support	—
2016 Voting	27.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	50.0
Healthy Places Index Score for Project Location (b)	17.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Based on provided construction phase schedule.
Construction: Off-Road Equipment	Equipment based on provided equipment use for each phase

Construction: Dust From Material Movement	import/export material based on total import/export multiplied by phase's percent of total truck trips.
Construction: Paving	Based on provided total area of asphalt paving (acres)
Construction: On-Road Fugitive Dust	travel will be on paved roads
Construction: Trips and VMT	worker, vendor trips based on provided information. all trip lengths based on provided information.

Offsite Worker Calculations

Phase	Annual $MTCO_2e$						Days		Offsite Scalar (worker)
	CalEEMod Emissions[1]	Offsite Emissions (vendor and haul)	Offsite Emissions (worker)	Scaled Offsite Emissions (worker)	Scaled Offsite Emissions (vendor, haul, and worker)	Scaled Emissions	Phase Duration	Equipment Duration	
Foundation/Concrete (2025) - Unmitigated	**4.97**					**5.73**			
onsite	2.25					2.25			
offsite	2.72	2.51	0.21	0.97	3.48	3.48	23	5	4.60
Grading (2025) - Unmitigated	**62.06**					**62.15**			
onsite	31.00					31.00			
offsite	31.06	29.36	1.70	1.79	31.15	31.15	42	40	1.05
Pump Station Install (2025) - Unmitigated	**1.01**					**2.01**			
onsite	0.90					0.90			
offsite	0.11	0.06	0.05	1.05	1.11	1.11	42	2	21.00
Asphalt Paving (2025) - Unmitigated	**57.62**					**70.03**			
onsite	9.57					9.57			
offsite	48.05	45.50	2.55	14.96	60.46	60.46	352	60	5.87
Trenching (2025) - Unmitigated	**139.68**					**141.31**			
onsite	36.80					36.80			
offsite	102.88	97.30	5.58	7.21	104.51	104.51	124	96	1.29
Trenching (2026) - Unmitigated	**113.82**					**115.17**			
onsite	30.40					30.40			
offsite	83.42	78.90	4.52	5.87	84.77	84.77	187	144	1.30

1. CalEEMod Emissions for offsite include vendor, haul and worker tips.

Turbine Pump

Provided Operational Pump Use

Month	Total Days / Month	Days / Month Pumps Run	Hours / Day When the Pumps Run	Total Operating Hours
Jan	31	5	8	40
Feb	28	9	8	72
Mar	31	10	8	80
Apr	30	15	8	120
May	31	16	8	128
Jun	30	30	8	240
Jul	31	31	8	248
Aug	31	31	8	248
Sep	30	30	8	240
Oct	31	16	8	128
Nov	30	10	8	80
Dec	31	5	8	40
Annual				1664

Pump Energy Use

Pumps	Mechanical Horsepower (HP)	Kilowatts (kW)	Pump Operational Hours (annual)	Kilowatt-Hours (kWh)	Megawatt-Hours (MWh)
Pump 1	150	111.85	1,664	186,126.69	186.13
Pump 2	150	111.85	1,664	186,126.69	186.13
Pump 3 (backup)	150	111.85	0	0	0.00
Annual				372,253.38	372.25

Pump Emissions

GHG Pollutant	CalEEMod Intensity Factor (lb/MWh)	Annual Operational (MWh)	GWP	Annual Emissions (lb)	Annual Emissions (MT)
CO_2	203.983	372.25	1	75,933.36	34.44
CH_4	0.033	372.25	25	12.28	5.57E-03
N_2O	0.004	372.25	298	1.49	6.75E-04
CO_2e	NA	NA	NA	76,684.20	34.78