

Air Quality & Greenhouse Gas Impact Analysis

For The Proposed

Riverdale High School Facility Improvements Project

Riverdale, CA

Prepared for:

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List of Common Terms & Acronyms

AB	Assembly Bill
ACM	Asbestos Containing Materials
AHERA	Asbestos Hazard Emergency Response Act
ASHAA	Asbestos School Hazard Abatement Act
ASHARA	Asbestos School Hazard Abatement and Reauthorization Act
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BAU	Business as Usual
BPS	Best Performance Standards
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CAFE	Corporate Average Fuel Economy
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CUSD	Clovis Unified School District
DGS	Department of General Services
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
EO	Executive Order
EPA	United State Environmental Protection Agency
EV	Electric Vehicle
FCAA	Federal Clean Air Act
FCOG	Fresno Council of Governments
GGRP	Greenhouse Gas Reduction Plan
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
HFC	Hydrofluorocarbon
H ₂ S	Hydrogen Sulfide
IPCC	Intergovernmental Panel on Climate Change
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
MTCO ₂ e	Metric Tons of CO ₂ Equivalent
NF ₃	Nitrogen Trifluoride
N ₂ O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for HAPs
NHTSA	National Traffic Safety Administration
NOx	Oxides of Nitrogen

OPR	Governor's Office of Planning and Research
O ₃	Ozone
PCAP	Priority Climate Action Plan
Pb	Lead
PM	Particulate Matter
PM ₁₀	Particulate Matter (less than 10 µm)
PM _{2.5}	Particulate Matter (less than 2.5 µm)
ppb	Parts per Billion
ppm	Parts per Million
PVC	Polyvinyl Chloride
ROG	Reactive Organic Gases
RTP/SCS	Regional Transportation Plan and Sustainable Communities Strategies
SB	Senate Bill
SCOTUS	Supreme Court of the United States
SF ₆	Sulfur Hexafluoride
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutants
SMAQMD	Sacramento Air Quality Management District
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO ₂	Sulfur Dioxide
SRTS	Safe Routes to School
TAC	Toxic Air Contaminant
TSCA	Toxic Substances Control Act
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VRP	Visibility Reducing Particles
µg/m ³	Micrograms per cubic meter
ZEV	Zero Emission Vehicle

Air Quality Impact Analysis

Introduction

This report describes the existing environment near and identifies potential air quality and greenhouse gas impacts associated with the proposed Riverdale High School Facilities Improvements (project). Project impacts are evaluated relative to applicable thresholds of significance. Mitigation measures have been identified for significant impacts.

Proposed Project Summary

The project site is located on 21.5 acres northeast of the intersection of W. Mounty Whitney Avenue and S. Hazel Avenue in the Census-designated community of Riverdale (Riverdale), CA, in Fresno County (County), California (APN: 053-130-12T, and 053-130-82T). The Riverdale Joint Unified School District (District) proposes renovating the football/soccer and track stadium, reconstructing a parking lot, constructing new community multi-use athletic fields, reconstructing the Agriculture Barn Education Facility (Ag Barn), and improving a section of S. Hazel Avenue. Work would be completed in three phases. Phase 1 would renovate the existing high school football/soccer and track stadium (7.34 acres), reconstruct a parking lot (1.56 acres), and use a staging/soil fill area (2.08 acres). Phase 2 would construct three new multi-use athletic fields (5.87 acres), improvements to Hazel Ave. (1.08 acres), undergrounding of existing electrical utilities (0.38 acres), demolish the existing Ag Barn building and surrounding campus farm, and expand the campus stormwater basin (1.42 acres). Phase 3 would construct a new Agriculture Education Barn facility (3.34 acres), a small bathroom building, reconstruct S. Hazel Avenue and add a sidewalk and parking on the east side of Hazel Avenue (0.52 acres). Maps identifying the project location, project site, and project site plans are presented in Figures 1, 2, and 3, respectively.

Air Quality

Existing Setting

The project is located within the San Joaquin Valley Air Basin (SJVAB). The SJVAB is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air quality in the SJVAB is influenced by various factors, including topography, local and regional meteorology. Factors affecting regional and local air quality are discussed below.

Topography, Meteorology, and Pollutant dispersion

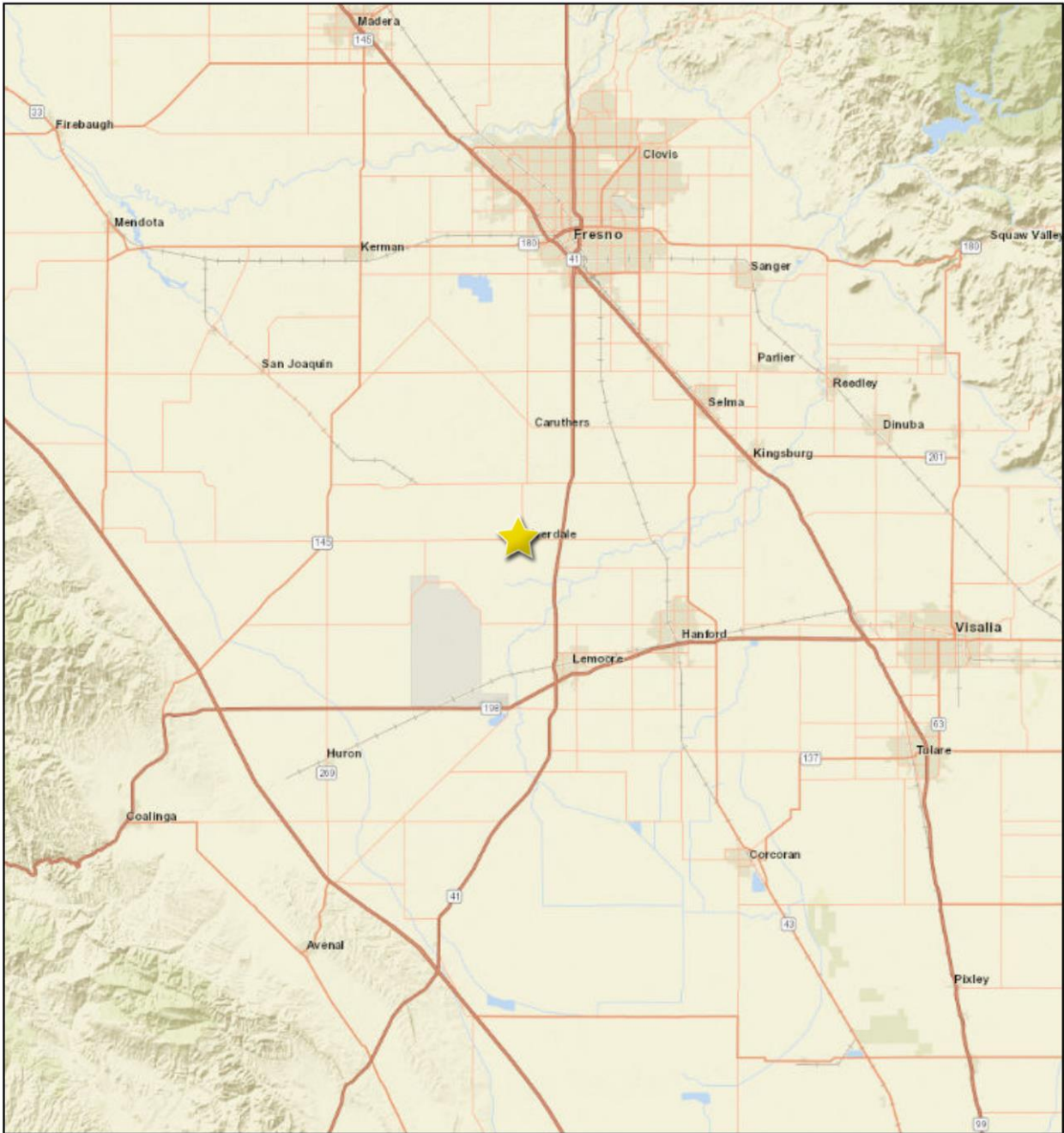
The dispersion of air pollution in an area is determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. The factors affecting the dispersion of air pollution with respect to the SJVAB are discussed below.

Topography

The SJVAB is in the southern half of California's Central Valley. It is open to the north but surrounded by mountain ranges on all other sides. The Coast Ranges, with an average elevation of 3,000 feet, form the western boundary, while the Sierra Nevada Mountains, ranging from 8,000 to 14,000 feet, are on the eastern side. The

southern boundary is defined by the San Emigdio and Tehachapi Mountains, part of the Coast Ranges and Sierra Nevada, respectively, with elevations ranging from 6,000 to 8,000 feet. The terrain of the SJVAB is mostly flat, with a gentle downward slope to the northwest (San Joaquin Valley Air Pollution Control District 2015).

Figure 1: Project Location



5/21/2025

World_Street_Map

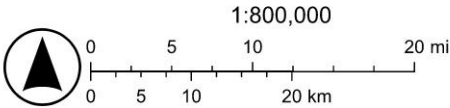


Figure 2: Project Site

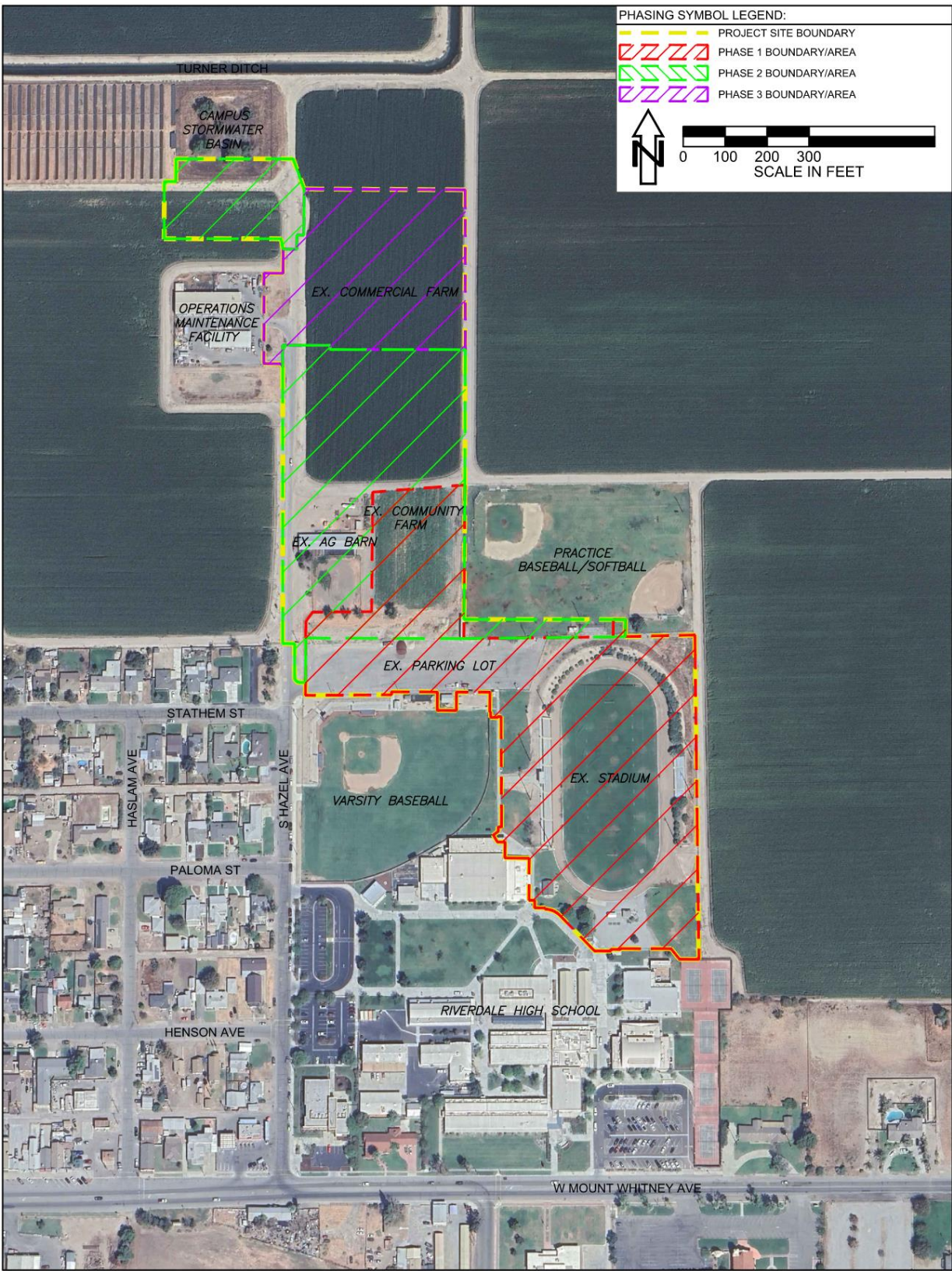
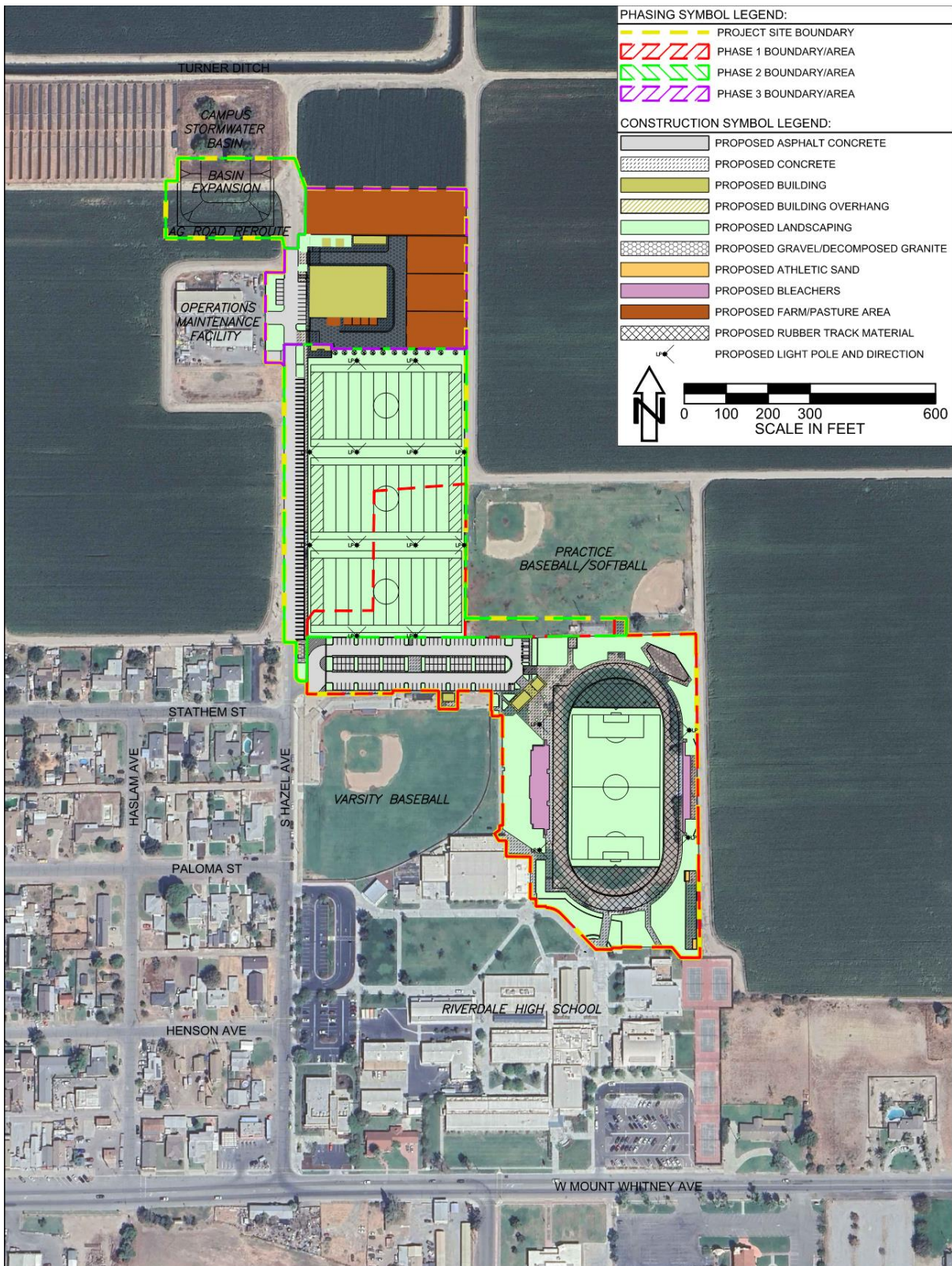


Figure 3: Project Site Plan



Meteorology and Climate

The SJVAB experiences an inland Mediterranean climate, heavily influenced by surrounding mountain ranges. These mountains create a partial rain shadow effect, causing Pacific winter storms to release precipitation on the western slopes and limiting rainfall within the valley. Additionally, the topography restricts air circulation, leading to stagnant air conditions during the cooler months.

Summers in the SJVAB are typically hot, dry, and clear, while winters are mild and humid. This climate pattern results from the region's topography and the influence of a semi-permanent subtropical high-pressure system. During summer, this high-pressure cell stabilizes atmospheric conditions and directs consistent northwesterly winds. These winds cause upwelling of cold ocean water along the California coast. In winter, the high-pressure system weakens and shifts southward, leading to offshore winds, reduced upwelling, and increased storm activity.

Annual patterns of temperature, humidity, precipitation, and wind in the SJVAB are shaped by its topography and the position of the subtropical high-pressure cell. Summertime often brings temperatures exceeding 100°F and clear skies, conditions conducive to ozone formation. Most precipitation occurs as rainfall during winter storms, which also bring winds and atmospheric instability, resulting in periods of low air pollution and improved visibility. However, between these storms, high-pressure systems and light winds can create temperature inversions and stable atmospheric conditions, leading to increased pollutant concentrations. Wind patterns in the SJVAB align with the valley's orientation; in summer, northwesterly winds can transport ozone and its precursors from the San Francisco Bay Area into the valley, while winter winds come from the southeast, with calm conditions often prevailing (San Joaquin Valley Air Pollution Control District 2015).

The project site is situated in the Census-designated community of Riverdale, which is primarily serviced by Pacific Gas & Electric (PG&E). The region experiences a semi-arid climate, with an average annual precipitation of 8.4 inches. Temperature fluctuations range from an average low of approximately 35 degrees Fahrenheit (°F) in January to an average high of 98°F in July (Western Regional Climate Center n.d.).

Atmospheric Stability and Inversions

Atmospheric stability refers to the atmosphere's resistance to vertical air movement, which is influenced by the vertical temperature profile. Stability classifications range from "Extremely Unstable" (Class A) to "Stable" (Class F). Unstable conditions, often occurring during daytime due to solar heating, facilitate significant vertical mixing and horizontal wind fluctuations. In contrast, stable conditions, more common during nighttime or periods with minimal surface heating, suppress vertical air movement, leading to limited dispersion of pollutants.

In the SJVAB, stable conditions (Classes D through F) are prevalent during late fall and winter, characterized by cool temperatures and trapped surface air. Transitional months like March and August experience a mix of stability conditions, while spring and summer months (April through July) are dominated by unstable conditions (Class A).

Temperature inversions, where a warmer air layer overlays cooler surface air, significantly impact the vertical dispersion of pollutants by limiting the mixing depth. The SJVAB experiences both surface-based inversions, common in the mornings and typically disrupted by daytime warming, and elevated inversions, which are less frequent but can cause more severe air stagnation. Surface-based inversions are more frequent in the fall, whereas stronger elevated inversions are typical in December and January.

These atmospheric conditions, combined with the SJVAB's topography, contribute to the region's challenges in dispersing air pollutants, affecting overall air quality (San Joaquin Valley Air Pollution Control District 2015).

Air Pollutants of Concern

Criteria Air Pollutants

The Federal Clean Air Act (FCAA) mandates that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to safeguard public health and welfare. These pollutants are termed "criteria" pollutants because the EPA develops criteria documents to support the selection of these standards. The NAAQS specify the maximum permissible concentrations of these pollutants in the ambient air, with each standard defined as a concentration averaged over a specific time, such as one hour, eight hours, 24 hours, or one year. The varying averaging periods and concentration limits are designed to protect against different exposure effects. Primary standards aim to protect human health, while secondary standards focus on preventing environmental and property damage. The Clean Air Act permits states to adopt additional or more stringent standards to further protect public health and the environment (Environmental Protection Agency 2024).

Ozone (O₃) is a reactive gas composed of three oxygen atoms. At ground level, it forms through photochemical reactions involving sunlight, nitrogen oxides (NO_x), and volatile organic compounds (VOCs). This ground-level ozone is a significant component of smog and poses various health risks, including respiratory issues and cardiovascular problems. In the stratosphere, however, ozone occurs naturally and serves to shield the Earth from harmful ultraviolet radiation.

Reactive Organic Gases (ROGs) are hydrocarbon compounds that participate in atmospheric chemical reactions, contributing to smog formation. While there are no specific health standards for ROGs as a group, some constituents, such as benzene, are toxic and may be evaluated in toxic risk assessments. Total Organic Gases (TOGs) encompass all ROGs, along with less reactive compounds like methane and acetone. VOCs are a subset of TOGs and are regulated due to their role in ozone formation.

Nitrogen Oxides (NO_x) are a group of highly reactive gases, including nitrogen dioxide (NO₂), nitrous acid, and nitric acid. NO_x is primarily produced from the combustion of fossil fuels at high temperatures and pressures, with major sources including on-road and off-road motor vehicles and fuel combustion. NO_x serves as a precursor to the formation of ozone and particulate matter, and at elevated concentrations, NO₂ can be toxic.

Table 1. State and Federal Criteria Air Pollutant Effects and Sources

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O ₃)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM ₁₀)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM ₁₀ .	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter (PM _{2.5})	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM _{2.5} size range. Many toxic and other aerosol and solid compounds are part of PM _{2.5} .	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO ₂)	Irritating to eyes and respiratory tract. Color's atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO ₂)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also, a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Sulfate	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H ₂ S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.
Source: (California Air Resources Board n.d.)		

Particulate Matter (PM), or particle pollution, consists of tiny particles and liquid droplets composed of acids (e.g., nitrates and sulfates), organic compounds, metals, and dust. The size of these particles is critical to their health impact, with the EPA focusing on those 10 micrometers or smaller, as they can bypass the body's natural defenses and reach the lungs. Once inhaled, they can negatively affect both respiratory and cardiovascular health. The EPA classifies PM into three categories based on size and deposition location:

- Inhalable coarse particles (PM_{2.5}–PM₁₀): Found near roads and industrial sites, these particles range from 2.5 to 10 micrometers in diameter and settle in the thoracic region of the lungs.
- Fine particles (PM_{2.5}): Measuring 2.5 micrometers or smaller, these are common in smoke and haze, originating from sources such as wildfires or forming through chemical reactions in the atmosphere. They penetrate deep into the lungs, reaching the alveoli.
- Ultrafine particles (UFP): Smaller than 0.1 micrometers, these are produced by the combustion of fossil fuels, wood, and hydrocarbons. Though UFPs constitute a small fraction of PM_{2.5} by mass, their high surface area and ability to enter the bloodstream can lead to greater health impacts.

PM pollution consists of both primary pollutants (direct emissions) and secondary pollutants (formed through atmospheric chemical reactions). PM_{2.5} and UFPs originate from combustion sources like vehicles and power plants, while PM₁₀ also includes emissions from roads, farming, and windblown dust.

Scientific studies link both short- and long-term exposure to PM with respiratory and cardiovascular issues. Prolonged exposure is associated with reduced lung function, chronic bronchitis, and premature death, while short-term exposure can trigger asthma, bronchitis, and respiratory infections. People with heart disease may face an increased risk of heart attacks or arrhythmias. Healthy individuals typically experience minor irritation at elevated PM levels.

Carbon Monoxide (CO) is a colorless, odorless, and highly toxic gas, primarily produced by incomplete fuel combustion. The major source is motor vehicles. Although CO emissions have declined due to improved emission controls, it remains a concern in urban areas.

Sulfur Dioxide (SO₂) is a pungent gas primarily emitted from burning sulfur-rich fossil fuels. It contributes to poor visibility and can react with other pollutants to form fine particulate matter (PM_{2.5}). Regulations limiting sulfur in fuels have helped reduce its impact.

Lead (Pb) is a metal naturally present in the environment that persists indefinitely. Once a major air pollutant from leaded gasoline, its phase-out has significantly reduced airborne lead levels. Lead exposure can cause severe health effects, including neurological damage and reproductive issues.

Hydrogen Sulfide (H₂S) is associated with geothermal activity, oil refining, and sewage treatment, this gas has a strong "rotten egg" smell and is highly toxic at high concentrations. Occupational exposure is strictly regulated due to its potential lethality.

Other Pollutants

California has established air quality standards for certain pollutants not regulated at the federal level. The California Air Resources Board (CARB) has established state-specific standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility-reducing particles. The following provides an overview of these pollutants, including their characteristics, health and environmental effects, sources, and prevalence.

Sulfates (SO_4^{2-}) are the fully oxidized form of sulfur, typically found in combination with metal or hydrogen ions. In California, the primary source of sulfate emissions is the combustion of sulfur-containing petroleum fuels such as gasoline and diesel. During combustion, sulfur is converted into sulfur dioxide (SO_2), which then undergoes atmospheric oxidation to form sulfate compounds. This transformation occurs quickly and extensively in urban regions due to California's meteorological conditions.

CARB's sulfate standard aims to prevent respiratory health issues. Exposure to elevated sulfate levels has been linked to reduced lung function, worsened asthma symptoms, and an increased risk of cardiovascular and pulmonary diseases. Additionally, sulfates contribute significantly to reduced visibility and, because of their acidic nature, can damage ecosystems, materials, and infrastructure.

Visibility-Reducing Particles are a category of airborne particulate matter composed of solid fragments, liquid-coated particles, and fine liquid droplets. CARB's standard for these particles is intended to minimize regional haze that reduces visibility. The standard corresponds to a nominal visual range of 10 miles, helping to mitigate the frequency and severity of visibility impairment in affected areas.

Vinyl Chloride ($\text{C}_2\text{H}_3\text{Cl}$, VCM) is a synthetic, colorless gas that does not naturally occur in the environment. It is produced when compounds like trichloroethane, trichloroethylene, and tetrachloroethylene break down. Vinyl chloride is a key precursor in polyvinyl chloride (PVC), a widely used plastic material in products such as pipes, electrical wire coatings, and packaging.

Odors

Odors are typically considered a nuisance rather than a direct health risk. However, individuals may experience a range of psychological and physiological responses to unpleasant odors. Psychological reactions can include irritation, anger, or anxiety, while physiological effects may involve nausea, headaches, respiratory discomfort, and circulatory issues.

Sensitivity to odors varies significantly among individuals, making odor perception highly subjective. Some people can detect extremely low concentrations of certain substances, while others may not be as sensitive but could have heightened reactions to different odors. Additionally, personal perception of odors differs—what one person finds offensive, another might find pleasant or neutral (e.g., the smell of fast food). Unfamiliar odors tend to be more noticeable and more likely to generate complaints compared to familiar ones. This is due to a phenomenon known as odor fatigue, in which continuous exposure to an odor leads to desensitization, making it less perceptible over time unless its intensity changes.

Odors are characterized by two key properties: quality and intensity. Quality refers to the nature of the odor, such as whether it is floral or sweet. Intensity measures the odor's strength, which depends on the concentration of the odorant in the air. As an odorous substance is diluted, its concentration decreases, reducing its intensity until it reaches the detection threshold—below this point, the average person can no longer perceive it. There are no federal or state regulations specifically governing odor control. The SJVAPCD does not have a dedicated rule addressing odors; however, they are covered under SJVAPCD Rule 4102 (Nuisance). Enforcement of odor-related concerns depends on complaints filed by citizens with local authorities or the SJVAPCD (San Joaquin Valley Air Pollution Control District 1992).

Toxic Air Contaminants

Toxic air contaminants (TACs) are pollutants that can lead to increased mortality, serious illness, or pose a general hazard to human health. While typically present in very small amounts in the atmosphere, their high toxicity means they can be harmful even at low concentrations. Unlike criteria pollutants, for which acceptable exposure levels are established through state and federal ambient air quality standards, TACs do not have a known safe threshold below which health effects are not expected. As a result, TACs are not classified as "criteria pollutants" under the FCAA or the California Clean Air Act (CCAA) and are not subject to National or State Ambient Air Quality Standards (AAQS). Instead, these pollutants are regulated separately by the EPA and the CARB through various regulations requiring advanced emission control technologies. The EPA enforces National Emission Standards for Hazardous Air Pollutants (NESHAPs), which set limits on emissions from specific sources based on technology standards, in accordance with the FCAA and its amendments (Environmental Protection Agency 2024).

In California, TACs are primarily regulated under the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act outlines a detailed process through which ARB identifies and designates substances as TACs, incorporating research, scientific peer review, and public input. Meanwhile, the Air Toxics Hot Spots Act requires facilities emitting TACs to:

1. Develop an inventory of toxic emissions,
2. Conduct a risk assessment if emissions are found to be significant,
3. Inform the public if risks reach a certain threshold, and
4. Implement strategies to reduce exposure where necessary.

Exposure to TACs can cause both immediate and long-term health effects. Short-term exposure may result in mild symptoms such as eye irritation or, in more severe cases, respiratory damage. However, some health effects, including cancer, may not become evident until months or years after the initial exposure.

At the local level, air pollution control districts oversee emissions from stationary and industrial sources. In the SJVAPCD, if a project has the potential to emit TACs or is in an area with existing toxic contamination near sensitive populations, a screening health risk assessment may be required to evaluate potential impacts under worst-case conditions.

The following section outlines the key TACs of concern in California and their associated health risks (California Air Resources Board n.d.).

Diesel Particulate Matter (DPM) was classified by the CARB as a TAC in 1998. DPM is released from both mobile and stationary sources. In California, on-road diesel vehicles account for about 40% of the total DPM emissions, while other mobile sources like construction and mining equipment, agricultural machinery, and transport refrigeration units contribute an additional 57%. Stationary sources, which include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations, contribute around 3% of emissions. These emissions come from diesel-fueled internal combustion engines. Other stationary sources reporting DPM emissions include heavy construction, asphalt paving material manufacturers, and diesel-fueled power generation facilities.

In October 2000, the CARB released the "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles," also known as the Diesel Risk Reduction Plan (DRRP). The DRRP aims to reduce DPM concentrations by 85% by 2020 compared to the year 2000 baseline. Key strategies include retrofitting existing engines with emission control devices, implementing stringent standards for new diesel engines, and reducing the sulfur content in diesel fuel to protect advanced emission control technologies. The plan also promotes the use of alternative fuels and electrification. These measures are expected to significantly lower emissions from both old and new diesel vehicles and stationary sources.

Exposure to DPM can cause immediate health effects, such as irritation of the eyes, nose, throat, and lungs, coughs, headaches, lightheadedness, and nausea. Studies have shown that DPM exposure can lead to lung inflammation, aggravate chronic respiratory symptoms, and increase the frequency or severity of asthma attacks. The elderly and individuals with emphysema, asthma, and chronic heart and lung diseases are particularly vulnerable to fine-particle pollution. Children, whose lungs and respiratory systems are still developing, are also more susceptible to fine particles, which can increase the frequency of childhood illnesses and reduce lung function. In California, DPM is recognized as a carcinogen (California Air Resources Board n.d.).

Benzene is a highly carcinogenic substance prevalent throughout California. The CARB classified benzene as a TAC in January 1985. Approximately 88% of benzene emissions in California originate from motor vehicles, including evaporative leaks and unburned fuel exhaust from on-road vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also produced as a partial combustion byproduct of larger aromatic fuel components. Industrial stationary sources contribute to benzene emissions to a lesser extent. The main stationary sources include crude petroleum and natural gas extraction, petroleum refining, and electricity generation using petroleum products. Residential combustion activities, such as cooking and water heating, are the primary area sources of benzene emissions (California Air Resources Board n.d.). Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, 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 the developing fetus 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 EPA has classified benzene as known human carcinogen for all routes of exposure (Environmental Protection Agency n.d.).

The CARB identified 1,3-butadiene as a TAC in 1992. Most 1,3-butadiene emissions result from the incomplete combustion of gasoline and diesel fuels, with mobile sources being the primary contributors. Other sources include agricultural waste burning, forest management burns, petroleum refining, synthetic material manufacturing, and oil and gas extraction. Wildfires are the main natural source of 1,3-butadiene emissions.

Acute inhalation exposure to 1,3-butadiene can irritate the eyes, nasal passages, throat, and lungs. Epidemiological studies suggest a possible link between 1,3-butadiene exposure and cardiovascular diseases. Research on rubber plant workers has shown an increased incidence of leukemia associated with 1,3-butadiene exposure. Animal studies have also reported tumors at various sites due to 1,3-butadiene exposure. In California, 1,3-butadiene is recognized as a carcinogen (California Air Resources Board 1992).

Carbon Tetrachloride was identified by the CARB as a TAC in 1987 under California's TAC program. The main stationary sources of carbon tetrachloride emissions include chemical and allied product manufacturers and petroleum refineries. Historically, carbon tetrachloride was used in dry cleaning and as a grain fumigant, but these uses are no longer permitted in the United States. Since 1987, carbon tetrachloride has not been registered for pesticidal use in California, and its use in indoor products has been discontinued nationwide. Statewide carbon tetrachloride emissions are low, around 1.96 tons per year, with background concentrations posing most health risks.

Carbon tetrachloride primarily affects the liver, kidneys, and central nervous system in humans. Acute inhalation or oral exposure can cause symptoms such as headache, weakness, lethargy, nausea, and vomiting. Higher levels of acute exposure and chronic exposure can lead to liver and kidney damage. While human data on the carcinogenic effects of carbon tetrachloride are limited, animal studies have shown an increased risk of liver cancer from ingestion. In California, carbon tetrachloride is recognized as a carcinogen (California Air Resources Board 1987).

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.

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 (California Air Resources Board 2004).

Para-dichlorobenzene was designated as a TAC by the CARB in April 1993. The main sources of para-dichlorobenzene emissions are consumer products, including non-aerosol insect repellents and solid or gel air fresheners, which account for all emissions statewide.

Acute inhalation exposure to para-dichlorobenzene can cause irritation to the eyes, skin, and throat in humans. Long-term exposure may impact the liver, skin, and central nervous system. The EPA has classified para-dichlorobenzene as a possible human carcinogen (California Air Resources Board 1993).

Formaldehyde was identified as a TAC by the CARB in 1992. It is both directly emitted into the atmosphere and formed through photochemical oxidation, which is the largest source of formaldehyde in California's ambient air. Direct emissions result from incomplete combustion, with vehicular exhaust being a primary source. Formaldehyde is also used in resins, consumer products as an antimicrobial agent, fumigants, and soil disinfectants. Major area sources include wood burning in residential fireplaces and wood stoves.

Exposure to formaldehyde can occur through inhalation of contaminated indoor air, tobacco smoke, or urban air. Both acute and chronic inhalation exposure can cause respiratory symptoms and irritation of the eyes, nose, and throat. Limited human studies have linked formaldehyde exposure to lung and nasopharyngeal cancer, while animal studies have shown an increased incidence of nasal squamous cell cancer. Formaldehyde is classified as a probable human carcinogen (California Air Resources Board 2020).

Methylene Chloride was identified as a TAC by the CARB in 1987. It is used as a solvent, blowing agent, and cleaning agent in the production of polyurethane foam and plastic products, as well as in paint stripping operations. Paint removers are the largest users of methylene chloride in California, where it is a key ingredient in many formulations. Stationary sources reporting methylene chloride emissions include plastic product manufacturers, synthetic material manufacturers, and aircraft and parts manufacturers.

Acute inhalation of methylene chloride primarily affects the nervous system, causing reversible symptoms such as decreased visual, auditory, and motor functions. Chronic exposure suggests that the central nervous system is a potential target in both humans and animals. While human data on the carcinogenicity of methylene chloride are inconclusive, animal studies have shown increased incidences of liver and lung cancer, as well as benign mammary gland tumors. In California, methylene chloride is recognized as a carcinogen (California Air Resources Board 1989).

Perchloroethylene was identified as a TAC by the CARB in 1991. It is primarily used as a solvent in dry cleaning operations, but also in degreasing, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, stationary sources reporting perchloroethylene emissions include dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. Major area sources include consumer products like automotive brake cleaners and tire sealants.

Acute inhalation exposure to perchloroethylene can cause irritation of the upper respiratory tract and eyes, kidney dysfunction, and neurological effects such as reversible mood and behavioral changes, impaired

coordination, dizziness, headaches, sleepiness, and unconsciousness. Chronic exposure can lead to neurological issues, including headaches, cognitive and motor function impairments, and color vision decrements, as well as cardiac arrhythmia, liver damage, and potential kidney damage. In California, perchloroethylene is recognized as a carcinogen (California Air Resources Board 1991).

Asbestos

Asbestos refers to several types of naturally occurring fibrous minerals found in various parts of California, with chrysotile being the most common type. Serpentine rock, which often contains chrysotile asbestos, is abundant in the Sierra foothills, the Klamath Mountains, and the Coast Ranges. However, the project site is not in an area known for ultramafic rock.

Asbestos is typically found in ultramafic rock, including serpentine, and near fault zones. The asbestos content in these rocks can range from less than 1% to about 25% or more. Asbestos is released when ultramafic and serpentine rock is broken or crushed, such as when cars drive over unpaved roads surfaced with these rocks, during land grading for construction, or at quarrying operations. Natural weathering and erosion also release asbestos, which can become airborne and remain in the air for extended periods.

Other sources of asbestos include building materials and man-made products, such as heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Although asbestos has been used in the U.S. since the early 1900s, it is no longer allowed in most home products and materials. Many older buildings, schools, and homes still contain asbestos products.

The CARB identified naturally occurring asbestos as a TAC in 1986. The CARB has implemented two statewide control measures to prohibit the use of serpentine or ultramafic rock for unpaved surfacing and to control dust emissions from construction, grading, and surface mining in areas with these rocks. Additional regulations address the control of asbestos-containing materials during building renovation and demolition.

All types of asbestos are hazardous and can cause lung disease and cancer. Health risks depend on the level and duration of exposure. The longer and more intense the exposure, the higher the risk of health problems. Asbestos-related diseases, such as lung cancer, may not appear until decades after exposure. Smoking increases the risk of lung cancer from asbestos exposure (California Air Resources Board n.d.).

Valley Fever

Valley fever, scientifically known as coccidioidomycosis or "desert rheumatism," is an infection caused by the fungus *Coccidioides*. While it primarily affects the lungs, severe cases can spread to other parts of the body.

Coccidioides spores become airborne when contaminated soil and dust are disturbed by human activity, animals, or weather. These microscopic spores can be inhaled, leading to infection. Once in the lungs, the spores transform into spherules, which grow and release smaller endospores that can spread within the lungs or to other organs. Rarely, the spores can enter the skin through cuts or wounds, causing skin infections.

Symptoms of valley fever typically appear 1 to 3 weeks after exposure and include fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches, joint pain, and rashes. About 5 to 10 percent of those infected may develop serious or long-term lung issues, and around 1 percent may experience the infection spreading to other body parts, such as the central nervous system, skin, or bones. People with weakened immune systems are at higher risk for severe forms of the disease. The fungus does not spread from person to person or between people and animals, except in very rare cases through wound infections or organ transplants. Most people recover from valley fever without treatment within a few months, but antifungal medications may be prescribed to reduce symptom severity or prevent complications, especially for those at higher risk. Treatment usually lasts 3 to 6 months, but longer treatment may be necessary in some cases. If the infection leads to meningitis, lifelong antifungal treatment is typically required.

Researchers are studying how weather and climate patterns affect the habitat of *Coccidioides*. The fungus thrives in soil after heavy rainfall and disperses into the air during hot, dry conditions. Increased valley fever cases have been linked to such weather patterns in Arizona and California. The impact of climate change on the prevalence and geographic range of valley fever remains an area of ongoing research (Center for Disease Control and Prevention 2024).

Regulatory Framework

Air quality within the SJVAB is regulated by several authorities including the EPA, CARB, and the SJVAPCD. Each of these authorities develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. EPA regulations may not be superseded, but both state and local regulations may be more stringent.

Federal

Federal Clean Air Act

The Federal Clean Air Act (FCAA) was first enacted in 1963 and later amended in 1970 and 1990, 2003, and 2010. The Act establishes the legal framework for regulating air quality in the United States and aims to protect public health and the environment by controlling air pollution. It requires the EPA to set NAAQS for pollutants harmful to human health and the environment, and states must develop State Implementation Plans (SIPs) to meet these standards. The Act also regulates emissions from mobile sources such as cars and trucks and stationary sources such as factories and power plants. Amendments to the clean Air Act Include:

1. Clean Air Act Amendments of 1970: This was the first major update to the original Clean Air Act of 1963, established the NAAQS for six criteria pollutants.
2. Clean Air Act Amendments of 1977: This amendment required states to develop implementation plans to meet the NAAQS and provided new authorities for enforcement.
3. Clean Air Act Amendments of 1990: This amendment expanded the NAAQS to include additional pollutants, such as ozone and particulate matter, and established the Acid Rain Program, the Stratospheric Ozone Protection Program, and the Toxics Release Inventory. It also provided new

provisions for regulating mobile sources of air pollution and established market-based mechanisms such as emissions trading (Environmental Protection Agency 2024).

4. Clear Skies Act of 2003: This proposed amendment sought to reduce power plant emissions of sulfur dioxide, nitrogen oxides, and mercury, but was never enacted into law (Environmental Protection Agency 2016).
5. Clean Air Act Amendments of 2010: This amendment updated the Clean Air Act to address greenhouse gas emissions and provided new regulatory authority to the EPA to regulate emissions of carbon dioxide and other greenhouse gases (U.S. Senate 2009-2010 Session 2010).

The FCAA defines six criteria air pollutants that are considered harmful to human health and the environment. These pollutants include:

1. Carbon monoxide (CO)
2. Nitrogen oxides (NO_x)
3. Sulfur dioxide (SO₂)
4. Ozone (O₃)
5. Particulate matter (PM₁₀ and PM_{2.5})
6. Lead (Pb)

The EPA has established NAAQS for each of these pollutants to protect public health and welfare. The NAAQS are reviewed periodically and updated as needed to reflect the latest scientific research on the health effects of air pollution. Primary federal standards are the necessary levels of air quality, with a reasonable margin of safety to protect the public health (Environmental Protection Agency 2022). States are required to develop SIPs to achieve and maintain the NAAQS in their respective areas.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) initially empowered the EPA to regulate asbestos in schools and public and commercial buildings under Title II, known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA mandates that Local Education Agencies (LEAs) inspect their schools for asbestos-containing building materials (ACBM) and develop management plans to mitigate asbestos hazards. Additionally, the Act created a program for training and accrediting individuals who perform specific types of asbestos-related work (Environmental Protection Agency 2024).

State

The CARB is responsible for overseeing and coordinating state and local air pollution control programs in California. It is also tasked with implementing the CCAA of 1988. CARB's responsibilities include monitoring air quality in collaboration with air pollution control districts and air quality management districts, setting California Ambient Air Quality Standards (CAAQS), which are often more stringent than federal NAAQS, and establishing emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. These vehicle emissions standards vary based on factors such as model year, vehicle type, fuel type, and engine specifications.

Table 2. Summary of Ambient Air Quality Standards

Pollutant	Average Time	California Standards	National Standards (Primary)
Ozone (O3)	1-hour	0.09 ppm (180 µg/m³)	–
	8-hour	0.070 ppm (137 µg/m³)	0.070 ppm
Particulate Matter (PM10)	AAM	20 µg/m³	–
	24-hour	50 µg/m³	150 µg/m³
Fine Particulate Matter (PM2.5)	AAM	12 µg/m³	9.0 µg/m³
	24-hour	No Standard	35 µg/m³
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)
	8-hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)
	8-hour (Lake Tahoe)	6 ppm (7 mg/m³)	–
Nitrogen Dioxide (NO2)	AAM	0.030 ppm (57 µg/m³)	53 ppb (100 µg/m³)
	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)
Sulfur Dioxide (SO2)	AAM	–	0.03 ppm (for certain areas)
	24-hour	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)
	3-hour	–	–
	1-hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)
Lead	30-day Average	1.5 µg/m³	–
	Calendar Quarter	–	1.5 µg/m³ (for certain areas)
	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)	
µg/m³ = micrograms per square meters ppb = parts per billion AAM = Annual Arithmetic Mean ppm= parts per million For more information visit: https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf Source: (California Air Resources Board 2024)			

California Clean Air Act

In 1988, the CCAA was passed by the California Legislature to address air quality problems beyond the scope of the FCAA. Given that California has some of the most severe air quality issues in the United States, additional measures were necessary beyond the federal mandates. The CARB manages CAAQS for the 10 air pollutants identified in the CCAA, including the six federal standards and four additional pollutants:

1. visibility-reducing particulates,

2. hydrogen sulfide,
3. sulfates, and
4. vinyl chloride.

California was authorized by the EPA to enforce its own regulations for motor vehicles and other sources that are more stringent than the federal regulations implementing the FCAA. While the planning requirements of the CCAA are less strict than the FCAA, consistency with the federal act would also ensure consistency with the CCAA (South Coast Air Quality Management District 2024).

California Assembly Bill 170

In 2003, California enacted AB 170, which added Section 65302.1 to the Government Code. This legislation mandates that cities and counties within the San Joaquin Valley amend their general plans to incorporate data analysis, comprehensive goals, policies, and feasible implementation strategies aimed at improving air quality. The law acknowledges the severe air pollution challenges in the San Joaquin Valley and emphasizes the need for collaboration among land use and transportation planning agencies, transit operators, the development community, the SJVAPCD, and the public to address these issues. The required general plan amendments must include a report detailing local air quality conditions, emission inventories, significant source categories, attainment statuses, and applicable state and federal air quality and transportation plans. This initiative underscores California's commitment to enhancing air quality through integrated planning and community involvement (California State Legislature 2003-2004 Session 2003).

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

In California, TACs are primarily regulated under two legislative acts: AB 1807, known as the Tanner Air Toxics Act, and AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987.

AB 1807 (Tanner Air Toxics Act): This act establishes a formal process for the CARB to identify and control TACs. The procedure involves comprehensive research, opportunities for public participation, and scientific peer review before a substance is officially designated as a TAC (California Air Resources Board 2008).

AB 2588 (Air Toxics "Hot Spots" Act): This legislation requires stationary sources of emissions to report the types and quantities of certain substances they release into the air. Facilities identified under this act must:

1. Prepare a toxic emissions inventory to document the pollutants emitted.
2. Conduct a risk assessment if emissions are significant, evaluating potential health impacts on the surrounding community.
3. Notify the public if significant health risks are identified, ensuring transparency and community awareness.
4. Develop and implement risk reduction measures to mitigate identified health risks to acceptable levels (California Air Resources Board n.d.).

These acts collectively aim to monitor, assess, and reduce public exposure to harmful air pollutants in California.

California Air Resources Board's Truck and Bus Regulation

In California, regulations mandate that fleets reduce emissions from diesel trucks and buses by retrofitting or replacing older engines. Amendments adopted in December 2010 provided fleets additional time to comply, requiring the installation of particulate matter (PM) filters starting January 1, 2012, and the replacement of older engines beginning January 1, 2015. By January 1, 2023, all vehicles were required to have engines from the 2010 model year or newer. These regulations apply to most diesel-fueled trucks and buses, including school buses, with a gross vehicle weight rating over 14,000 pounds. Provisions include credits for early PM filter installation before July 2011, delayed requirements for fleets with three or fewer vehicles, and specific considerations for agricultural vehicles (California Air Resources Board 2014).

Airborne Toxic Control Measure to Limit School Bus Idling at Schools

In July 2003, the CARB implemented an Airborne Toxic Control Measure (ATCM) to minimize idling emissions from school buses and other vehicles near educational institutions. This regulation mandates that drivers of school buses and certain other vehicles turn off their engines upon arriving at a school and restart them no more than 30 seconds before departure. Also, these drivers are prohibited from idling for over five consecutive minutes at locations beyond 100 feet of a school, such as bus stops or activity destinations. Exceptions are allowed when idling is necessary for health, safety, or operational reasons. Motor carriers are required to inform drivers about these idling restrictions and maintain records of compliance (California Air Resources Board n.d.).

San Joaquin Valley Air Pollution Control District

The SJVAPCD is responsible for ensuring that air quality standards are met and maintained within the SJVAB, where the proposed project is located. Its duties include preparing plans to achieve ambient air quality standards, adopting and enforcing regulations for air pollution sources, issuing permits for stationary sources, inspecting these sources and addressing citizen complaints, monitoring air quality and meteorological conditions, and implementing programs required by the FCAA and the CCAA (San Joaquin Valley Air Pollution Control District n.d.). The SJVAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following:

- **Regulation VIII (Fugitive Dust Prohibitions).** Regulation VIII (Rules 8011-8081). This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc. (San Joaquin Valley Air Pollution Control District 2004).
- **Rule 4002 (National Emissions Standards for Hazardous Air Pollutants).** This rule may apply to projects in which portions of an existing building would be renovated, partially demolished or removed. Regarding asbestos, the NESHAP specifies work practices to be followed during renovation, demolition or other abatement activities when friable asbestos is involved. Prior to demolition activity, an asbestos survey of the existing structure may be required to identify the presence of any asbestos containing building materials (ACBM). Removal of identified ACBM must be removed by a certified asbestos contractor in accordance with CAL-OSHA requirements (San Joaquin Valley Air Pollution Control District 2007).

- **Rule 4102 (Nuisance).** Applies to any source operation that emits or may emit air contaminants or other materials (San Joaquin Valley Air Pollution Control District 1992).
- **Rule 4103 (Open Burning).** This rule regulates the use of open burning and specifies the types of materials that may be open burned. Section 5.1 of this rule prohibits the burning of trees and other vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes (San Joaquin Valley Air Pollution Control District 2010).
- **Rule 4601 (Architectural Coatings).** Limits volatile organic compounds from architectural coatings (San Joaquin Valley Air Pollution Control District 2020).
- **Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).** This rule applies to the manufacture and use of cutback, slow cure, and emulsified asphalt during paving and maintenance operations (San Joaquin Valley Air Pollution Control District 1992).
- **Rule 9510 (Indirect Source Review - ISR).** Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the District, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NO_x; (2) 45-percent reduction of construction equipment exhaust PM₁₀; (3) 33-percent reduction of operational NO_x over 10 years; and (4) 50-percent reduction of operational PM₁₀ over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency" (San Joaquin Valley Air Pollution Control District 2017).

Regulatory Attainment Designations

Under the CCAA, the CARB is responsible for designating areas in the state based on air quality status in relation to specific standards. Areas are designated as "attainment" if pollutant concentrations meet the standards, and as "nonattainment" if pollutant concentrations exceed the standards at least once, excluding those violations caused by exceptional events. Nonattainment areas are further categorized as serious, severe, or extreme, depending on the frequency and severity of violations. An "unclassified" designation is used when data does not support either attainment or nonattainment status. The CCAA establishes increasingly stringent control measures for areas based on these classifications. Similarly, the EPA classifies areas for pollutants like ozone, CO, NO₂, and SO₂, but the terminology used by CARB (attainment, nonattainment, unclassified) is more commonly referenced. The EPA also uses subcategories for nonattainment status, including serious, severe, and extreme.

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 3. The SJVAB is currently designated as a nonattainment (extreme) with respect to the state 1-hour ozone, 8-hour ozone, PM_{2.5}, and PM₁₀ standards. The SJVAB is designated nonattainment for the national, 8-hour ozone and PM_{2.5} standards (San Joaquin Valley Air Pollution Control District n.d.).

Table 3. SJVAB Attainment Status Designation

Pollutant	Federal Designation	State Designation
Ozone, 1 hour	No Standard	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment

PM ₁₀	Attainment	Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen dioxide	Attainment/Unclassified	Attainment
Sulfur dioxide	Attainment/Unclassified	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment
<i>For more information visit website url: https://ww2.valleyair.org/air-quality-information/ambient-air-quality-standards-valley-attainment-status/</i> <i>Source: (San Joaquin Valley Air Pollution Control District n.d.)</i>		

Ambient Air Quality

Air pollutant concentrations are measured at several monitoring stations in the Fresno County and the Nearby Kings County. The Hanford-S Irwin Street Monitoring Station is the closest representative monitoring site to the proposed project site with sufficient data to meet EPA and/or CARB criteria for quality assurance. This monitoring station monitors ambient concentrations of ozone, nitrogen dioxide, PM₁₀, and PM_{2.5}. Ambient monitoring data was obtained for the last three years of available measurement data (i.e., 2021 through 2023) and are summarized in Table 4. As depicted, the state and national standards for ozone, PM₁₀, and PM_{2.5} were exceeded on numerous occasions over the past 3 years.

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 and 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.

Table 4. Summary of Ambient Air Quality Monitoring Data

Air Pollutant	Averaging Time	Item	2021	2022	2023
Ozone ¹	1 Hour	Max 1 Hour	0.102	0.091	0.091
		Days > State Standard (0.09 ppm)	0	1	1
	8 Hour	Max 8 Hour	0.095	0.081	0.079
		Days > State Standard (0.07 ppm)	16	12	11
		Days > National Standard (0.075 ppm)	4	3	5
Carbon monoxide	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
Nitrogen dioxide ¹	Annual	Annual Average (ppm)	0.008	0.008	0.007
	1 Hour	Max 1 Hour (ppm)	0.042	0.046	0.055
		Days > State Standard (0.18 ppm)	0	0	0
Sulfur dioxide	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM ₁₀) ¹	Annual	Annual Average (µg/m ³)	52.41	49.46	43.75
	24 Hour	24 Hour Maximum (µg/m ³)	191.8	250.8	157.4
		Days > State Standard (50 µg/m ³)	149	136	116
		Days > National Standard (150 µg/m ³)	10	1	1
Fine Particulate Matter (PM _{2.5}) ¹	Annual	Annual Average (µg/m ³)	15.72	14.16	12.51
	24 Hour	24 Hour Maximum (µg/m ³)	81.0	62.9	54.4
		Days > National Standard (35 µg/m ³)	31	25	11
Notes and Abbreviations: >=exceed ppm=parts permillion µg/m ³ =micrograms per cubic meter ID=insufficient data ND=no data max =maximum Bold = exceedance State Standard=California Ambient Air Quality Standard National Standard=National Ambient Air Quality Standard ¹ Data from Hanford-S Irwin Street Monitoring Station (California Air Resources Board n.d.)					

Sensitive land uses near the proposed project site consist of Riverdale High School and residential land uses. Classroom and student congregation areas border the Phase 1 Stadium Remodel site to the south and southeast and student athletic areas border the Stadium and Parking Lot remodel site to the east, south, and north. Student athletic areas border the Phase 2 Multi-use Fields site to the south and east. The Phase 3 Ag Barn Remodel and Hazel Avenue Reconstruction site would border the new Multi-use

Fields student/public athletic area to the south and east. Residential land uses are located to the southeast of the Project site, with the homes the most northwestern home being the nearest residential receptor of the project site. The start of the nearest residential land use is located approximately 125 ft west of the Phase 1 Parking Lot Remodel site and approximately 75 ft west of the Phase 3 Hazel Avenue reconstruction site (refer to Figure 2).

Impacts & Mitigation Measures

Methodology

Short-term Impacts

The CalEEMod 2022.1.1.29 computer program was used to estimate short-term emissions from construction activities related to each phase of the proposed project. Emissions were calculated for various construction sub-phases, including demolition, site preparation/grading, construction, paving, and application of architectural coatings. Since specific construction details such as schedules and equipment requirements have not yet been determined, the default assumptions within CalEEMod were utilized for the emission estimates. The assumptions and modeling results are provided in Appendix A of this report.

Long-term Impacts

The CalEEMod computer program was used to estimate long-term operational emissions of criteria air pollutants associated with each phase of the proposed project. Mobile-source emissions were estimated to be zero with the following rationale per phase:

1. Phase 1 would not increase student capacity or events at the High School. The remodeling of the stadium would only provide improved facilities for existing students and visitors for events.
2. Phase 2 would not increase vehicle miles traveled (VMT). The Multi-use fields would not increase student capacity at the campus and would instead provide additional athletic fields to eliminate over-use of existing fields that currently results in poor field conditions. Secondly, the Multi-use fields would be open to public recreation and some usage from the public of Riverdale is anticipated. However, the Multi-use fields would provide public recreation facilities to a community that does not have any public parks. The nearest public parks for Riverdale are in Lemoore and Hanford, about nine and eleven miles away, respectively. While Phase 2 would result in new trips to the campus, many users would replace traveling to Lemoore and Hanford for the much closer proposed Multi-use fields.
3. Phase 3 would not increase student capacity at the High School. The reconstruction of the Ag Barn would provide improved facilities for the existing students of the campus.

Based on this assessment, the Project would not result in an increase in operational mobile emission sources. The analysis also included a qualitative assessment of localized pollutant exposure, such as fugitive dust, mobile-source CO, and odors. For a conservative evaluation, project operations were assumed to commence in 2026. The modeling assumptions and output files can be found in Appendix A of this report

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

- a. Conflict with or obstruct implementation of the applicable air quality plan.
- b. 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.
- c. Expose sensitive receptors to substantial pollutant concentrations.
- d. Result in other emissions (such as those leading to odors) adversely affecting many people.

To assist local authorities in the evaluation of air quality impacts, the SJVAPCD has published the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) (San Joaquin Valley Air Pollution Control District 2015). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant air quality impact. The thresholds of significance are summarized below.

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NOx, 27 TPY of SOx, or 15 TPY of PM₁₀ or PM_{2.5}.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 TPY of CO, 10 TPY of ROG or NOx, 27 TPY of SOx, or 15 TPY of PM₁₀ or PM_{2.5}.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, PM_{2.5}, and PM₁₀, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NOx) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.
- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to TACs would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if it could frequently expose members of the public to objectionable odors.

In addition to the above thresholds, the SJVAPCD recommends daily emissions thresholds for the evaluation of project impacts on localized ambient air quality conditions. Accordingly, the proposed project would also be considered to result in a significant contribution to localized ambient air quality if on-site emissions for ROG, NOx, PM₁₀, PM_{2.5}, CO, or SO₂ associated with either short-term construction or long-term operational activities would exceed a daily average of 100 pounds per day (lbs/day) for each of the pollutants evaluated (San Joaquin Valley Air Pollution Control District 2015).

Project Impacts

Impact AQ-A.	<i>Would the project conflict with or obstruct implementation of the applicable air quality plan?</i>
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In accordance with SJVAPCD-recommended methodology for the assessment of air quality impacts, projects that result in significant air quality impacts at the project level are also considered to have a significant cumulative air quality impact. As noted in Impact AQ-B, short-term construction and long-term operational emissions would not exceed applicable thresholds. In addition, the proposed project would not result in a significant increase in vehicle miles traveled (VMT) and would not be inconsistent with the Fresno Council of Government's (FCOG's) 2022 Regional Transportation Plan and Sustainable Communities Strategies (Fresno Council of Governments 2022). efforts. For these reasons, the proposed project's implementation would not conflict with air quality attainment or maintenance planning efforts. This impact would be considered **less than significant**.

Impact AQ-B.	<i>Would the project 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?</i>
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The proposed project is in the unincorporated community of Riverdale, within the SJVAB. The SJVAB is classified as nonattainment for the national 8-hour ozone and PM_{2.5} standards and nonattainment for state 1-hour Ozone, 8-hour ozone, PM₁₀, and PM_{2.5}. Air quality impacts related to the proposed project may arise during both construction and operational phases. The following sections discuss the short-term construction and long-term operational air quality impacts associated with the project:

Short-term Construction Emissions

During construction, temporary increases in air pollutant emissions would occur. Although construction-related emissions are short-term and limited to the duration of construction activities, they can result in significant air quality impacts. The proposed project's construction would temporarily generate emissions from site grading, excavation, paving, painting, exhaust from construction equipment and worker trips, as well as the movement of equipment on unpaved surfaces. These activities would lead to increased emissions of ozone precursors (ROG and NO_x) and particulate matter (PM). Ozone precursor emissions would primarily come from on-road and off-road vehicles and equipment, while PM emissions would depend on the extent of ground disturbance during grading and excavation, potentially affecting nearby sensitive land uses. Estimated annual construction emissions for the proposed project alternatives are presented in Table 5.

As shown in Table 5, the maximum uncontrolled annual emissions from project construction are estimated at 0.40 TPY of ROG, 0.81 TPY of NO_x, 1.02 TPY of CO, <0.005 TPY of SO₂, 0.14 TPY of PM₁₀, and 0.08 TPY of PM_{2.5}. These emissions would remain below the SJVAPCD's significance thresholds of 10 TPY for ROG and NO_x, 100 TPY for CO, 27 TPY for SO₂, and 15 TPY for PM₁₀ and PM_{2.5}.

Table 5. Annual Construction Emissions (Unmitigated)

Construction Phase	Maximum Annual Emissions (TPY) ¹					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Phase 1						
Construction Year 2025	0.11	0.81	1.02	<0.005	0.10	0.05
Construction Year 2026	0.40	0.61	0.96	<0.005	0.07	0.03
Phase 2						
Construction Year 2026	0.08	0.69	0.75	<0.005	0.14	0.08
Phase 3						
Construction Year 2027	0.07	0.57	0.72	<0.005	0.06	0.04
Construction Year 2028	0.09	0.26	0.36	<0.005	0.01	0.01
<i>Maximum Annual Emissions:</i>	0.40	0.81	1.02	<0.005	0.14	0.08
<i>Significance Thresholds:</i>	10	10	100	27	15	15
<i>Exceeds Thresholds/Significant Impact?:</i>	No	No	No	No	No	No
¹ . Based on CalEEMod computer modeling. Totals may not sum due to rounding. Does not include emission control measures. Refer to Appendix A for modeling results and assumptions.						

Estimated average-daily on-site construction emissions are summarized in Table 6. As noted in Table 6, construction of the proposed project would generate maximum on-site emissions of approximately 64.7 lbs/day of ROG, 31.64 lbs/day of NO_x, 30.18 lbs/day of CO, 0.05 lbs/day of SO₂, 9.03 lbs/day of PM₁₀, and 5.20 lbs/day of PM_{2.5}. Daily on-site construction emissions would not exceed the SJVAPCD's recommended localized ambient air quality significance thresholds of 100 lbs/day for any of the criteria pollutants.

Table 6. Daily On-Site Construction Emissions (Unmitigated)

Construction Phase	Daily Emissions (lbs/day) ¹					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Phase 1						
Demolition	2.40	22.19	19.92	0.03	0.96	0.85
Site Preparation	3.31	31.64	30.18	0.05	9.03	5.20
Grading	1.74	16.27	17.91	0.03	3.51	2.00
Building Construction 2025	0.84	7.70	10.7	0.02	0.32	0.29
Building Construction 2026	0.79	7.27	10.7	0.02	0.27	0.25
Paving & Track	1.23	6.23	8.81	0.01	0.26	0.24
Architectural Coating	64.7	0.86	1.13	<0.005	0.02	0.02
Phase 2						

Demolition	2.29	20.7	19.0	0.03	1.01	0.81
Site Preparation	3.14	29.2	28.8	0.05	8.91	5.08
Grading	1.65	15.0	17.4	0.03	3.14	1.93
Phase 3						
Site Preparation	1.19	10.4	11.6	0.02	2.91	1.60
Grading	1.37	12.2	13.9	0.02	3.30	1.84
Building Construction 2027	0.74	6.20	8.00	0.01	0.18	0.16
Building Construction 2028	0.71	6.01	7.97	0.01	0.15	0.14
Paving	0.68	4.13	6.47	0.01	0.15	0.13
Architectural Coating	13.4	0.81	1.12	<0.005	0.02	0.01
Maximum Daily On-site Emissions:	64.7	31.64	30.18	0.05	9.03	5.20
Significance Thresholds:	100	100	100	100	100	100
Exceeds Thresholds/Significant Impact?:	No	No	No	No	No	No
1. Based on CalEEMod computer modeling. Totals may not sum due to rounding. Refer to Appendix A for modeling results and assumptions.						

Additionally, project construction would be required to comply with applicable SJVAPCD rules and regulations. This would further reduce construction related emissions. For these reasons, the impact of construction-generated emission would be considered **less than significant**.

Long-term Operational Emissions

Table 7 summarizes the estimated increase of annual operational emissions for the proposed project compared to existing operation of the project site. Upon completion of the project (Phase 1, 2, and 3), the project is expected to generate approximately 0.03 TPY of ROG, 0.05 TPY of NO_x, 0.18 TPY of CO, and <0.005 TPY of SO₂, PM₁₀, and PM_{2.5}. These emissions would primarily result from mobile sources, building operations (including energy use), and area sources such as occasional use of cleaning products, architectural coatings, and maintenance activities. Operational emissions from the project in 2028 would remain below SJVAPCD's mass-emissions significance thresholds.

Table 7 summarizes the estimated increase of annual average daily on-site operational emissions compared to existing project site operation. As mentioned, maximum daily emissions would primarily stem from area sources, such as landscape maintenance activities and the use of consumer products. Upon completion of the project (Phase 1, 2, and 3), maximum daily on-site emissions are estimated at 2.00 lbs/day of ROG, 0.33 lbs/day of NO_x, 1.8 lbs/day of CO, <0.005 lbs/day of SO₂, 0.13 lbs/day of PM₁₀, and 0.05 lbs/day of PM_{2.5}.

Even at maximum levels, daily on-site emissions would remain below the SJVAPCD's localized ambient air quality significance threshold of 100 lbs/day for all criteria pollutants. The long-term operation of the proposed project is not expected to significantly impact regional or local air quality.

Table 7. Long-term Operational Emissions (Unmitigated)

Season	Unmitigated Annual Emissions (TPY) ¹					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Phase 1, 2026						
Mobile Source	0.00	0.00	0.00	0.00	0.00	0.00
Area Source	0.01	<0.005	0.02	<0.005	<0.005	<0.005
Energy Use	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total:	0.02	<0.005	0.03	<0.005	<0.005	<0.005
Significance Thresholds (tons):	10	10	100	27	15	15
Exceeds Thresholds/Significant Impact?:	No	No	No	No	No	No
Phase 2, 2026						
Mobile Source	<0.005	0.01	0.04	<0.005	0.01	<0.005
Area Source	0.03	0.00	0.02	<0.005	<0.005	<0.005
Energy Use	0.00	0.00	0.00	0.00	0.00	0.00
Total:	<0.005	0.001	0.04	<0.005	0.01	<0.005
Significance Thresholds (tons):	10	10	100	27	15	15
Exceeds Thresholds/Significant Impact?:	No	No	No	No	No	No
Phase 3, 2028						
Mobile Source	0.00	0.00	0.00	0.00	0.00	0.00
Area Source	0.09	<0.005	0.07	<0.005	<0.005	<0.005
Energy Use	<0.005	0.04	0.04	<0.005	<0.005	<0.005
Total:	0.10	0.04	0.11	<0.005	<0.005	<0.005
Significance Thresholds (tons):	10	10	100	27	15	15
Exceeds Thresholds/Significant Impact?:	No	No	No	No	No	No
TOTAL: Phase 1, 2, & 3, 2028						
Mobile Source	<0.005	0.01	0.04	<0.005	0.01	<0.005
Area Source	0.13	<0.005	0.11	<0.005	<0.005	<0.005
Energy Use	<0.005	0.04	0.04	<0.005	<0.005	<0.005
Total:	0.03	0.05	0.18	<0.005	0.01	<0.005
Significance Thresholds (tons):	10	10	100	27	15	15
Exceeds Thresholds/Significant Impact?:	No	No	No	No	No	No
Phase 1 Maximum Daily Emissions 2026 (lbs) ² :	0.08	0.03	0.15	<0.005	<0.005	<0.005
Phase 2 Maximum Daily Emissions 2026 (lbs) ² :	0.21	0.06	0.62	<0.005	0.11	0.03
Phase 3 Maximum Daily Emissions 2028 (lbs) ² :	0.59	0.24	1.03	<0.005	0.02	0.02
Total Maximum Daily Emissions 2028 (lbs) ² :	2.00	0.33	1.80	<0.005	0.13	0.05
Significance Thresholds (lbs):	100	100	100	100	100	100
Exceeds Thresholds/Significant Impact?:	No	No	No	No	No	No
¹ Emissions were calculated using the CalEEMod computer program. ² Based on highest emissions between winter and summer operation. Totals may not sum due to rounding. Refer to Appendix A for modeling assumptions and results.						

Impact AQ-C.	<i>Would the project expose sensitive receptors to substantial pollutant concentrations?</i>
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Sensitive land uses near the proposed project site consist mainly of education and residential land uses. The nearest educational land use is located south of the project site, and residential land uses are located to the southwest of the project site. Long-term operational and short-term construction activities and emission sources that could adversely impact these nearest sensitive receptors are discussed, as follows:

Long-term Operation

Toxic Air Contaminants

Implementation of the proposed project would not result in the long-term operation of any major onsite stationary sources of TACs, nor would project implementation result in a significant increase in diesel-fueled vehicles traveling along area roadways. No major stationary sources of TACs were identified in the project vicinity that would result in increased exposure of students and employees to TACs. For these reasons, long-term increases in exposure to TACs would be considered **less than significant**.

Carbon Monoxide

Carbon monoxide (CO) is the primary criteria air pollutant of local concern for the proposed project. Under certain meteorological and traffic conditions, such as areas with heavy congestion, CO levels can reach unhealthy concentrations. When inhaled, CO is readily absorbed into the bloodstream, reducing oxygen delivery to the body and potentially causing health effects ranging from mild headaches to severe outcomes, including death. Those most vulnerable include individuals with anemia and those suffering from chronic lung or heart conditions.

CO emissions from mobile sources are directly influenced by traffic volume, speed, and congestion. However, CO disperses quickly under normal atmospheric conditions, limiting its transport. As a result, CO modeling is recommended for sensitive land uses near signalized intersections expected to operate at poor levels of service (LOS). Since the project site is not near a signalized intersection and the project is expected would not significantly increase use and related vehicle trips, therefore long-term exposure to localized CO concentrations would be considered less than significant

Short-term Construction

Naturally Occurring Asbestos

Naturally occurring asbestos, designated as a TAC by CARB in 1986, is commonly found in areas with ultramafic rock throughout California. However, the project site is not located near any regions likely to contain ultramafic rock (U.S. Geologic Survey 2011). Therefore, the risk of exposure to naturally occurring asbestos during construction is considered **less than significant**.

Asbestos-Containing Materials

Demolition activities can negatively impact air quality, particularly concerning the proper handling, removal, and disposal of asbestos-containing materials (ACM). ACM may be present in buildings constructed before 1970 and can also be found in various materials, such as utility pipes and pipeline insulation. If a project involves disturbing or potentially disturbing ACM, it must comply with applicable regulations, including the National Emission Standard for Hazardous Air Pollutants (40 CFR 61, Subpart M - Asbestos NESHAP). These regulations require, among other things: (1) notification to the local air pollution control district at least 10 business days before activities begin, (2) an asbestos survey conducted by a Certified Asbestos Consultant, and (3) proper removal and disposal of identified ACM. The SJVAPCD administers these regulations through its Rule 4002 (San Joaquin Valley Air Pollution Control District 2007).

Since the proposed project would be required to comply with Rule 4002, the risk of exposure to asbestos-containing materials is considered **less than significant**.

Lead-Coated Materials

Demolishing structures coated with lead-based paint can negatively impact air quality and pose health risks to nearby individuals. Lead-based paint is commonly found in buildings constructed before 1978, and improper demolition can release lead-containing particles into the environment. Activities such as sandblasting or using heat guns to remove paint can generate significant lead emissions. To prevent lead exposure, proper abatement must be conducted before demolition.

Federal and state regulations, including the Lead in Construction Standard (29 CFR 1926.62) and California Code of Regulations (CCR Title 8, Section 1532.1), govern the handling of lead-containing materials during construction, demolition, and maintenance activities.

The project would not include sand blasting or heat guns to remove lead paint from existing buildings. Existing buildings that may contain lead paint would be demolished and not significantly impact air quality. Furthermore, paint testing and any resulting required lead abatement would be completed according to Federal and State regulations. Therefore, the risk of exposure to lead-based paint is considered **less than significant**.

Localized PM Concentrations

Fugitive dust emissions would primarily result from site preparation, grading, and vehicle movement on both unpaved and paved surfaces. If left uncontrolled, these emissions could contribute to nuisance impacts for nearby receptors. The project would be subject to SJVAPCD Regulation VIII – Fugitive PM₁₀ Prohibitions, which would require the contractor to prepare and submit a dust control plan and implement dust control measures over the course of construction, such as site watering. Through the implementation of a dust control plan, the impact would be **less than significant**.

Additionally, on-site off-road equipment and trucks would generate short-term emissions of diesel particulate matter (DPM), potentially leading to elevated localized concentrations near sensitive receptors.

However, the project emissions would be small with each phase separated over different time periods. Additionally, DPM emissions would be temporary, lasting approximately three years, which is less than five percent of the standard 70-year exposure period used for health risk assessments. Therefore, short-term increases in DPM are not expected to exceed SJVAPCD significance thresholds.

Impact AQ-D.	<i>Would the project result in other emissions (such as those leading to odors) affecting a substantial number of people?</i>
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According to the SJVAPCD GAMAQI (San Joaquin Valley Air Pollution Control District 2015), due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine the presence of a significant odor impact. Rather, SJVAPCD recommends that odor analyses strive to fully disclose all pertinent information. The intensity of an odor source's operations and its proximity to sensitive receptors influence the potential significance of odor emissions. SJVAPCD has identified some common types of facilities that have been known to produce odors in the San Joaquin Valley.

During construction, the project may produce odors associated with construction, such as vehicle exhaust odor, asphalt degassing, and paint fumes, although these odors are expected to be intermittent and would no longer be present once construction is complete.

The proposed Ag Barn is the only component of the project expected to emit objectional odors by operation. The new Ag Barn would be used for the same purpose as the existing Ag Barn to house farm animals for educational purposes and would house animals that would be a source of objectionable odors. The proposed Ag Barn would be about 500 ft north of the old Ag Barn, farther from all existing nearest receptors. Table 8 below displays the existing and proposed Ag Barns' distance from nearby receptors.

Table 8. Distance to Nearby Receptors of Existing and Proposed Ag Barn

Receptor	Approximate Distance to Existing Ag Barn	Approximate Distance to Proposed Ag Barn
Nearest residential home, located at 3230 Stathem St.	345 feet	960 feet
Varsity baseball field	410 feet	1,030 feet
Practice baseball field	415 feet	720 feet
Nearest football stadium bleachers	720 feet	1,150 feet
Nearest High School building	815 feet	1,360 feet
Row of Residential homes fronting Valley Oak Ln (across farm west of Hazel Avenue)	930 feet	930 feet

Since the proposed Ag Barn structure would replace the existing Ag Barn with a similar function and capacity and be located farther from all existing nearby receptors, no significant increase in objectionable odor would be anticipated. Odors from construction would be intermittent and only present during construction. Therefore, the project would not produce significant odors that would adversely affect a substantial number of people. This impact would be **less than significant**.

Greenhouse Gasses and Climate Change

Existing Setting

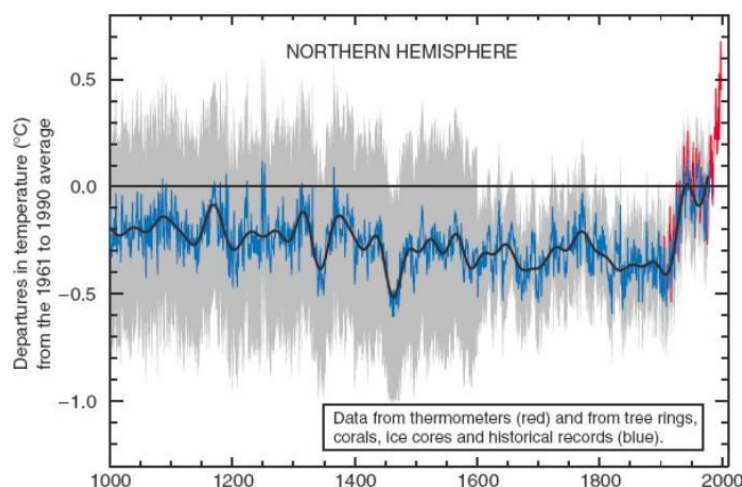
Climate change refers to changes to typical weather patterns of the Earth, which can be evaluated by observing alterations in temperature, precipitation, wind patterns, and storms. These changes are assessed by comparing current data to historical records, such as those from past ice ages. The concerns regarding climate change are based on statistical analyses that focus on temperature records from the Industrial Age, which have shown a significant difference in rate and magnitude compared to previous climate changes over the last 150 years.

The United Nations Intergovernmental Panel on Climate Change (IPCC) report, released in August 2021, determined that human activities, particularly the emission of greenhouse gases, are unequivocally responsible for the significant warming observed on the planet since the mid-1800s. The report states that the current rate of warming is unprecedented in at least the last 2,000 years and longer.

The report also highlights that the effects of climate change are already being felt around the world, including more frequent and intense heatwaves, wildfires, and extreme weather events. It warns that the impacts of climate change will continue to worsen, even if nations manage to limit global warming caused by greenhouse gas emissions to 1.5°C above preindustrial levels, the most ambitious goal of the Paris Agreement.

To limit the worst impacts of climate change, the report recommends urgent and ambitious action to reduce greenhouse gas emissions, including a rapid and deep reduction in the use of fossil fuels, the protection and restoration of forests and other natural ecosystems, and the adoption of sustainable land-use practices (IPCC 2021).

Figure 4. Historical Temperature Changes



Consequences of Climate Change in California

In California, climate change may result in consequences such as the following:

- **A reduction in the quality and supply of water from the Sierra snowpack.** In California, the Sierra Nevada snowpack is the primary natural water reservoir and plays a crucial role in meeting the state's water needs (California Department of Water Resources 2025). The snowpack is typically formed during the fall and winter months and gradually releases around 15 million acre-feet of water during the spring and summer when water is most needed. The state's dams and water storage systems were designed to manage the gradual melting of the snowpack, as it has happened in the past. However, rising temperatures are causing the snowpack to melt earlier and more rapidly. This premature and more substantial melting can pose a risk of flooding and water shortages as it could overwhelm the state's water storage facilities (California Office of Environmental Health and Hazard Assessment 2024).
- **Increased risk of large wildfires.** More than 80% of California's 100 million acres are covered by forests and rangelands, which are at risk of being impacted by climate change. Changes in temperature and precipitation patterns could impact the growth and survival of trees, leading to reduced productivity and altered habitats. Additionally, climate change could increase the risk of wildfires in these areas by making forests and vegetation drier due to rising temperatures. Compared to previous decades, the fire season in the western United States now starts earlier, lasts longer, and is more intense. By the end of the century, the occurrence of wildfires statewide could increase significantly, resulting in higher costs for fire suppression and emergency response, as well as damage to property (California Air Resources Board n.d.).
- **Damage to agriculture.** The effects of global warming, including drought, elevated temperatures, saltwater intrusion caused by rising sea levels, flooding, and increased pest risks, pose a significant threat to California's agricultural industry (United States Department of Agriculture n.d.). The industry generated \$59 billion in revenue in 2022 and produces over half of all domestic fruits and vegetables (California Department of Food and Agriculture 2024). As California is responsible for feeding not only its own population but also the entire nation and beyond, any reductions in production could result in food shortages and higher prices.
- **Exacerbation of air quality problems.** Californians are already experiencing the worst air quality in the nation, and higher temperatures are only making it worse by causing more smog, which can harm lung function and exacerbate asthma, respiratory and heart diseases, and even death. Sensitive groups such as the elderly, infants, those with chronic heart or lung diseases, and those who work outdoors, are at a higher risk of these negative health impacts (California Office of Environmental Health Hazard Assessment 2024).
- **A rise in sea levels resulting in the population displacement and economic costs.** About 85% of California's population resides and works in the coastal counties. In the past century, sea levels along California's coasts have increased by almost 8 inches and are predicted to rise anywhere from 20 to 55 inches by the end of the century. If the sea level were to rise by 55 inches, almost half a million individuals could be in danger of flooding by 2100, and around \$100 billion in property and infrastructure, including hazardous waste sites, roadways, buildings, power plants, and parks and tourist destinations, could be threatened (California Ocean Protection Council 2024). Coastal erosion could also significantly impact California's ocean-based economy, which is valued at approximately \$51 billion per year (NOAA Office for Coastal Management 2024).
- **An increase temperature and extreme weather events.** Certain groups of people, such as the elderly, infants, people who cannot afford air conditioning, and those who work outdoors, are at a

higher risk of these negative health impacts caused by extreme heat. As temperatures continue to rise, the number of days with extreme heat events will also increase, putting people at a higher risk of dehydration, heatstroke, heart attacks, and respiratory problems. In 2022, a heat wave in California caused over 395 excess deaths (California Department of Public Health 2023). Heat waves of similar length and intensity to that event could become more frequent and potentially occur annually by the end of the century.

- **Habitat destruction and loss of ecosystems.** Climate change is anticipated to adversely affect California's ecosystems, compromising their capacity to provide essential services such as clean water, wildlife habitats, fisheries, timber, and other resources vital to the state's well-being. The California Attorney General's Office highlights that climate change poses significant threats to the state's biodiversity, including shifting rainfall patterns, increased heat, and rising sea levels, which will make certain places less habitable for plants and animals. Additionally, the California Natural Resources Agency notes that climate change is one of the biggest threats to the state's biodiversity, with shifting rainfall patterns, increased heat, and rising seas making certain places less habitable for plants and animals. These changes are expected to undermine the ability of California's diverse ecosystems to support vital goods and services, impacting the overall welfare of the populace (ResilientCA n.d.).

Greenhouse Gases

Greenhouse gases, or GHGs, are gases that retain heat in the atmosphere, similar to how a greenhouse retains warmth. These gases include water vapor, carbon dioxide, methane, NO_x, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. GHGs are produced by both natural processes and human activities. The presence of GHGs in the atmosphere has an impact on the earth's temperature. Human activities such as electricity generation, transportation, deforestation, urbanization, and manufacturing have increased the concentration of these gases in the atmosphere beyond natural levels.

Climate change can be attributed to forcings and feedback. Radiative forcing refers to the difference between the amount of incoming and outgoing energy in the climate system. Positive forcing results in warming of the surface, whereas negative forcing leads to cooling. The measurement of radiative forcing is expressed in watts per square meter. Feedback, on the other hand, refers to climate processes that can either enhance or weaken a forcing. For instance, when ice or snow melts, it uncovers darker land that absorbs more radiation and amplifies warming. The global warming potential refers to the capacity of a gas or aerosol to retain heat in the atmosphere. This potential is measured by comparing the radiative forcing of a greenhouse gas with that of carbon dioxide, which serves as the reference gas.

To measure the impact of different greenhouse gases (GHGs) on global warming, scientists use two metrics: global warming potential and carbon dioxide equivalent. Global warming potential measures how much a given mass of a GHG contributes to global warming compared to carbon dioxide, which has a global warming potential of one. For example, methane has a global warming potential of 21, meaning that it has 21 times greater warming effect than carbon dioxide on a molecule-per-molecule basis. Carbon dioxide equivalent is a way of normalizing various GHG emissions to a consistent reference gas, carbon dioxide. It is calculated by multiplying the mass emissions of an individual GHG by its global warming potential. The GHGs defined by Assembly Bill (AB) 32 include carbon dioxide, methane, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and nitrogen trifluoride (NF₃) has also been added as a GHG of concern (Intergovernmental Panel on Climate Change 2007). Each GHG has varying global warming potential and atmospheric lifetimes are presented in Table 8 below.

Table 9. Description of Greenhouse Gasses

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (laughing gas) is a colorless GHG. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.
Methane	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.
Carbon dioxide	Carbon dioxide (CO ₂) is an odorless, colorless, natural GHG. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 ppm, which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Hydrofluorocarbons	Hydrofluorocarbons are a group of GHGs containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.

Sulfur hexafluoride	Sulfur hexafluoride (SF ₆) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.
Nitrogen trifluoride	Nitrogen trifluoride (NF ₃) was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. It has a high global warming potential of 17,200	This gas is used in electronics manufacture for semiconductors and liquid crystal displays.
Black Carbon	Black Carbon was added to the CARB list of SLCP in 2017. It has a global warming potential of 4,470.	This particulate matter is emitted from burning of coal, diesel, and biomass (anthropogenic and natural).
(Intergovernmental Panel on Climate Change 2007) (Intergovernmental Panel on Climate Change 2007) (California Air Resources Board 2017)		

In 2014, Governor Jerry Brown signed Senate Bill 605, which requires the CARB to develop a comprehensive strategy to reduce emissions of methane and other short-lived climate pollutants. The law requires CARB to adopt regulations to reduce methane emissions from key sources, including oil and gas production, landfills, and dairies (California State Legislature, 2013-2014 Session 2014). In March 2017, the CARB approved a Short-Lived Climate Pollutants (SLCP) Reduction Strategy for reducing emissions of high global-warming potential gases with short atmospheric lifetimes. SLCPs regulated under this plan include methane, hydrofluorocarbons (HFC), and anthropogenic black carbon (California Air Resources Board 2017). Fluorinated gases and CH₄ are described in Table 8 and are already included in the California GHG inventory

Ozone is not released directly into the atmosphere but is created from the precursor emissions of volatile organic compounds (VOC), oxides of nitrogen (NO_x) at a regional scale, and CH₄ at a hemispheric scale. These precursor emissions will also be addressed as part of the strategy. The SLCP includes addressing ozone, which is a short-lived climate pollutant that impacts evaporation, cloud formation, and precipitation.

Black Carbon is contained in fine particulate matter, which is created by the incomplete burning of fossil fuels, biofuels, and biomass. Local black carbon sources can include exhaust from diesel trucks, vehicles, equipment, and smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels for transportation, biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Unlike other greenhouse gases that can persist in the atmosphere for years, black carbon is an aerosol, which means that it is comprised of particles or liquid droplets that can only remain in the atmosphere for days to weeks. Black carbon can be deposited on snow, reducing sunlight reflectivity, and accelerating snowmelt. It can have both direct and indirect effects on climate, such as absorbing incoming and outgoing radiation, affecting cloud reflectivity, precipitation, and surface dimming (cooling).

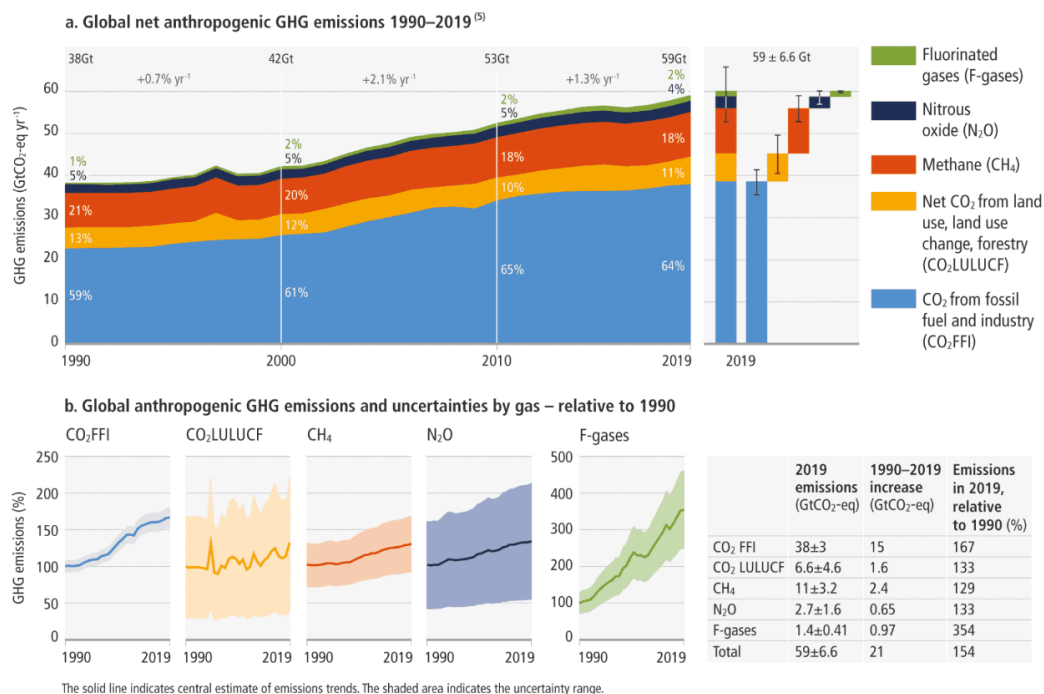
Water vapor is categorized as a GHG, and it is a significant factor in our climate system that is not subject to regulations. As the levels of water vapor increase, it causes a rise in temperatures, resulting in more water vapor being absorbed into the atmosphere. Warming and water absorption increase in a spiraling cycle. Additionally, the water vapor feedback mechanism can enhance the warming effect of other GHGs, meaning that as the concentration of CO₂ increases, more water vapor is retained in the atmosphere (Buis 2022).

While alterations in the climate and their outcomes may lead to health concerns, breathing in GHGs at their current atmospheric concentrations is unlikely to have negative health impacts except for ozone and particulate matter. The possible effects of these pollutants are explored in evaluations of criteria pollutants. However, high indoor levels of carbon dioxide, methane, sulfur hexafluoride, and certain chlorofluorocarbons can potentially cause suffocation by displacing oxygen, but this only occurs at levels much higher than those found outdoors (Center for Disease Control and Prevention 2019) (Center for Disease Control and Prevention 2010).

Emissions Inventories

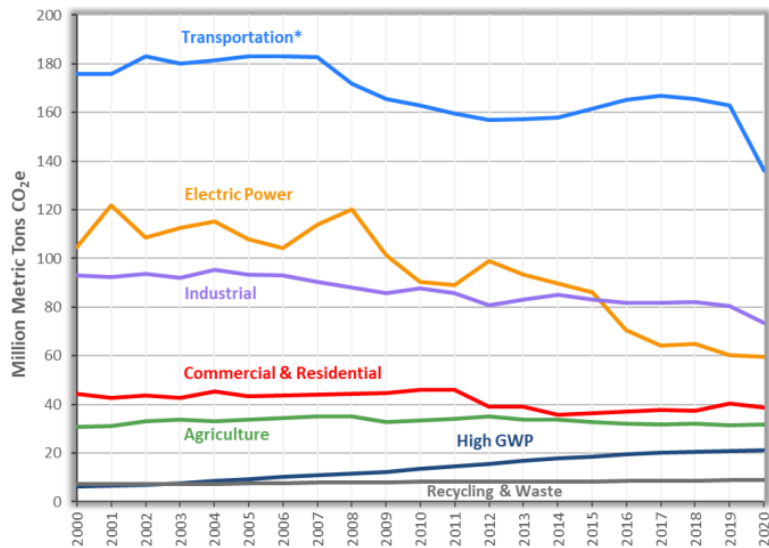
Emissions worldwide were approximately 59,000 million metric tons of carbon dioxide equivalents (MMTCO₂e) in 2019 (Intergovernmental Panel on Climate Change 2022). GHG emissions trends from 1990 to 2019 are shown in Figure 5, broken down by different greenhouse gasses and sources.

Figure 5. Greenhouse Gas Emissions Trends



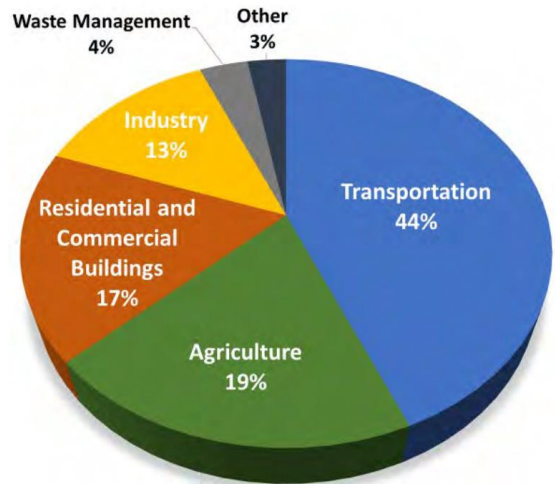
As shown in Figure 6 below, the main contribution of GHG emissions in California between years 2000 and 2020 was transportation. The second highest sector was industrial, which includes sources from refineries, general fuel use, oil and gas extraction, cement plants, and cogeneration heat output. A downward trend can be seen from these two highest sectors of GHG emissions (California Air Resources Board 2022).

Figure 6. Greenhouse Gas Emission Trends by Sector in California



In March 2024, the Fresno Council of Governments prepared its Priority Climate Action Plan (PCAP) for Fresno County. The PCAP estimated the County's total CO₂e emissions at 12,209,106 MMCO₂e in 2019. As shown in Figure 7 below, the sources of GHG emissions by sector in Fresno County break down to 44% from transportation, agriculture at 19%, residential and commercial building energy use at 17%, industrial at 13%, waste and wastewater at 4% and fugitive emissions at 3% (Fresno Council of Governments 2024).

Figure 7. 2019 Fresno County GHG Emissions Inventory



Regulatory Environment

U.S. Involvement in International Agreements

As climate change is a problem that affects the entire world and stems from greenhouse gas emissions from various sources from all countries, including those mentioned above. International agreements to reduce GHG emissions have been put forth since 1988, as explained below.

Intergovernmental Panel on Climate Change. The IPCC was established in 1988 by the United Nations Environmental Programme (UNEP) and the World Meteorological Organization (WMO). Its purpose is to evaluate the scientific, technical, and socio-economic data pertaining to the scientific foundation of the dangers of climate change caused by humans, its consequences, and the options for coping with and reducing it (IPCC 2025).

United Nations Framework Convention on Climate Change (Convention). The United States, along with several other nations, signed the Convention on March 21, 1994. This treaty requires countries to gather and exchange data concerning greenhouse gas emissions, national policies, and effective approaches. Additionally, countries must develop their own strategies for addressing GHG emissions and adjusting to the projected impacts of climate change, including providing financial and technological assistance to developing nations. The convention identified that cooperation between nations is necessary to prepare for the effects of climate change (United Nations n.d.).

Kyoto Protocol. The Kyoto Protocol is a global agreement associated with the United Nations Framework Convention on Climate Change. Its primary aspect involves implementing compulsory goals for 37 advanced nations and the European Union to lessen their GHG emissions by an average of five percent compared to 1990 levels throughout 2008 to 2012. Although the Convention (as mentioned earlier) prompted developed nations to stabilize their emissions, the Protocol requires them to do so. Since developed nations have contributed a larger amount of emissions over the past 150 years, the Protocol follows the principle of "common but differentiated responsibilities" and places a heavier obligation on developed nations (United Nations 2025).

In 2001, President George W. Bush announced that he would not present the treaty to the U.S. Senate for ratification, which marked the end of the United States' involvement in the Kyoto Protocol (Bush 2001). In December 2009, global leaders convened in Copenhagen to discuss the future of international commitments for combating climate change after the Kyoto Protocol. Although no obligatory agreement was established during the conference, the committee identified the long-term objective of capping the maximum average temperature increase at no more than 2°C above pre-industrial levels (European Environment Agency 2010).

Paris Agreement. The Paris Agreement is an international treaty aimed at combating climate change, adopted at the United Nations Climate Change Conference in Paris in December 2015. The agreement sets a long-term goal of keeping the increase in global average temperature to well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the increase to 1.5 degrees Celsius.

The Paris Agreement is significant because it marks the first time that all countries, including both developed and developing nations, have agreed to take collective action to address climate change. The agreement calls on countries to set their own nationally determined contributions (NDCs) for reducing greenhouse gas emissions and to regularly report on their progress.

In addition to setting emission reduction targets, the Paris Agreement also includes provisions for financial assistance to developing countries to support their efforts to address climate change, as well as measures for adapting to the impacts of climate change. The agreement encourages countries to work together on technology development and transfer, capacity-building, and other cooperative measures to promote sustainable development and reduce emissions. The Paris Agreement entered into force on November 4, 2016, and as of March 2023, 197 countries have signed and ratified the agreement (United Nations n.d.).

The United States played a significant role in the negotiation of the Paris Agreement and was a key player in shaping the final text. Under the Obama administration, the US made a commitment to reduce greenhouse gas emissions by 26-28% below 2005 levels by 2025 (The White House 2015). However, the US involvement in the Paris Agreement has been inconsistent from 2016 to 2025 with the election of President Trump in 2016, President Biden in 2020, and reelection of President Trump in 2024.

President Trump initiated the process to withdraw the United States from the Paris Agreement by signing an executive order on June 1, 2017 (U.S. Department of State 2019). This order directed the U.S. to begin the formal withdrawal process, which took effect on November 4, 2020. However, President Joe Biden signed an executive order to rejoin the Agreement in January 2021. By March 2023, the US was once again a signatory to the Paris Agreement, and the Biden administration has announced the United States' commitment to achieving net-zero emissions by 2050 (The White House 2021). To reverse course again, President Trump has taken steps to remove the United States from the Paris Agreement. On January 20, 2025, Trump signed Executive Order 14162, titled "Putting America First In International Environmental Agreements," directing the immediate withdrawal of the U.S. from the Paris Agreement and other international climate commitments. This executive order mandates the U.S. Ambassador to the United Nations to notify the Secretary-General of the United Nations of the withdrawal, effectively ceasing U.S. participation in the agreement (The White House 2025).

Federal

Energy Policy Act of 2005. The Energy Policy Act of 2005, enacted on August 8, 2005, introduced a range of provisions to promote renewable energy and energy efficiency. The legislation extended and expanded tax credits for electricity production from qualified sources, including landfill gas. It also provided financial support through bond financing, tax incentives, grants, and loan guarantees to encourage clean renewable energy development and rural electrification. Additionally, the act established a federal mandate requiring a portion of energy purchases to come from renewable sources (Environmental Protection Agency 2024).

Greenhouse Gas Endangerment. The case of Massachusetts v. EPA (Supreme Court Case 05-1120) was heard by the US Supreme Court on November 29, 2006. The case involved a petition to regulate four greenhouse gases, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. On April 2, 2007, the Supreme Court ruled that greenhouse gases are air pollutants covered by the Clean Air Act. The Court determined that the Administrator of the EPA must determine whether the emissions of greenhouse gases from new motor vehicles are likely to contribute to air pollution that endangers public health or welfare, or if the science is too uncertain to decide. On December 7, 2009, the EPA Administrator signed two separate findings related to greenhouse gases under Section 202(a) of the Clean Air Act.

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not mandate that industry, or other entities take any specific actions. However, they were necessary to establish GHG emissions standards for vehicles, as explained in the "Clean Vehicles" section below.

In 2010, the EPA denied 10 petitions for Reconsideration of the Endangerment and Cause or Contribute Findings. Among the petitioners were the Ohio Coal Association, Peabody Energy Company, and the State of Texas.

An evaluation conducted by the EPA Office of Inspector General in September 2011 examined the EPA's compliance with established policies and procedures in developing the endangerment finding, including the processes for ensuring information quality. The evaluation concluded that the technical support document should have undergone more rigorous EPA peer review.

In June 2012, a federal appeals court dismissed a lawsuit filed by 13 states against the EPA. The lawsuit alleged that the EPA violated the law by relying entirely on data from the United Nations Intergovernmental Panel on Climate Change instead of conducting its own research or testing data in accordance with federal standards. The states involved in the lawsuit were Virginia, Texas, Alabama, Florida, Hawaii, Indiana, Kentucky, Louisiana, Mississippi, Nebraska, North Dakota, Oklahoma, South Carolina, South Dakota, and Utah (Environmental Protection Agency 2022).

Clean Vehicles. In October 2012, the EPA and the National Highway Traffic Safety Administration (NHTSA), representing the Department of Transportation, finalized regulations aimed at further reducing GHG emissions and enhancing Corporate Average Fuel Economy (CAFE) standards for light-duty vehicles from model year 2017 onward. NHTSA has enforced CAFE standards under the Energy Policy and Conservation Act since 1978. This federal initiative mandates that automobile manufacturers produce a unified national light-duty fleet that complies with both federal regulations and the emissions standards

established by California and other states. Under this program, fuel efficiency was set to increase to an equivalent of 54.5 miles per gallon (mpg), capping fleet-wide vehicle emissions at 163 grams of CO₂ per mile by model year 2025 (Environmental Protection Agency 2024).

In January 2017, EPA Administrator Gina McCarthy issued a Final Determination upholding the existing GHG emissions standards for model years 2022–2025. However, on March 15, 2017, EPA Administrator Scott Pruitt and Department of Transportation Secretary Elaine Chao announced EPA's intent to reconsider this determination. Subsequently, on April 2, 2018, Administrator Pruitt officially rescinded the January 2017 Final Determination, citing new data indicating that the existing standards may be overly stringent due to shifts in key assumptions, including fuel price projections and consumer adoption rates of advanced technology vehicles. The April 2nd decision did not constitute EPA's final agency action; rather, the agency announced plans to initiate rulemaking to establish revised standards. Until new regulations are formally adopted, the existing standards remain in effect (Environmental Protection Agency 2025).

In March 2022, The U.S. Department of Transportation's NHTSA and the EPA finalized the SAFE Vehicles Rule, which adjusted the CAFE and CO₂ emissions standards for passenger cars and light trucks for model years 2021–2026. This rule increased stringency by 1.5% annually, compared to the 5% annual increases mandated by the 2012 standards (NHTSA 2020).

In July 2024 NHTSA established new CAFE standards for passenger cars and light trucks, increasing requirements by 2% per year for passenger cars in model years 2027–2031, maintaining current levels for light trucks in model years 2027–2028, and then increasing by 2% per year for light trucks in model years 2029–2031. Additionally, fuel efficiency standards for heavy-duty pickup trucks and vans were set to increase by 10% annually for model years 2030–2032 and by 8% annually for model years 2033–2035 (U.S. Department of Transportation 2024).

In January 2025, U.S. Transportation Secretary Sean Duffy signed an order to reverse vehicle fuel economy standards set during President Joe Biden's administration. The previous standards aimed to increase fuel efficiency to approximately 50.4 miles per gallon by 2031. The new directive instructed NHTSA to reassess these standards for model years 2022 through 2031 and to consider new regulations for heavy-duty vehicles through 2035 (Reuters 2025).

Clean Power Plan

The US Clean Power Plan was a regulation put forward by the Obama administration in 2015 to reduce carbon emissions from power plants in the United States. The plan aimed to reduce carbon emissions from power plants by 32% below 2005 levels by 2030.

The idea for the Clean Power Plan was first proposed in 2013 as part of President Obama's Climate Action Plan. The EPA proposed the plan in June 2014, and after a public comment period, it was finalized in August 2015.

However, the Clean Power Plan was met with legal challenges from states and industry groups, who argued that the EPA did not have the authority to regulate carbon emissions from power plants under the

Clean Air Act. The SCOTUS issued a stay on the Clean Power Plan in February 2016, and the Trump administration later moved to repeal the plan in 2017.

In June 2019, the Trump administration replaced the Clean Power Plan with the Affordable Clean Energy (ACE) rule, which focused on individual power plants rather than setting a national standard for emissions reductions. However, in January 2021, the Biden administration signed an executive order directing the EPA to revisit the Clean Power Plan and consider implementing stricter emissions standards (Environmental Protection Agency 2023d).

On June 30, 2022, the U.S. Supreme Court (SCOTUS) published their decision for the case of *West Virginia v. EPA*. The case revolved around the question of—does the Environmental Protection Agency have the authority to regulate greenhouse gas emissions in any industry, so long as it considers cost, non-air impacts, and energy requirements? The SCOTUS decided that in Section 111(d) of the FCAA, Congress did not give the EPA the power to create emissions limits using the generation shifting approach used in the Clean Power Plan. The "major questions doctrine" states that in certain cases, if the agency's authority is broad and significant, there must be clear congressional authorization for the authority it claims. The EPA admits that issues of electricity transmission, distribution, and storage are not within its traditional expertise, and therefore lacks the authority to implement the Clean Power Plan under the FCAA without explicit congressional authorization (*West Virginia v. Environmental Protection Agency* 2023). However, the EPA continued finalizing rules to limit GHG emissions from power plants that abide by the court's ruling.

In May 2024, the EPA finalized greenhouse gas emission limits for fossil fuel-fired power plants. The rule sets CO₂ limits for new gas-fired combustion turbines and establishes CO₂ emission guidelines for existing coal, oil, and gas-fired steam generating units. The standards are designed to secure important climate benefits and protect public health by reducing greenhouse gas emissions from the power sector (Environmental Protection Agency 2025).

California

Legislative Actions to Reduce GHGs

The California legislature has passed multiple bills that make up the most assertive plan to decrease GHG emissions of any state in the country. This section provides an overview of the development GHG emission laws and resulting regulations in California.

AB 32 and 2008 Scoping Plan. In 2006, AB 32, also known as the California Global Warming Solutions Act, was passed by the California State Legislature. Its aim is to reduce the amount of GHGs emitted in California to levels that were observed in 1990 by 2020. The definition of "greenhouse gases" under AB 32 includes carbon dioxide, methane, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, with the addition of NF₃ being included since AB 32 was enacted. The responsibility of monitoring and regulating sources of GHGs falls under the authority of the California Air Resources Board (CARB). AB 32 lays out the following provisions:

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

AB 32 resulted in CARB issuing the Scoping Plan in 2008 which includes a wide range of strategies, regulations, and initiatives across various sectors, such as transportation, energy, and agriculture, that aim to reduce GHG emissions. Some of the key strategies identified in the Scoping Plan include implementing a cap-and-trade program, promoting renewable energy, and increasing the fuel efficiency of vehicles. The Scoping Plan also outlines methods for monitoring, reporting, and verifying GHG emissions and reductions. The goal of the Scoping Plan is to provide a framework for California to address climate change by reducing GHG emissions while promoting sustainable economic growth (California Air Resources Board 2023). The 2008 Scoping Plan has been updated by CARB after the passing of SB 32.

SB 97 and the CEQA Guidelines Update. In August 2007, SB 97 was passed and added Section 21083.05 and Section 21097 to the Public Resources Code. According to Section 21083.05, the Office of Planning and Research was required to prepare guidelines for the mitigation of GHG emissions or their effects associated with transportation or energy consumption, and to transmit them to the Resources Agency by July 1, 2009. The Resources Agency was then required to certify and adopt these guidelines by January 1, 2010 (California State Legislature 2007-2008 Session 2007).

The Office of Planning and Research recommended amendments to the CEQA Guidelines for addressing GHG emissions on April 13, 2009, and submitted them to the Secretary for Natural Resources. On July 3, 2009, the Natural Resources Agency began the process of certifying and adopting these amendments under Public Resources Code section 21083.05, following a public comment period of 55 days and two public hearings. Afterward, the agency proposed changes to the text of the guideline's amendments (California Association of Environmental Professionals 2010).

On December 31, 2009, the Natural Resources Agency sent the complete rulemaking file, along with the adopted amendments, to the Office of Administrative Law. The Amendments were approved by the Office of Administrative Law on February 16, 2010, filed with the Secretary of State for the California Code of Regulations. As a result, the Amendments became effective on March 18, 2010.

The CEQA Amendments provide direction to public agencies on how to analyze and reduce the effects of GHG emissions in CEQA documents. These Amendments are integrated into the existing CEQA framework by modifying existing guidelines to incorporate the concept of climate change.

One of the changes made was the addition of a new section, CEQA Guidelines Section 15064.4, which helps agencies determine the importance of GHG emissions. This section gives agencies the flexibility to

decide whether a quantitative or qualitative analysis is more appropriate for a specific project. However, there is limited guidance on the next crucial step in the evaluation process: determining whether the estimated GHG emissions of the project are significant or cumulatively significant (California Association of Environmental Professionals 2010).

The Amendments also affected CEQA Guidelines Sections 15126.4 and 15130, which deal with mitigation measures and cumulative impacts, respectively. While GHG mitigation measures are mentioned in general terms, specific measures are not recommended. The revision to Section 15130, which pertains to cumulative impacts, instructs agencies to analyze GHG emissions in an Environmental Impact Report (EIR) when a project's added emissions could be cumulatively considerable. However, it does not specify when emissions are considered cumulatively considerable (California State Legislature 2007-2008 Session 2007).

Section 15183.5 permits programmatic GHG analysis and subsequent project-specific tiering, and the development of Greenhouse Gas Reduction Plans. Adhering to such plans can assist in determining that a project's cumulative impact is not cumulatively considerable, according to proposed Section 15183.5(b). Furthermore, the Amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was also amended to include GHG-related questions (California State Legislature 2007-2008 Session 2007).

Advanced Clean Cars Program. In January 2012, the CARB approved the Advanced Clean Cars program, which integrates regulations for GHG emissions, criteria air pollutants, and the expansion of zero-emission vehicles (ZEVs) into a unified set of standards for vehicle model years 2017–2025. The program strengthens GHG emission standards for vehicles starting with the 2017 model year by utilizing existing technologies, incorporating lighter and more durable materials, and improving drivetrain and engine efficiency.

Under the program's ZEV regulation, battery electric, fuel cell, and plug-in hybrid electric vehicles must comprise up to 15% of new vehicle sales in California by 2025. Additionally, the program includes a clean fuels outlet regulation aimed at facilitating the commercialization of hydrogen fuel cell vehicles. This regulation mandates the expansion of hydrogen fueling stations throughout the state, with the number of stations increasing in response to fuel cell vehicle sales. By 2025, once fully implemented, the program is expected to reduce global warming emissions from new cars and light trucks by 34% and smog-forming emissions by 75% compared to 2016 levels (California Air Resources Board 2019).

In 2022, the CARB adopted the Advanced Clean Cars II regulations, establishing stringent emission standards for light-duty vehicles for model years 2026 through 2035. These regulations mandate that by 2035, all new passenger cars, trucks, and SUVs sold in California must be zero-emission vehicles (California Air Resources Board n.d.).

SB 32 and 2017 Scoping Plan. SB 32, signed into law in 2016, extends the targets set by AB 32 by requiring the state to reduce greenhouse gas emissions to 40% below 1990 levels by the year 2030. SB 32 also directs CARB to develop strategies and policies to achieve this goal, including an update to the

state's Climate Change Scoping Plan (California State Legislature, 2015-2016 Session 2016). The 2017 updated Scoping Plan builds on the previous Scoping Plan developed under AB 32 and includes new and expanded measures across various sectors, such as transportation, energy, and industry. Some of the key strategies identified in the updated plan include transitioning to renewable energy, increasing energy efficiency, promoting zero-emission vehicles, and reducing short-lived climate pollutants. The updated Scoping Plan also emphasizes the importance of addressing environmental justice and ensuring that all Californians benefit from the state's efforts to combat climate change (California Air Resources Board 2023).

2018 CEQA Guideline Updates. The California Natural Resources Agency finalized its amendments and additions to the State CEQA guidelines, which were approved by the Office of Administrative Law in 2018. One significant change was the addition of CEQA Guidelines Section 15064.4.1, which established new thresholds of significance for evaluating GHG emissions impacts. This section provides new screening criteria for determining whether a project's GHG emissions are considered significant, based on its location, type, and size (California Natural Resources Agency 2018).

This section provides screening criteria that agencies can use to determine if a project's GHG emissions are considered significant under CEQA. The section sets forth a two-part process for evaluating the significance of GHG emissions. The first step involves a qualitative analysis to determine if the project has the potential to cause a substantial increase in GHG emissions or if it could contribute to a cumulative impact on the environment. The second step is a quantitative analysis to evaluate the level of GHG emissions associated with the project.

The section outlines specific thresholds of significance for evaluating GHG emissions impacts. The significance thresholds are based on a project's location, type, and size. The thresholds are intended to provide a consistent and transparent approach for determining whether a project's GHG emissions are significant. CEQA Guidelines Section 15064.4.1 provides guidance for agencies to use in evaluating the significance of GHG emissions from a project, and it helps to ensure that these evaluations are consistent and transparent (California Code of Regulations, Title 14, § 15064.4 n.d.).

Additionally, CEQA Guidelines Section 15125 and Appendix F were updated to reflect current scientific understanding and state policy goals related to climate change. The amendments require lead agencies to evaluate the potential impact of climate change on a proposed project and disclose any significant impacts in the EIR.

Finally, CEQA Guidelines Section 15126.4 was revised to include additional guidance on the implementation of mitigation measures to reduce GHG emissions from a project, including the use of offset programs, and the development of a Greenhouse Gas Reduction Plan (GGRP) (California Natural Resources Agency 2018).

AB 1279 and 2022 Scoping Plan. This bill, the California Climate Crisis Act passed in September 2022 proposes a policy for the State to achieve net zero GHG as soon as possible, but no later than 2045, and to maintain net negative greenhouse gas emissions thereafter. The bill also aims to reduce statewide

anthropogenic GHG emissions to at least 85% below the 1990 levels by 2045. To achieve these policy goals, the state board will collaborate with relevant state agencies to update the scoping plan, which should recommend measures to achieve the policy goals and implement policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California (California State Legislature 2021-2022 Session 2022).

The resulting 2022 Scoping Plan outlines a strategy on how to achieve carbon neutrality through targets for carbon neutrality and reduce human-caused greenhouse gas (GHG) emissions by 85% below 1990 levels before 2045. The plan proposes various actions to achieve these goals, such as deploying clean technologies and fuels to significantly reduce fossil fuel combustion, reducing short-lived climate pollutants even further, promoting sustainable development, implementing measures to decrease emissions and store carbon in natural and working lands, and capturing and storing carbon. The outcomes of these actions will lead to significant reductions in GHG emissions, as well as progress towards achieving carbon neutrality (California Air Resources Board 2023).

SB 375. Senate Bill (SB) 375 was passed by the Senate on August 30, 2008, and signed into law by the Governor on September 30, 2008. According to the bill, the transportation sector is the largest contributor of GHG emissions in California, accounting for more than 40% of the total GHG emissions. SB 375 acknowledges that achieving the goals of AB 32 will not be possible without improving land use and transportation policies. To address this issue, SB 375 mandates the following actions: (1) requiring metropolitan planning organizations to incorporate sustainable community strategies in their regional transportation plans to reduce GHG emissions, (2) aligning planning for transportation and housing, and (3) providing incentives for implementing these strategies (California State Legislature 2007-2008 Session 2008).

California Senate Bill 375 includes provisions regarding the CEQA. Public Resources Code Section 21159.28 of SB 375 specifies that certain projects do not need to provide CEQA findings or determinations related to two types of impacts: (1) growth-inducing impacts and (2) project-specific or cumulative impacts from cars and light-duty truck trips on global warming or the regional transportation network. However, this exemption only applies to projects that meet specific criteria. These criteria include being located in an area with an approved sustainable communities strategy (SCS) or alternative planning strategy that the CARB accepts as achieving the greenhouse gas emission reduction targets, being consistent with that strategy in terms of designation, density, building intensity, and applicable policies, and incorporating mitigation measures required by a prior environmental document (State of California's Office of Planning and Research 2011).

SB 743. California SB 743 is a state law that was signed by Governor Jerry Brown on September 27, 2013. The law aims to streamline the environmental review process for certain types of development projects in California. Specifically, SB 743 requires the Governor's Office of Planning and Research to develop new guidelines for analyzing the transportation impacts of development projects. Under the new guidelines, transportation impacts must be evaluated based on the vehicle miles traveled (VMT) generated by the project, rather than the level of service (LOS) of the project's intersections. The VMT metric is intended to encourage more sustainable transportation options, such as walking, biking, and

public transit, and to reduce the overall environmental impact of development projects (Metropolitan Transportation Commission n.d.).

SB 743 also includes provisions that exempt certain types of infill development projects from the CEQA, which is a state law that requires environmental review of certain types of projects. These exemptions are intended to encourage more compact, walkable development in existing urban areas, rather than sprawling development on undeveloped land. Overall, SB 743 represents a significant shift in the way that transportation impacts are evaluated for development projects in California (California State Legislature 2013-2014 Session 2013).

AB 1493. Also known as the Pavley Bill, AB 1493 is a California state law introduced by former Assemblymember Fran Pavley in 2002. The bill required the CARB to establish regulations to limit greenhouse gas emissions from new passenger vehicles sold in California. The regulations were to be implemented in phases, with the goal of achieving a 30% reduction in emissions from new passenger vehicles by 2016. The passage of AB 1493 was significant because it made California the first state in the United States to regulate greenhouse gas emissions from vehicles. It also paved the way for other states to follow suit, as several other states adopted California's emissions standards in the following years.

However, AB 1493 faced legal challenges from the automobile industry, which argued that the state law was preempted by federal regulations. The case eventually made its way to the United States Supreme Court, which ruled in 2007 that the federal government did not have the authority to block California from implementing its own vehicle emissions standards. In response to the legal challenges and the Supreme Court ruling, the federal government and California reached an agreement in 2009 to establish a single national standard for vehicle emissions. The agreement, which was supported by the automobile industry, set new emissions standards for vehicles sold in the United States through the year 2016, and set the stage for future agreements on vehicle emissions (California Air Resources Board 2023).

SB 1368. In 2006, the State Legislature adopted SB 1368, which was signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower GHG emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for GHG emissions required by SB 1368. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007 (California Energy Commission 2023).

SB 350. Also known as the Clean Energy and Pollution Reduction Act of 2015, SB 350 is a state law that sets ambitious targets for California's clean energy transition. The law aims to increase energy efficiency, reduce petroleum use in transportation, and increase the use of renewable energy. Specifically, the law requires California to: 1) Increase the amount of energy obtained from renewable sources, such as wind and solar, to 50% by 2030, 2) double the energy efficiency of buildings in the state by 2030, 3) reduce the use of petroleum in cars and trucks by 50% by 2030. California SB 350 is a crucial part of California's efforts to combat climate change, reduce greenhouse gas emissions, and transition to a cleaner, more sustainable energy system. The law has been praised for its bold targets and its potential to drive innovation in the clean energy industry (California Energy Commission 2023).

SB 100. California SB 100 is a state law that was signed by Governor Jerry Brown on September 10, 2018. The law sets one of the most ambitious clean energy targets in the world, requiring California to obtain 100% of its electricity from zero-carbon sources by 2045. Specifically, SB 100 sets the following targets for California: 1) 50% of electricity must be obtained from renewable energy sources, such as wind and solar, by 2025, 2) 60% of electricity must be obtained from renewable energy sources by 2030, 3) 100% of electricity must be obtained from zero-carbon sources, which includes renewable energy, energy storage, and other zero-carbon technologies, by 2045.

SB 100 represents a significant milestone in California's efforts to combat climate change and transition to a cleaner, more sustainable energy system. The law has been praised for its bold targets and its potential to accelerate the deployment of renewable energy and other clean energy technologies in California and beyond (California State Legislature 2017-2018 Session 2018).

SB 398. California AB 398 is a state bill that was signed into law in 2017, and it extends California's cap-and-trade program, which aims to reduce GHG emissions in the state. The bill establishes GHG reduction targets of 40% below 1990 levels by 2030 and extends the cap-and-trade program through 2030. The cap-and-trade program limits the amount of GHG emissions businesses can produce. Businesses can purchase and trade allowances to emit a certain amount of GHGs. The total number of allowances decreases over time, which puts pressure on businesses to reduce their emissions.

AB 398 also includes provisions to assist low-income communities affected by air pollution and to support the development of renewable energy and energy efficiency projects in those communities. The bill also establishes a framework for investing cap-and-trade revenues in a variety of programs, including public transportation, affordable housing, and programs to reduce GHG emissions in the agricultural sector. The extension of the cap-and-trade program under AB 398 has been seen as a significant step forward in California's efforts to address climate change and reduce GHG emissions, as it provides a stable and predictable policy framework for businesses and the state to work together to achieve emissions reductions targets (California State Legislature 2017-2018 Session 2017).

SB 605. Also known as the Short-Lived Climate Pollutants bill, SB 605 was introduced by Senator Ricardo Lara in 2017. The bill aimed to reduce emissions of short-lived climate pollutants (SLCPs) such as methane, black carbon, and fluorinated gases, which have a significant impact on climate change.

SB 605 requires the CARB to develop a comprehensive strategy to reduce SLCP emissions in California, including setting targets for reducing SLCP emissions, identifying regulatory and voluntary measures to achieve those targets, and establishing reporting requirements for SLCP emissions. The bill also requires CARB to consider the social and economic impacts of its regulations on vulnerable communities, and to prioritize measures that reduce SLCP emissions while also promoting economic development, job creation, and public health. (California State Legislature, 2013-2014 Session 2014)

SB 1383. California SB 1383 is a state bill that was signed into law in 2016, and it aims to reduce emissions of SLCPs such as methane, black carbon, and fluorinated gases in California. The bill sets targets for reducing organic waste disposal in the state by 50% by 2020 and 75% by 2025, compared to 2014 levels. This would require significant efforts to reduce the amount of organic waste sent to landfills and to increase composting, anaerobic digestion, and other organic waste management practices.

SB 1383 also requires the CARB to establish methane emissions reduction targets for various sectors, including agriculture, landfill, and dairy operations. It also establishes requirements for reducing methane emissions from the oil and gas sector and from other sources of SLCPs, such as refrigerants and high-GWP gases. The implementation of SB 1383 involves collaboration between the state, local governments, and the private sector to achieve the emissions reduction targets. The bill also includes provisions to support the development of local organic waste processing facilities and to provide incentives for the use of compost and other organic soil amendments in agriculture. SB 1383 is considered a significant step forward in California's efforts to address climate change and air pollution, particularly in reducing emissions of SLCPs, which have a significant impact on the state's overall carbon footprint (California State Legislature 2015-2016 Session 2016).

AB 1346, known as the SOREs act (small off-road engines), was signed on July 1, 2022, and bans the sale of gasoline powered small engines in California by 2024. These SOREs are primarily used for lawn and garden equipment. The bill states that SOREs emit high levels of NOx, ROG, and PM pollution and therefore contribute a large negative impact on public health (California State Legislature 2021-2022 Session 2021).

SB 1203, signed into law by Governor Gavin Newsom on September 27, 2022, mandates that all state agencies in California achieve net-zero greenhouse gas (GHG) emissions by January 1, 2035, or as soon as feasible thereafter. Under the bill's provisions, the Department of General Services (DGS), in collaboration with the CARB, must publish an annual GHG inventory of state agencies, starting by July 1, 2024, with subsequent reports published annually. This inventory will help track the progress of state agencies in reducing their GHG emissions over time.

Additionally, DGS is tasked with developing an action plan by January 1, 2026, which outlines the necessary steps, investments, and cost estimates for achieving net-zero emissions by 2035. This plan will be updated every two years beginning in 2028, ensuring the process stays on track and adapts to any new technological or policy developments. The efforts to reduce GHG emissions must be integrated into the sustainability roadmaps of all state agencies. This ensures that each department's operations are aligned with the goal of reducing emissions, facilitating a coordinated approach across the state

government. To ensure accountability, DGS will also report to the California Legislature on the progress toward achieving the net-zero goal, starting on December 31, 2027, and continuing every two years thereafter (California State Legislature 2022).

AB 2446, signed into law by Governor Gavin Newsom on September 16, 2022, addresses the environmental impact of construction materials by targeting embodied carbon emissions in California (California State Legislature 2021-2022 Session 2022). Embodied carbon refers to the greenhouse gas emissions associated with the entire lifecycle of construction materials, including extraction, manufacturing, transportation, installation, maintenance, and disposal. These emissions constitute a significant portion of a building's total carbon footprint, making their reduction crucial for achieving statewide climate goals.

AB 2446 mandates that the CARB develop a comprehensive framework to measure and reduce the carbon intensity of construction materials. The legislation sets ambitious targets, aiming for a 40% net reduction in embodied carbon emissions by 2035, with an interim goal of a 20% reduction by 2030. To support these objectives, CARB is required to establish a system that encourages the use of low-carbon construction materials, potentially leveraging state and federal financial incentives to stimulate market demand.

The bill also stipulates those new non-residential buildings exceeding 10,000 square feet and residential projects comprising at least five units must submit life cycle assessments and product-specific Environmental Product Declarations (EPDs) for the building materials used. This requirement aims to enhance transparency and accountability in the construction industry regarding the environmental impact of materials (Das 2023).

Executive Orders Related to GHG Emissions

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

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, setting the following reduction targets for GHG emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

According to some scientists, the 2050 reduction target is crucial to achieve a stable climate, and the 2020 target serves as an intermediate goal. However, as the goals were set through an executive order, they are not legally binding on the private sector or local governments. However, since this executive order, AB 1279 has set stricter GHG emission reduction targets into law as discussed prior in this section (Schwarzenegger, Executive Order S-3-05 2005).

Executive Order S-01-07 - Low Carbon Fuel Standard. On January 18, 2007, Executive Order S-01-07 was signed by the Governor to establish a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. This order created the Low Carbon Fuel Standard and directed various agencies to develop and propose protocols for measuring the life-cycle carbon intensity of transportation fuels. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009, but it was challenged in court in 2011, resulting in a preliminary injunction against its implementation. The Ninth Circuit Court of Appeals lifted the injunction in 2012, and in 2013, the court held that the standard was not in conflict with federal law. However, in 2013, the Fifth District Court of Appeal ruled that CARB had failed to comply with CEQA and the APA when adopting the regulations for the Low Carbon Fuel Standard. The court allowed the regulations to remain operative while CARB worked to comply with the procedural requirements (Schwarzenegger, Executive Order S-01-07 2007).

Executive Order S-13-08. Executive Order S-13-08 states that California is likely to experience significant impacts from climate change, including altered precipitation patterns, rising sea levels, and increased temperatures. These impacts pose a serious threat to the state's economy, natural resources, and public health. In response to the order, the California Natural Resources Agency developed the first statewide climate change adaptation strategy in the US in 2009. The strategy analyzes the risks associated with climate change in California and identifies strategies to help the state adapt to these changes. It also sets the direction for future research on this important issue (California Natural Resources Agency 2009).

Executive Order B-30-15. In April 2015, Governor Jerry Brown signed Executive Order B-30-15s which outlines several key provisions. First, it establishes a new greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 to ensure that California achieves its overall goal of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Second, all state agencies that have control over sources of greenhouse gas emissions are required to take measures, within their statutory authority, to achieve these reductions. Third, the California Air Resources Board is tasked with updating the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent. Although the order doesn't have a direct impact on cities and counties, it will lead to the preparation of the new 2017 CARB Scoping Plan and regulations for meeting post-2020 reduction targets (E. Brown 2015).

Executive Order B-48-18. A directive signed by Governor Jerry Brown in September 2018 that sets a target of carbon neutrality for California by 2045. The order establishes goals for the state to achieve carbon neutrality through a variety of actions, including increasing renewable energy, promoting zero-emission vehicles, and investing in research and development of new clean technologies. The order also sets a goal for the state to achieve net-negative emissions beyond 2045, meaning that California would remove more greenhouse gases from the atmosphere than it emits. This executive order is part of California's broader effort to address climate change and reduce greenhouse gas emissions (G. E. Brown, Executive Order B-48-18 2018).

Executive Order N-79-20. EV Stuff. This order set ambitious targets for transitioning to ZEVs in California. All new passenger cars and trucks sold in the state must be zero-emission by 2035. All

medium- and heavy-duty vehicles should be zero-emission by 2045, where feasible, with a target of 2035 for drayage trucks. All off-road vehicles and equipment operations are to be zero-emission by 2035. The order also directed the California Air Resources Board to develop regulations to achieve these goals and mandated state agencies to accelerate the development of affordable fueling and charging infrastructure for ZEVs (Newsom, Executive Order N-79-20 2020).

Executive Order N-82-20. Signed by California Governor Gavin Newsom on October 7, 2020. The order sets a goal for the state to conserve 30% of California's land and coastal waters by 2030, to help combat climate change and protect biodiversity. The order establishes the California Biodiversity Collaborative to develop and implement a biodiversity strategic plan and directs state agencies to prioritize conservation and restoration efforts. The order also recognizes the importance of involving Native American tribes and local communities in conservation efforts and calls for increased funding and partnerships to support conservation efforts (Newsom, Executive Order N-82-20 2020).

California Regulations and Building Codes

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

Title 24. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The Title 24 standards cover a wide range of topics related to building energy efficiency, including building envelope design, lighting, mechanical systems, and more. The standards are periodically updated to reflect advances in technology and changes in state policy, with the most recent updates taking effect on January 1, 2020. The goal of the Title 24 standards is to reduce energy consumption in buildings (and as a result reduce GHG emissions) and promote sustainable design and construction practices (California Energy Commission n.d.).

Title 20. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations created a set of energy efficiency standards that apply to a variety of appliances and products sold or offered for sale in the state. The standards are designed to reduce energy consumption, save consumers money on their energy bills, and reduce GHG emissions. Title 20 covers products such as lighting fixtures, televisions, computers, battery chargers, and many other appliances and electronics. Manufacturers must ensure that their products meet the energy efficiency requirements before they can be sold in California. The standards are regularly updated to reflect advances in technology and to increase energy savings. (California Energy Commission n.d.)

California Green Building Standards Code, also known as CALGreen, is a set of mandatory standards that promote the design and construction of energy-efficient, water-efficient, and environmentally sustainable buildings. The standards apply to all newly constructed buildings and to alterations and additions to existing buildings. CALGreen covers various areas such as energy efficiency, water conservation, indoor air quality, materials conservation, and construction waste reduction. It also includes

requirements for installing renewable energy systems and using low-emitting materials. CALGreen is updated periodically to reflect advances in green building practices and technologies. The latest version is the 2022 CALGreen code, effective January 1, 2023 (Department of General Services n.d.).

San Joaquin Valley Air Pollution Control District

SJVAPCD Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved the SJVAPCD's Climate Change Action Plan with the following goals and actions:

Goals:

- Assist local land-use agencies with CEQA issues relative to projects with GHG emissions increases.
- Assist Valley businesses in complying with mandates of AB 32.
- Ensure that climate protection measures do not cause increase in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

Actions:

- Authorize the Air Pollution Control Officer to develop GHG significance threshold(s) or other mechanisms to address CEQA projects with GHG emissions increases. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in the spring of 2009.
- Authorize the Air Pollution Control Officer to develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary GHG reductions created in the Valley. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in spring 2009.
- Authorize the Air Pollution Control Officer to enhance the SJVAPCD's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB32 emission reporting requirements to submit simultaneous streamlined reports to the SJVAPCD and the state of California with minimal duplication.
- Authorize the Air Pollution Control Officer to develop and administer voluntary GHG emission reduction agreements to mitigate proposed GHG increases from new projects.
- Direct the Air Pollution Control Officer to support climate protection measures that reduce GHG emissions and toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted area (San Joaquin Valley Air Pollution Control District n.d.).

SJVAPCD CEQA Greenhouse Gas Guidance.

On December 17, 2009, the San Joaquin Valley Air Pollution Control District (SJVAPCD) Governing Board adopted two key policies: "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA" and "District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency." The SJVAPCD determined that current scientific methods are insufficient to accurately quantify the precise impact of project-specific

greenhouse gas (GHG) emissions on global climate change. However, it concluded that GHG emissions contribute cumulatively to climate change and that, without mitigation, these cumulative effects could be significant. As a result, the District recommended that all projects reduce GHG emissions through project design or mitigation measures.

The SJVAPCD's approach aims to simplify the process of assessing the significance of GHG emissions from proposed projects. Projects exempt from CEQA requirements or that comply with an approved GHG reduction plan or mitigation program would have a less than significant cumulative impact. These plans or programs must be formally adopted by the relevant public agency, supported by a certified final CEQA document, and specifically authorized by law.

To further streamline assessments, the District established Best Performance Standards (BPS), which set performance-based benchmarks for reducing GHG emissions. Projects that meet BPS requirements would not be required to quantify their GHG emissions and would automatically be considered to have a less than significant cumulative impact. However, projects that do not comply with BPS must quantify their emissions and demonstrate a 29% reduction in GHG emissions compared to business-as-usual (BAU), aligning with CARB's AB 32 Scoping Plan. Additionally, all projects requiring an Environmental Impact Report (EIR) under CEQA must quantify their GHG emissions, regardless of whether they incorporate BPS (San Joaquin Valley Air Pollution Control District 2009).

For stationary source permitting projects, BPS is defined as the most stringent feasible method of controlling GHG emissions, including equipment type, design, operational efficiency, and maintenance practices that are already proven effective in practice. For land development projects, BPS consists of GHG reduction strategies, project design features, and land-use planning decisions that collectively reduce emissions by at least 29% compared to business-as-usual scenarios. To aid in implementation, the SJVAPCD will compile and maintain a list of all approved BPS to assist in determining whether a proposed project has met the required GHG reductions (San Joaquin Valley Air Pollution Control District 2009).

Fresno Council of Governments Priority Climate Action Plan

The Fresno Council of Governments (FCOG) Priority Climate Action Plan (PCAP) 2024 outlines several regulations and rules related to GHG emissions. The PCAP prioritizes GHG reduction measures in key sectors, including transportation, agriculture, building energy, and waste management. Key regulatory and policy measures include:

Transportation Sector:

- Development of a robust electric vehicle (EV) charging network in Fresno County to facilitate greater adoption of EVs.
- Conversion of municipal fleets (including transit vehicles) to ZEVs.
- Expansion of bike and pedestrian infrastructure to promote alternative mobility options such as e-bikes and scooters.
- Enhancement of public transportation systems to increase accessibility and sustainability.
- Implementation of carpool, vanpool, and other shared mobility incentives to reduce VMT

Agricultural Sector:

- Reduction of GHG emissions from manure management in livestock and poultry operations through state and federal incentive programs.
- Elimination of agricultural burning in compliance with Senate Bill 705, with incentives for alternative disposal methods like chipping or soil incorporation.
- Electrification of agricultural equipment, such as tractors and irrigation pumps, to cut down emissions from off-road diesel engines.

Building Energy Sector:

- Encouragement of energy efficiency retrofits for residential and commercial buildings.
- Incentives for on-site renewable energy generation such as solar and wind power.
- Promotion of high-efficiency water heating systems to reduce energy consumption.
- Incorporation of green building policies based on Leadership in Energy and Environmental Design (LEED) or Green Globes Rating System.

Waste Management Sector:

- Implementation of waste diversion programs to reduce methane emissions from landfills and wastewater treatment plants.
- Expansion of construction and demolition waste recycling programs to meet or exceed CALGreen voluntary guidelines.

The PCAP provides a framework for reducing GHG emissions in Fresno County by aligning with state and federal regulations, leveraging available funding, and encouraging stakeholder participation. It serves as the foundation for a more comprehensive CCAP that will be developed over the 18 months after its publication (Fresno Council of Governments 2024).

Impacts & Mitigation Measures

Methodology

Short-term Impacts

Short-term construction emissions associated with the proposed project were calculated using the CalEEMod computer program. The modeling accounted for emissions generated during site preparation, grading, paving, building construction, and the application of architectural coatings. Phase 1 of construction is expected to commence in Summer 2025 and take approximately 14 months to complete. The timeline for Phase 2 and 3 remains uncertain, so a conservative estimate were used. Phase 2 is assumed to begin in Fall 2026 and last about 9 months. Phase 3 is assumed to begin Summer 2027 and last about 15 months.

Since detailed construction schedules and equipment requirements have not been determined for the project, the analysis relied on default assumptions provided in the CalEEMod model. The assumptions and modeling results are included in Appendix A of this report.

Long-term Impacts

The CalEEMod computer program was used to estimate long-term operational emissions of GHGs associated with each phase of the proposed project. Mobile-source emissions were estimated to be zero with the following discussion for each phase:

1. Phase 1 would not increase student capacity or events at the High School. The remodeling of the stadium would only provide improved facilities for existing students and visitors for events.
2. Phase 2 would not increase vehicle miles traveled (VMT). The Multi-use fields would not increase student capacity at the campus and would instead provide additional athletic fields to eliminate over-use of existing fields that currently results in poor field conditions. Secondly, the Multi-use fields would be open to public recreation and some usage from the public of Riverdale is anticipated. However, the Multi-use fields would provide public recreation facilities to a community that does not have any public parks. The nearest public parks for the community of Riverdale are in Lemoore and Hanford, approximately nine and eleven miles away, respectively. While Phase 2 would result in new trips to the campus, many users would replace traveling to Lemoore and Hanford for the much closer proposed Multi-use fields.
3. Phase 3 would not increase student capacity at the High School. The reconstruction of the Ag Barn would provide improved facilities for the existing students of the campus.

Based on this assessment, the Project would not result in an increase in operational mobile emission sources. Details of the modeling assumptions and output files can be found in Appendix A of this report.

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to 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 to reduce emissions of GHGs.

In accordance with the SJVAPCD's Guidance for Valley Land-use Agencies in *Addressing GHG Emission Impacts for New Projects Under CEQA* (San Joaquin Valley Air Pollution Control District 2009) a project would be considered to have a less than significant impact on climate change if it would comply with at least one of the following criteria:

- Comply with an approved GHG emission reduction plan or GHG mitigation program which avoids or reduces GHG emissions within the geographic area in which the project is located. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency, or
- Implement approved best performance standards, or
- Quantify project GHG emissions and reduce those emissions by at least 29 percent compared to BAU.

The SJVAPCD has not yet adopted BPS for development projects. The quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals is considered appropriate in some instances. However, based on the California Supreme Court's decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming* (2015) 224 Cal. App. 4th 1105 (CBD vs. CDFW; also known as the "Newhall Ranch case"), substantial evidence would be need to be provided to document that project-level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included a qualitative approach based on consistency with statewide, regional, and local plans (Supreme Court of California 2015).

As of March 2024, neither the County of Fresno nor CARB have adopted recommended numerical GHG significance thresholds applicable to development projects for CEQA purposes. However, the Fresno Council of Governments has adopted its Priority Climate Action Plan (PCAP) as of March 2024. The CCAP outlines five draft measures for the transportation sector, four for the agricultural sector, ten for the building energy sector, and four for the waste sector (Fresno Council of Governments 2024). Applicable measures are analyzed in the impact analysis below for consistency.

Therefore, the methodology for evaluating the project's impacts related to GHG emissions focuses on its consistency with statewide, regional, and local plans that have been adopted for the purposes of reducing and mitigating GHG emissions. This approach has been deemed appropriate for analyzing a project's GHG impact by the Governor's Office of Planning and Research (OPR) and has been upheld in court challenges (Governor's Office of Planning and Research 2018) (*Mission Bay Alliance v. Office of Community Investment & Infrastructure* 2016). The evaluation of consistency with such plans serves as the sole basis for determining the significance of the project's GHG-related impacts to the environment. The project's GHG emissions have been quantified and are included in this report for informational purposes.

Project Impacts

Impact GHG-A.	<i>Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? and</i>
Impact GHG-B.	<i>Would the project conflict with any applicable plan, policy or regulation of an agency adopted to reduce greenhouse gases emissions?</i>

Below is a discussion and quantification of the project's GHG emissions.

Short-term Construction

Construction-generated GHG emissions are summarized in Table 10. As shown, construction of the facility would generate about 644.1 MTCO₂e. Amortized GHG emissions, when averaged over an assumed 30-year life of the project, would total approximately 21.47 MTCO₂e/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative. Construction-generated emissions would vary, depending on the final construction schedules, equipment required, and activities conducted.

Table 10. Construction GHG Emissions

Construction Year	Annual Emissions (MTCO ₂ e/Year)
Phase 1 2025	180
Phase 1 2026	181
Phase 2 2026	122
Phase 3 2027	109
Phase 3 2028	52.1
Total Construction Emissions:	644.1
Amortized Net Change in Construction Emissions ¹ :	21.47
1. Amortized emissions are quantified based on an estimated 30-year project life. Refer to Appendix A for emissions modeling assumptions and results.	

Long-term Operation

Table 11 summarizes the project's increase of operational GHG emissions for the operational years per phase of Phase 1 2026, Phase 2 2026, and Phase 3 2028 compared to existing operation of current land uses. Including amortized construction emissions, total annual GHG emissions are estimated at 31.83 metric tons of CO₂ equivalent (MTCO₂e) in for Phase 1 2026, 17.07 MTCO₂ from Phase 2 2026, and 71.67 MTCO₂e from Phase 3 2028. Most emissions, 74.5%, would come from energy use, 11% would come from mobile sources.

Also, Riverdale High School operates a large solar yard northwest of the project site that would provide power to the project, reducing operational GHG emissions from energy use.

Table 11. Operational GHG Emissions (Unmitigated)

Emissions Source	GHG Emissions (MTCO ₂ e per year) ¹			Percent of Total GHG Emissions
	Phase 1 2026	Phase 2 2026	Phase 3 2028	
Mobile Sources	0.00	11.0	0.00	11.09%
Area Sources	0.06	0.06	0.28	2.34%
Energy Use	17.0	0.00	56.9	74.50%
Water Use	1.94	1.80	1.32	3.29%
Waste Generation	0.81	0.16	7.77	8.81%

Refrigerant	<0.005	0.00	0.01	0.01%
Total Operational:	19.80	13.00	66.30	
Amortized Construction Emissions:	12.03	4.07	5.37	
Total Emissions:	31.83	17.07	71.67	
Total Emissions:	133.67			
1. Project-generated emissions were quantified using the CalEEMod computer program. Refer to Appendix A for modeling results and assumptions.				

Consistency With Applicable Plans

As previously discussed, compliance with applicable GHG reduction plans would result in a less than significant impact from project-generated GHG emissions. The FCOG has adopted the 2022 Regional Transportation Plan and Sustainable Communities Strategies (RTP/SCS) (Fresno Council of Governments 2022) and a Priority Climate Action Plan (PCAP) (Fresno Council of Governments 2024) that include measures to reduce GHG emissions. Additional, relevant measures aimed at reducing operational GHG emissions are included the CARB's 2022 Climate Change Scoping Plan (California Air Resources Board 2023). The project's consistency with these plans is further detailed below.

CARB's 2022 Climate Change Scoping Plan

The 2017 Climate Change Scoping Plan set a goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030, as required by SB 32. On November 16, 2022, the CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality. This updated plan continues efforts to meet the SB 32 target and builds upon previous strategies by aiming for an 85% reduction in GHG emissions below 1990 levels by 2045.

Key strategies to achieve SB 32's goals include promoting sustainable communities through zero net energy buildings and enhanced transportation options that reduce vehicle miles traveled (VMT). Additional measures focus on increasing the use of low-carbon fuels and cleaner vehicles. Analysis of consistency with measures from the CARB's 2022 Scoping Plan are discussed below in Table 12.

Table 12. Consistency Analysis with CARB's 2022 Scoping Plan

Measure/Action	Consistency Analysis
Smart Growth/VMT Reduction: VMT per capita reduced 25% below 2019 levels by 2030, and 30% below 2019 levels by 2045.	The project would provide local recreational facilities within a walkable distance to most residents. Riverdale residents would not need to travel outside of the community to access such facilities. Remodeled portion of the Project would not increase VMT. The Project is Consistent .
Light-duty Vehicle (LDV) Zero Emission Vehicles (ZEVs): 100% of Light Duty Vehicle sales by 2035.	The project site is owned and operated by the Riverdale Joint Union School District. As vehicles are retired towards 2035, the District would purchase ZEV LDVs, as required by State regulations. The Project is Consistent .

Truck ZEVs: 100% medium duty (MDV)/HDV sales are ZEV by 2040.	The project site is owned and operated by the Riverdale Joint Union School District. As vehicles are retired towards 2040, the District would purchase ZEV MDVs as required by State regulations. The Project is Consistent .
New Residential and Commercial Buildings: All electric appliances installed for commercial development starting 2029	Consistent. Despite the Project starting before 2029, to align with CARB's GHG reduction goals, the project would implement MM GHG-1 to prohibit the construction of natural gas infrastructure and use of natural gas appliances, and utilize electrical appliances. Additionally, the project would comply with the requirements listed in Title 24 of the California Building Standards Code which require and/or promote energy-efficient appliances.
Construction Equipment: 25% of energy demand electrified by 2030 and 75% electrified by 2045.	Not feasible. Electric construction equipment and electrical power sources are not available for the Project site. GHG emissions from construction are small. The project is Consistent .
Natural and Working Lands: Conserve 30% of the State's NWL and coastal waters by 2030.	The project would replace existing cropland with development. However, this land use conversion is consistent with the Riverdale Community Plan and the Fresno County General Plan. Additionally, the project would offset the removal of farmland by constructing a new agricultural educational facility including pastures and orchards. 3.25 acres of agricultural land would be converted to grassy turf playfields which provide carbon sequestration benefits as high density, perennial landscaped areas. The project is Consistent .
Developed Lands: Increase forestry investment by 200% above current levels and utilize tree watering that is 30% less sensitive to drought.	The project would promote the urban forest in Riverdale by adding more trees with drought tolerant irrigation to the site per CALGreen code. The project is Consistent .
<i>Non-applicable measures related to aviation, ocean-going vessels, freight/rail, oil and gas, existing residential and commercial buildings, manufacturing, agricultural production, fuel production, landfill operations, and protection of forests, shrublands, grasslands, wetlands are omitted.</i> (California Air Resources Board 2023)	

As discussed in Table 12, the Project is consistent with all applicable measures/actions of the CARB 2022 Scoping Plan.

To support the state's GHG reduction targets, including those under SB 32, California enacted the Sustainable Communities and Climate Protection Act (SB 375). This law requires regional metropolitan planning organizations, such as FCOG, to develop Sustainable Communities Strategies (SCSs) that integrate transportation, housing, and land use planning to help achieve state-mandated GHG reductions. The implementation of SCSs aims to lower per capita emissions from mobile sources by reducing per

capita VMT. Compliance with GHG reduction goals and policies from the FCOG are discussed in the sections below.

FCOG 2022 Regional Transportation Plan and Sustainable Communities Strategies

The FCOG's 2022 RTP/SCS outlines transportation strategies aimed at reducing regional GHG emissions. Based on the rationale in this study, the project would not increase vehicle miles traveled (VMT), demonstrating that the project aligns with planned growth and the objectives set forth in the FCOG's 2022 RTP/SCS. Analysis of all relevant measures is shown below in Table 13 below.

Table 13. Consistency Analysis with FCOG's Transportation Plan and Sustainable Communities Goals

Goal	Project Consistency
Goal 1: Improved mobility and accessibility for all.	Though the project would not add an additional bus stop near its location, the project would make improvements to the sidewalk along Hazel Ave. which would improve accessibility to the site. The project is consistent .
Goal 2: Vibrant communities that area accessible by sustainable transportation options.	The project would increase the parking stalls available at the location, though it would provide a local recreation area for residents to use. Local residents would travel smaller distances to participate in outdoor activities instead of traveling to different towns to access public parks. The project is consistent .
Goal 3: A safe, well-maintained, efficient, and climate-resilient multimodal transportation network.	As mentioned previously, improvements to Hazel Ave. would improve access to the nearest bus stop on Mt. Whitney to the Riverdale HS athletics complex. The project is consistent .
Goal 4: A transportation network that supports a sustainable and vibrant economy.	This project would be built away from main thoroughfares, such as Mt. Whitney Ave., so it is not expected to impact the region's private sector transportation needs. The project is consistent .
Goal 5: A region embracing clean transportation, technology, and innovation.	The Project would be constructed in compliance with CALGreen EV parking spaces. The Project is consistent .
(Fresno Council of Governments 2022)	

As discussed in Table 13, the Project is consistent with all applicable goals of the FCOG's PCAP GHG reduction goals.

FCOG Priority Climate Action Plan

The FCOG's PCAP outlines five draft measures for the transportation sector, four for the agricultural sector, ten for the building energy sector, and four for the waste sector. Analysis of consistency with relevant measures are shown below in Table 14.

Table 14. Consistency Analysis with FCOG's Priority Climate Action Plan

GHG Reduction Measure	Project Consistency Analysis
Transportation Sector	
1) EV Strategy: Develop a robust electric vehicle charging network in Fresno County, including in disadvantaged communities, to increase electric vehicle adoption in Fresno County.	The Project would be constructed in compliance with CALGreen EV parking spaces. The Project is consistent .
2) Municipal Fleet Conversion: Continue to convert the municipal fleet (including transit) into zero-emission vehicles and provide a sustainable and reliable support system for such zero-emission fleet, which could include, but not limited to: maintenance, charging facilities, training of personnel, etc. (Implementing measures could include fleet electrification, installation of electric vehicle charging infrastructure, etc.)	The Project is not a transportation Project. The Project would not increase VMT, so this measure is not applicable to the project and is consistent. Riverdale Joint Unified School District plans to electrify its fleet of vehicles through other projects to meet the State's climate goals.
3) Bike and Pedestrian Network: Build a well-connected bike and pedestrian system that provides alternative transportation options, including micro-mobility such as shared e-bikes and e-scooters. Implementing measures could include pedestrian network improvements, bike parking, expanded bikeway networks, electric bikeshare programs, scooter share programs, dedicated sand for bike trails.	The Project would construct new sidewalk along the east side of Hazel Ave. to promote pedestrians. Bicycle access to the project site is currently promoted along Hazel Avenue from Mt. Whitney Ave. by 25 MPH school zone signs, pavement markings, and crosswalk signage reducing vehicle speeds and making cycling accessible. These markings would continue along reconstructed sections of Hazel Ave.; therefore, the project is consistent .
4) Public Transportation: Enhance the public transportation system by maintaining/expanding the existing transit system and implementing other transit strategies such as micro transit.	Not applicable.
5) Carpool/Vanpool and Other Shared Mobility Options: Provide incentives for carpool and vanpool, and other shared mobility options. (Implementation measures could include commute trip reduction programs, end-of-trip facilities, car-sharing programs, employer-sponsored vanpool/shuttle, priced workplace parking, and/or employee parking "cash-out" programs.)	Not applicable. District does provide school bus program to project site.
Building Energy Sector	
1) Incentive Programs for the Purchase of Certified Energy Efficient Appliances: Incentive programs for the purchase of certified energy-efficient appliances, heating and cooling equipment, lighting, and building products to replace inefficient products. (Implementation could include air distribution system updates such as right-sizing fan system equipment and converting to a variable-air-volume system, heating and cooling system upgrades, reductions in supplemental energy load consumption by installing ENERGY STAR equipment, window films, and adding insulation or reflective roof coating and/or installation of energy-efficient lighting.)	The Project would be designed in accordance with 2022 California Green Building Standards Code, which includes energy and water efficiency design aspects. The project is consistent .
2) Incorporate Water Efficiency Measures: Incorporate water efficiency measures that reduce water heating	The Project would be designed in accordance with 2022 California Green Building Standards Code,

energy consumption by installing alternative types of water heaters in place of gas storage tank heaters in residences.	which includes electric tankless water heaters. The project is consistent .
3) Bundle On-Site Renewable Energy Generation: Bundle on-site renewable energy generation with energy efficiency improvements in residences and commercial buildings (Implementation could include establishment of on-site renewable energy systems such as solar power with fuel cells and battery storage, biomass combustion, and/or wind power, limitations on non-renewable energy sources.)	The Project site is powered by existing solar panels that currently powers the high school campus. The project is consistent .
<i>Measures for Solid Waste and Wastewater Sector and Agriculture Sector were deemed not applicable to the project and are omitted.</i> (Fresno Council of Governments 2024)	

As discussed in Table 13, the Project is consistent with all applicable measures or the intent of the FCOG's PCAP GHG reduction measures that do not directly apply to the project.

As previously noted, the proposed project aligns with regional vehicle miles traveled (VMT) reduction targets since it would not increase VMT. However, it does not incorporate BMPs necessary to fulfill its "fair share" in supporting the State's long-term climate objectives, including the 2045 carbon neutrality goal. Therefore, this impact would be considered potentially significant.

Mitigation Measures

GHG-1: Natural Gas Prohibition. Building mechanical equipment and appliances shall be electrically powered. The installation of natural-gas service/infrastructure shall be prohibited.

Significance After Mitigation

Mitigation Measure GHG-1 would prohibit the construction of natural gas infrastructure and the use of natural gas-powered appliances and mechanical systems. With this mitigations in place, and as discussed above, the proposed project would align with CARB's 2022 Climate Change Scoping Plan, and the FCOG's 2022 RTP/SCS, the FCOG's PCAP to contribute its fair share toward achieving the State's carbon neutrality goal by 2045, as outlined in Executive Order B-55-18.

With mitigation, the project's GHG emissions would not result in significant environmental impacts or conflict with applicable GHG reduction policies, plans, or regulations, therefore this impact would be considered **less than significant with mitigation incorporated**.

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Appendix A.1: Phase 1 CalEEMod Emission Modeling

Riverdale HS Athletic Facilities - Phase 1 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Riverdale HS Athletic Facilities - Phase 1
Construction Start Date	7/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	20.0
Location	36.4348538536434, -119.85582584339924
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2521
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	2.01	1000sqft	0.05	2,006	264,722	264,722	—	Buildings and Landscaping.

Other Non-Asphalt Surfaces	60.7	1000sqft	1.39	0.00	0.00	0.00	—	Concrete hardscape
Parking Lot	137	1000sqft	3.15	137,427	0.00	0.00	—	Rubber track

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	64.8	31.7	33.6	0.05	9.17	5.23	6,121
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	1.09	8.73	13.2	0.02	0.96	0.46	2,768
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	2.21	4.45	5.60	0.01	0.54	0.30	1,091
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.40	0.81	1.02	< 0.005	0.10	0.05	181

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	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2025	3.39	31.7	33.6	0.05	9.17	5.23	6,121
2026	64.8	8.16	13.7	0.02	0.92	0.42	2,808
Daily - Winter (Max)	—	—	—	—	—	—	—
2025	1.09	8.73	13.2	0.02	0.96	0.46	2,768

2026	1.03	8.25	13.0	0.02	0.92	0.42	2,747
Average Daily	—	—	—	—	—	—	—
2025	0.52	4.45	5.60	0.01	0.54	0.30	1,090
2026	2.21	3.32	5.28	0.01	0.36	0.17	1,091
Annual	—	—	—	—	—	—	—
2025	0.10	0.81	1.02	< 0.005	0.10	0.05	180
2026	0.40	0.61	0.96	< 0.005	0.07	0.03	181

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	0.08	0.03	0.15	< 0.005	< 0.005	< 0.005	119
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	0.08	0.03	0.15	< 0.005	< 0.005	< 0.005	119
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.08	0.03	0.15	< 0.005	< 0.005	< 0.005	119
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.02	< 0.005	0.03	< 0.005	< 0.005	< 0.005	19.8

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.08	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Energy	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	102
Water	—	—	—	—	—	—	11.7

Waste	—	—	—	—	—	—	4.92
Refrig.	—	—	—	—	—	—	< 0.005
Total	0.08	0.03	0.15	< 0.005	< 0.005	< 0.005	119
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.08	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Energy	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	102
Water	—	—	—	—	—	—	11.7
Waste	—	—	—	—	—	—	4.92
Refrig.	—	—	—	—	—	—	< 0.005
Total	0.08	0.03	0.15	< 0.005	< 0.005	< 0.005	119
Average Daily	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.08	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Energy	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	102
Water	—	—	—	—	—	—	11.7
Waste	—	—	—	—	—	—	4.92
Refrig.	—	—	—	—	—	—	< 0.005
Total	0.08	0.03	0.15	< 0.005	< 0.005	< 0.005	119
Annual	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.01	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.06
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.0
Water	—	—	—	—	—	—	1.94
Waste	—	—	—	—	—	—	0.81
Refrig.	—	—	—	—	—	—	< 0.005
Total	0.02	< 0.005	0.03	< 0.005	< 0.005	< 0.005	19.8

3. Construction Emissions Details

3.1. Phase 1 - Demolition (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.40	22.2	19.9	0.03	0.92	0.84	3,437
Demolition	—	—	—	—	0.04	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.22	1.09	< 0.005	0.05	0.05	188
Demolition	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.22	0.20	< 0.005	0.01	0.01	31.2
Demolition	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.07	0.05	0.77	0.00	0.12	0.03	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.06	0.02	< 0.005	0.01	< 0.005	55.0
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	6.82
Vendor	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	3.01
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.13
Vendor	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	0.50

3.3. Phase 1 - Site Preparation (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	3.31	31.6	30.2	0.05	1.37	1.26	5,314
Dust From Material Movement	—	—	—	—	7.67	3.94	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.25	< 0.005	0.01	0.01	43.7
Dust From Material Movement	—	—	—	—	0.06	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	0.05	< 0.005	< 0.005	< 0.005	7.23
Dust From Material Movement	—	—	—	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.08	0.05	0.89	0.00	0.14	0.03	158

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.19
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Phase 1 - Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.74	16.3	17.9	0.03	0.72	0.66	2,970
Dust From Material Movement	—	—	—	—	2.78	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.71	0.79	< 0.005	0.03	0.03	130
Dust From Material Movement	—	—	—	—	0.12	0.06	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	0.14	< 0.005	0.01	0.01	21.6

Dust From Material Movement	—	—	—	—	0.02	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.07	0.05	0.77	0.00	0.12	0.03	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.07	1.29	0.94	< 0.005	0.01	< 0.005	185
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	5.45
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.06	0.04	< 0.005	< 0.005	< 0.005	8.17
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	1.35

3.7. Phase 1 - Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.84	7.70	10.7	0.02	0.32	0.29	1,661
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.84	7.70	10.7	0.02	0.32	0.29	1,661
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.21	1.94	2.70	< 0.005	0.08	0.07	419
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.35	0.49	< 0.005	0.01	0.01	69.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.26	0.18	2.99	0.00	0.47	0.11	529
Vendor	0.02	0.76	0.27	< 0.005	0.17	0.05	641
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.23	0.21	2.26	0.00	0.47	0.11	468
Vendor	0.02	0.81	0.28	< 0.005	0.17	0.05	640
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.06	0.05	0.60	0.00	0.12	0.03	123
Vendor	< 0.005	0.20	0.07	< 0.005	0.04	0.01	162
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.02	0.01	20.3
Vendor	< 0.005	0.04	0.01	< 0.005	0.01	< 0.005	26.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Phase 1 - Building Construction (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.79	7.27	10.7	0.02	0.27	0.25	1,660
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.79	7.27	10.7	0.02	0.27	0.25	1,660
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.69	3.94	0.01	0.10	0.09	614
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.49	0.72	< 0.005	0.02	0.02	102
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.24	0.16	2.75	0.00	0.47	0.11	518
Vendor	0.02	0.73	0.26	< 0.005	0.17	0.05	629
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.22	0.20	2.07	0.00	0.47	0.11	459
Vendor	0.02	0.78	0.27	< 0.005	0.17	0.05	628
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.08	0.07	0.81	0.00	0.17	0.04	176
Vendor	0.01	0.28	0.10	< 0.005	0.06	0.02	232
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.03	0.01	29.1
Vendor	< 0.005	0.05	0.02	< 0.005	0.01	< 0.005	38.5

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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3.11. Phase 1 - Paving & Track (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.68	6.23	8.81	0.01	0.26	0.24	1,355
Paving	0.55	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.26	0.36	< 0.005	0.01	0.01	55.7
Paving	0.02	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.07	< 0.005	< 0.005	< 0.005	9.22
Paving	< 0.005	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.08	0.05	0.94	0.00	0.16	0.04	177
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	6.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Phase 1 - Architectural Coating (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	0.02	134
Architectural Coatings	64.6	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	3.67
Architectural Coatings	1.77	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.61
Architectural Coatings	0.32	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.05	0.03	0.55	0.00	0.09	0.02	104
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.61
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.43
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	5.43
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	67.9
Total	—	—	—	—	—	—	73.4
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	5.43
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	67.9
Total	—	—	—	—	—	—	73.4
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	0.90
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	11.2
Total	—	—	—	—	—	—	12.1

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	29.1
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	29.1
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	29.1
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	29.1
Annual	—	—	—	—	—	—	—
High School	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.82
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.82

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Consumer Products	0.06	—	—	—	—	—	—

Architectural Coatings	0.02	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Total	0.08	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Daily, Winter (Max)	—	—	—	—	—	—	—
Consumer Products	0.06	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Total	0.08	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Annual	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.06
Total	0.01	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.06

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	11.7
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	11.7
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	11.7
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00

Parking Lot	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	11.7
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	1.94
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	1.94

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	4.92
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	4.92
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	4.92
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Parking Lot	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	4.92
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	0.81
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00

Parking Lot	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.81

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	< 0.005
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	< 0.005

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—
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4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	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
Phase 1 - Demolition	Demolition	7/1/2025	7/29/2025	5.00	20.0	—
Phase 1 - Site Preparation	Site Preparation	7/30/2025	8/3/2025	5.00	3.00	—

Phase 1 - Grading	Grading	8/4/2025	8/25/2025	5.00	16.0	—
Phase 1 - Building Construction	Building Construction	8/25/2025	7/8/2026	5.00	228	—
Phase 1 - Paving & Track	Paving	7/9/2026	7/29/2026	5.00	15.0	—
Phase 1 - Architectural Coating	Architectural Coating	7/30/2026	8/12/2026	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Phase 1 - Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Phase 1 - Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Phase 1 - Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Phase 1 - Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37
Phase 1 - Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Phase 1 - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Phase 1 - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Phase 1 - Grading	Tractors/Loaders/Back hoes	Diesel	Average	3.00	8.00	84.0	0.37
Phase 1 - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Phase 1 - Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Phase 1 - Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Phase 1 - Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Phase 1 - Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	3.00	7.00	84.0	0.37

Phase 1 - Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Phase 1 - Paving & Track	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Phase 1 - Paving & Track	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Phase 1 - Paving & Track	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Phase 1 - Paving & Track	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Phase 1 - Paving & Track	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Phase 1 - Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Phase 1 - Demolition	—	—	—	—
Phase 1 - Demolition	Worker	15.0	11.4	LDA,LDT1,LDT2
Phase 1 - Demolition	Vendor	—	8.53	HHDT,MHDT
Phase 1 - Demolition	Hauling	0.75	20.0	HHDT
Phase 1 - Demolition	Onsite truck	—	—	HHDT
Phase 1 - Site Preparation	—	—	—	—
Phase 1 - Site Preparation	Worker	17.5	11.4	LDA,LDT1,LDT2
Phase 1 - Site Preparation	Vendor	—	8.53	HHDT,MHDT
Phase 1 - Site Preparation	Hauling	0.00	20.0	HHDT
Phase 1 - Site Preparation	Onsite truck	—	—	HHDT
Phase 1 - Grading	—	—	—	—
Phase 1 - Grading	Worker	15.0	11.4	LDA,LDT1,LDT2

Phase 1 - Grading	Vendor	—	8.53	HHDT,MHDT
Phase 1 - Grading	Hauling	82.5	0.10	HHDT
Phase 1 - Grading	Onsite truck	—	—	HHDT
Phase 1 - Building Construction	—	—	—	—
Phase 1 - Building Construction	Worker	58.6	11.4	LDA,LDT1,LDT2
Phase 1 - Building Construction	Vendor	22.9	8.53	HHDT,MHDT
Phase 1 - Building Construction	Hauling	0.00	20.0	HHDT
Phase 1 - Building Construction	Onsite truck	—	—	HHDT
Phase 1 - Architectural Coating	—	—	—	—
Phase 1 - Architectural Coating	Worker	11.7	11.4	LDA,LDT1,LDT2
Phase 1 - Architectural Coating	Vendor	—	8.53	HHDT,MHDT
Phase 1 - Architectural Coating	Hauling	0.00	20.0	HHDT
Phase 1 - Architectural Coating	Onsite truck	—	—	HHDT
Phase 1 - Paving & Track	—	—	—	—
Phase 1 - Paving & Track	Worker	20.0	11.4	LDA,LDT1,LDT2
Phase 1 - Paving & Track	Vendor	—	8.53	HHDT,MHDT
Phase 1 - Paving & Track	Hauling	0.00	20.0	HHDT
Phase 1 - Paving & Track	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)
Phase 1 - Architectural Coating	0.00	0.00	3,009	1,003	137,427

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 (Building Square Footage)	Acres Paved (acres)
Phase 1 - Demolition	0.00	0.00	0.00	1,243	—
Phase 1 - Site Preparation	0.00	0.00	4.50	0.00	—
Phase 1 - Grading	0.00	10,554	4.50	0.00	—
Phase 1 - Paving & Track	0.00	0.00	0.00	0.00	4.55

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%
Other Non-Asphalt Surfaces	1.39	0%
Parking Lot	3.15	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

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	3,009	1,003	11,888

5.10.3. Landscape Equipment

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Lawn Mowers	Gasoline 4-Stroke	0.29	0.57	209	3.86	0.36

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBtu/yr)
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High School	9,616	204	0.0330	0.0040	90,563
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Parking Lot	120,386	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	66,609	8,075,322
Other Non-Asphalt Surfaces	0.00	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	2.61	—
Other Non-Asphalt Surfaces	0.00	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Served
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
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5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

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

Equipment Type	Fuel Type
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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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	31.2	annual days of extreme heat
Extreme Precipitation	0.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ 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	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	78.2
AQ-PM	86.6
AQ-DPM	16.6
Drinking Water	68.4
Lead Risk Housing	67.6
Pesticides	89.2
Toxic Releases	30.7
Traffic	2.14
Effect Indicators	—
CleanUp Sites	61.4
Groundwater	96.1
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	33.2
Solid Waste	52.9
Sensitive Population	—
Asthma	78.2
Cardio-vascular	93.2
Low Birth Weights	52.8
Socioeconomic Factor Indicators	—

Education	90.4
Housing	44.5
Linguistic	89.0
Poverty	91.5
Unemployment	45.8

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	11.33068138
Employed	15.8475555
Median HI	29.96278712
Education	—
Bachelor's or higher	12.06210702
High school enrollment	100
Preschool enrollment	33.82522777
Transportation	—
Auto Access	48.80020531
Active commuting	25.21493648
Social	—
2-parent households	86.23123316
Voting	19.18388297
Neighborhood	—
Alcohol availability	58.30873861
Park access	2.194276915
Retail density	4.606698319
Supermarket access	33.22212242

Tree canopy	1.668163737
Housing	—
Homeownership	44.41165148
Housing habitability	34.36417298
Low-inc homeowner severe housing cost burden	80.57230848
Low-inc renter severe housing cost burden	81.47055049
Uncrowded housing	6.108045682
Health Outcomes	—
Insured adults	8.815603747
Arthritis	0.0
Asthma ER Admissions	27.5
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	32.4
Cognitively Disabled	91.4
Physically Disabled	33.4
Heart Attack ER Admissions	8.2
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	0.0
SLR Inundation Area	0.0
Children	2.5
Elderly	57.3
English Speaking	23.7
Foreign-born	66.9
Outdoor Workers	3.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.5
Traffic Density	1.7
Traffic Access	0.0
Other Indices	—
Hardship	92.5
Other Decision Support	—
2016 Voting	19.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	88.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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
Land Use	—
Construction: Construction Phases	Added timeframes for project phasing.
Construction: Dust From Material Movement	Input area of grading for total acres graded.
Construction: Trips and VMT	Soil export distance reduced to 0.1 mile since soil will be disposed on-site.
Construction: Off-Road Equipment	Adjusted Crane operating hours from 7hrs/day to 1hr/day. Crane operation expected to occur 7hr/day for a portion of the building phase timeline, not the entire building phase.
Operations: Vehicle Data	Zeroed out weekday, Saturday, and Sunday since project would remodel existing stadium and not expand capacity or use.
Operations: Refrigerants	Delete walk-in refrigerator and freezer since they are not included in the project design.
Construction: Architectural Coatings	Input area of parking lot and athletic track for Parking area for architectural coating emission calculations.

Appendix A.2: Phase 2 CalEEMod Emission Modeling

Riverdale HS Athletic Facilities - Phase 2 Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Riverdale HS Athletic Facilities - Phase 2
Construction Start Date	7/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	20.0
Location	36.4348538536434, -119.85582584339924
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2521
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
City Park	5.98	Acre	5.98	0.00	260,489	260,489	—	New playfields.

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	3.22	29.2	29.6	0.05	9.05	5.12	5,471
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.43	3.80	4.10	0.01	0.75	0.43	738
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.08	0.69	0.75	< 0.005	0.14	0.08	122

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	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2026	3.22	29.2	29.6	0.05	9.05	5.12	5,471
Daily - Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
2026	0.43	3.80	4.10	0.01	0.75	0.43	738
Annual	—	—	—	—	—	—	—
2026	0.08	0.69	0.75	< 0.005	0.14	0.08	122

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	0.21	0.06	0.62	< 0.005	0.11	0.03	146
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	0.20	0.07	0.53	< 0.005	0.11	0.03	135
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.18	0.03	0.35	< 0.005	0.06	0.01	78.3
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.03	0.01	0.06	< 0.005	0.01	< 0.005	13.0

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	0.05	0.06	0.49	< 0.005	0.11	0.03	134
Area	0.15	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	10.9
Waste	—	—	—	—	—	—	0.97
Refrig.	—	—	—	—	—	—	0.00
Total	0.21	0.06	0.62	< 0.005	0.11	0.03	146
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	0.05	0.06	0.40	< 0.005	0.11	0.03	123
Area	0.15	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	10.9
Waste	—	—	—	—	—	—	0.97
Refrig.	—	—	—	—	—	—	0.00

Total	0.20	0.07	0.53	< 0.005	0.11	0.03	135
Average Daily	—	—	—	—	—	—	—
Mobile	0.02	0.03	0.22	< 0.005	0.06	0.01	66.1
Area	0.15	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	10.9
Waste	—	—	—	—	—	—	0.97
Refrig.	—	—	—	—	—	—	0.00
Total	0.18	0.03	0.35	< 0.005	0.06	0.01	78.3
Annual	—	—	—	—	—	—	—
Mobile	< 0.005	0.01	0.04	< 0.005	0.01	< 0.005	11.0
Area	0.03	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.06
Energy	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	—	—	—	—	—	—	1.80
Waste	—	—	—	—	—	—	0.16
Refrig.	—	—	—	—	—	—	0.00
Total	0.03	0.01	0.06	< 0.005	0.01	< 0.005	13.0

3. Construction Emissions Details

3.1. Phase 2 - Demolition (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.29	20.7	19.0	0.03	0.84	0.78	3,438
Demolition	—	—	—	—	0.17	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.13	1.04	< 0.005	0.05	0.04	188
Demolition	—	—	—	—	0.01	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.19	< 0.005	0.01	0.01	31.2
Demolition	—	—	—	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.06	0.04	0.70	0.00	0.12	0.03	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.25	0.06	< 0.005	0.06	0.02	219
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	6.68
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	12.0
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.11
Vendor	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	1.99

3.3. Phase 2 - Site Preparation (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	3.14	29.2	28.8	0.05	1.24	1.14	5,316
Dust From Material Movement	—	—	—	—	7.67	3.94	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.80	0.79	< 0.005	0.03	0.03	146
Dust From Material Movement	—	—	—	—	0.21	0.11	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.14	< 0.005	0.01	0.01	24.1
Dust From Material Movement	—	—	—	—	0.04	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.07	0.05	0.82	0.00	0.14	0.03	155
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	3.89
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.64
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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3.5. Phase 2 - Grading (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.65	15.0	17.4	0.03	0.65	0.59	2,970
Dust From Material Movement	—	—	—	—	2.76	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.85	2.15	< 0.005	0.08	0.07	366
Dust From Material Movement	—	—	—	—	0.34	0.16	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.34	0.39	< 0.005	0.01	0.01	60.6
Dust From Material Movement	—	—	—	—	0.06	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.06	0.04	0.70	0.00	0.12	0.03	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—

Worker	0.01	0.01	0.07	0.00	0.01	< 0.005	15.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
City Park	0.05	0.06	0.49	< 0.005	0.11	0.03	134
Total	0.05	0.06	0.49	< 0.005	0.11	0.03	134
Daily, Winter (Max)	—	—	—	—	—	—	—
City Park	0.05	0.06	0.40	< 0.005	0.11	0.03	123
Total	0.05	0.06	0.40	< 0.005	0.11	0.03	123
Annual	—	—	—	—	—	—	—
City Park	< 0.005	0.01	0.04	< 0.005	0.01	< 0.005	11.0
Total	< 0.005	0.01	0.04	< 0.005	0.01	< 0.005	11.0

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Consumer Products	0.15	—	—	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Total	0.15	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Daily, Winter (Max)	—	—	—	—	—	—	—
Consumer Products	0.15	—	—	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Total	0.15	< 0.005	0.13	< 0.005	< 0.005	< 0.005	0.35
Annual	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.06
Total	0.03	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.06

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	10.9
Total	—	—	—	—	—	—	10.9
Daily, Winter (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	10.9

Total	—	—	—	—	—	—	10.9
Annual	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	1.80
Total	—	—	—	—	—	—	1.80

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.97
Total	—	—	—	—	—	—	0.97
Daily, Winter (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.97
Total	—	—	—	—	—	—	0.97
Annual	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.16
Total	—	—	—	—	—	—	0.16

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—
City Park	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	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
Phase 2 - Demolition	Demolition	6/1/2026	6/26/2026	5.00	20.0	—
Phase 2 - Site Preparation	Site Preparation	6/27/2026	7/10/2026	5.00	10.0	—
Phase 2 - Grading	Grading	7/13/2026	9/11/2026	5.00	45.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Phase 2 - Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Phase 2 - Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Phase 2 - Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Phase 2 - Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	4.00	8.00	84.0	0.37

Phase 2 - Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Phase 2 - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Phase 2 - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Phase 2 - Grading	Tractors/Loaders/Back hoes	Diesel	Average	3.00	8.00	84.0	0.37
Phase 2 - Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Phase 2 - Demolition	—	—	—	—
Phase 2 - Demolition	Worker	15.0	11.4	LDA,LDT1,LDT2
Phase 2 - Demolition	Vendor	—	8.53	HHDT,MHDT
Phase 2 - Demolition	Hauling	3.05	20.0	HHDT
Phase 2 - Demolition	Onsite truck	—	—	HHDT
Phase 2 - Site Preparation	—	—	—	—
Phase 2 - Site Preparation	Worker	17.5	11.4	LDA,LDT1,LDT2
Phase 2 - Site Preparation	Vendor	—	8.53	HHDT,MHDT
Phase 2 - Site Preparation	Hauling	0.00	20.0	HHDT
Phase 2 - Site Preparation	Onsite truck	—	—	HHDT
Phase 2 - Grading	—	—	—	—
Phase 2 - Grading	Worker	15.0	11.4	LDA,LDT1,LDT2
Phase 2 - Grading	Vendor	—	8.53	HHDT,MHDT
Phase 2 - Grading	Hauling	0.00	20.0	HHDT
Phase 2 - Grading	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 (Building Square Footage)	Acres Paved (acres)
Phase 2 - Demolition	0.00	0.00	0.00	5,277	—
Phase 2 - Site Preparation	0.00	0.00	10.6	0.00	—
Phase 2 - Grading	0.00	0.00	10.6	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
City Park	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

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

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
City Park	4.66	11.7	13.1	2,510	54.9	138	154	29,537

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	—

5.10.3. Landscape Equipment

Equipment Type	Fuel Type	Number Per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Lawn Mowers	Gasoline 4-Stroke	0.29	0.57	209	3.86	0.36

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBtu/yr)
City Park	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
City Park	0.00	7,946,188

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
City Park	0.51	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

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

Equipment Type	Fuel Type
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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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	31.2	annual days of extreme heat
Extreme Precipitation	0.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ 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	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	78.2

AQ-PM	86.6
AQ-DPM	16.6
Drinking Water	68.4
Lead Risk Housing	67.6
Pesticides	89.2
Toxic Releases	30.7
Traffic	2.14
Effect Indicators	—
CleanUp Sites	61.4
Groundwater	96.1
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	33.2
Solid Waste	52.9
Sensitive Population	—
Asthma	78.2
Cardio-vascular	93.2
Low Birth Weights	52.8
Socioeconomic Factor Indicators	—
Education	90.4
Housing	44.5
Linguistic	89.0
Poverty	91.5
Unemployment	45.8

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	11.33068138
Employed	15.8475555
Median HI	29.96278712
Education	—
Bachelor's or higher	12.06210702
High school enrollment	100
Preschool enrollment	33.82522777
Transportation	—
Auto Access	48.80020531
Active commuting	25.21493648
Social	—
2-parent households	86.23123316
Voting	19.18388297
Neighborhood	—
Alcohol availability	58.30873861
Park access	2.194276915
Retail density	4.606698319
Supermarket access	33.22212242
Tree canopy	1.668163737
Housing	—
Homeownership	44.41165148
Housing habitability	34.36417298
Low-inc homeowner severe housing cost burden	80.57230848
Low-inc renter severe housing cost burden	81.47055049
Uncrowded housing	6.108045682
Health Outcomes	—
Insured adults	8.815603747
Arthritis	0.0

Asthma ER Admissions	27.5
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	32.4
Cognitively Disabled	91.4
Physically Disabled	33.4
Heart Attack ER Admissions	8.2
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	0.0
SLR Inundation Area	0.0
Children	2.5
Elderly	57.3
English Speaking	23.7
Foreign-born	66.9

Outdoor Workers	3.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.5
Traffic Density	1.7
Traffic Access	0.0
Other Indices	—
Hardship	92.5
Other Decision Support	—
2016 Voting	19.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	88.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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
Land Use	Adjusted Size to represent Educational Space, Lot Acreage to represent building footprint, and Building Square Feet to represent total building square footage.
Construction: Construction Phases	Adjusted timeframes for project phasing.
Construction: Dust From Material Movement	Total Acres Graded adjusted to match total acreage disturbed for all phases.
Construction: Trips and VMT	Zeroed Worker and Vendor trips to 0, per SJVAPCD guidance.
Construction: Off-Road Equipment	Adjusted Crane operating hours from 7hrs/day to 1hr/day. Crane operation expected to occur 7hr/day for a portion of the building phase timeline, not the entire building phase.

Appendix A.3: Phase 3 CalEEMod Emission Modeling

Riverdale HS Athletic Facilities - Phase 3 Detailed Report

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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Riverdale HS Athletic Facilities - Phase 3
Construction Start Date	7/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	20.0
Location	36.4348538536434, -119.85582584339924
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2521
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
High School	19.1	1000sqft	0.44	19,140	32,710	32,710	—	Buildings and Landscaping.

Parking Lot	74.0	Space	0.67	0.00	0.00	—	—	New parking spaces on Hazel Ave.
Other Asphalt Surfaces	0.30	Acre	0.30	0.00	0.00	—	—	New Roadway minus parking spaces.
Other Non-Asphalt Surfaces	20.2	1000sqft	0.46	0.00	0.00	—	—	Concrete hardscape

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	13.4	12.2	14.3	0.02	3.38	1.85	2,550
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	0.77	6.33	8.30	0.01	0.27	0.19	1,332
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.47	3.12	3.97	0.01	0.33	0.19	656
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.09	0.57	0.72	< 0.005	0.06	0.04	109

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	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—

2027	1.41	12.2	14.3	0.02	3.38	1.85	2,550
2028	13.4	6.12	8.32	0.01	0.25	0.16	1,337
Daily - Winter (Max)	—	—	—	—	—	—	—
2027	0.77	6.33	8.30	0.01	0.27	0.19	1,332
2028	0.74	6.13	8.24	0.01	0.24	0.16	1,329
Average Daily	—	—	—	—	—	—	—
2027	0.38	3.12	3.97	0.01	0.33	0.19	656
2028	0.47	1.43	1.96	< 0.005	0.06	0.04	314
Annual	—	—	—	—	—	—	—
2027	0.07	0.57	0.72	< 0.005	0.06	0.04	109
2028	0.09	0.26	0.36	< 0.005	0.01	0.01	52.1

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	0.59	0.24	1.03	< 0.005	0.02	0.02	402
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	0.46	0.23	0.19	< 0.005	0.02	0.02	399
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	0.52	0.24	0.61	< 0.005	0.02	0.02	400
Annual (Max)	—	—	—	—	—	—	—
Unmit.	0.10	0.04	0.11	< 0.005	< 0.005	< 0.005	66.3

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—

Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.58	0.01	0.83	< 0.005	< 0.005	< 0.005	3.44
Energy	0.01	0.23	0.19	< 0.005	0.02	0.02	344
Water	—	—	—	—	—	—	8.00
Waste	—	—	—	—	—	—	46.9
Refrig.	—	—	—	—	—	—	0.05
Total	0.59	0.24	1.03	< 0.005	0.02	0.02	402
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.44	—	—	—	—	—	—
Energy	0.01	0.23	0.19	< 0.005	0.02	0.02	344
Water	—	—	—	—	—	—	8.00
Waste	—	—	—	—	—	—	46.9
Refrig.	—	—	—	—	—	—	0.05
Total	0.46	0.23	0.19	< 0.005	0.02	0.02	399
Average Daily	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.51	< 0.005	0.41	< 0.005	< 0.005	< 0.005	1.69
Energy	0.01	0.23	0.19	< 0.005	0.02	0.02	344
Water	—	—	—	—	—	—	8.00
Waste	—	—	—	—	—	—	46.9
Refrig.	—	—	—	—	—	—	0.05
Total	0.52	0.24	0.61	< 0.005	0.02	0.02	400
Annual	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.09	< 0.005	0.07	< 0.005	< 0.005	< 0.005	0.28
Energy	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	56.9
Water	—	—	—	—	—	—	1.32

Waste	—	—	—	—	—	—	7.77
Refrig.	—	—	—	—	—	—	0.01
Total	0.10	0.04	0.11	< 0.005	< 0.005	< 0.005	66.3

3. Construction Emissions Details

3.1. Phase 3 - Site Preparation (2027) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.19	10.4	11.6	0.02	0.47	0.43	2,072
Dust From Material Movement	—	—	—	—	2.44	1.17	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.29	0.32	< 0.005	0.01	0.01	56.8
Dust From Material Movement	—	—	—	—	0.07	0.03	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	< 0.005	9.40
Dust From Material Movement	—	—	—	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.03	0.02	0.33	0.00	0.06	0.01	64.9

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.27
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Phase 3 - Grading (2027) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	1.37	12.2	13.9	0.02	0.54	0.50	2,464
Dust From Material Movement	—	—	—	—	2.76	1.34	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.53	0.61	< 0.005	0.02	0.02	108
Dust From Material Movement	—	—	—	—	0.12	0.06	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.11	< 0.005	< 0.005	< 0.005	17.9

Dust From Material Movement	—	—	—	—	0.02	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.04	0.02	0.43	0.00	0.08	0.02	86.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	3.49
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Phase 3 - Building Construction (2027) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.74	6.20	8.00	0.01	0.18	0.16	1,186
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.74	6.20	8.00	0.01	0.18	0.16	1,186
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.26	2.91	< 0.005	0.06	0.06	432
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.41	0.53	< 0.005	0.01	0.01	71.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.03	0.02	0.35	0.00	0.06	0.02	69.6
Vendor	< 0.005	0.10	0.03	< 0.005	0.02	0.01	84.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.03	0.02	0.26	0.00	0.06	0.02	61.7
Vendor	< 0.005	0.10	0.04	< 0.005	0.02	0.01	84.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.02	0.01	23.3
Vendor	< 0.005	0.04	0.01	< 0.005	0.01	< 0.005	30.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	< 0.005	< 0.005	3.85
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	5.08
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Phase 3 - Building Construction (2028) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.71	6.01	7.97	0.01	0.15	0.14	1,186
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.71	6.01	7.97	0.01	0.15	0.14	1,186
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.27	1.68	< 0.005	0.03	0.03	251
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.31	< 0.005	0.01	0.01	41.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.03	0.02	0.32	0.00	0.06	0.02	68.3
Vendor	< 0.005	0.09	0.03	< 0.005	0.02	0.01	82.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.06	0.02	60.5
Vendor	< 0.005	0.10	0.03	< 0.005	0.02	0.01	82.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.05	0.00	0.01	< 0.005	13.2
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	17.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.19
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.88

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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3.9. Phase 3 - Paving (2028) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.43	4.13	6.47	0.01	0.15	0.13	995
Paving	0.25	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.11	0.18	< 0.005	< 0.005	< 0.005	27.3
Paving	0.01	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	4.51
Paving	< 0.005	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.04	0.03	0.50	0.00	0.10	0.02	106
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.67
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.44
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Phase 3 - Architectural Coating (2028) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.81	1.12	< 0.005	0.02	0.01	134
Architectural Coatings	13.3	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	2.94
Architectural Coatings	0.29	—	—	—	—	—	—
Onsite truck	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	0.49
Architectural Coatings	0.05	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.06	0.00	0.01	< 0.005	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.27
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	51.8
Parking Lot	—	—	—	—	—	—	14.3
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	66.1
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	51.8
Parking Lot	—	—	—	—	—	—	14.3

Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	66.1
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	8.57
Parking Lot	—	—	—	—	—	—	2.37
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	10.9

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	0.01	0.23	0.19	< 0.005	0.02	0.02	278
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.23	0.19	< 0.005	0.02	0.02	278
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	0.01	0.23	0.19	< 0.005	0.02	0.02	278
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.23	0.19	< 0.005	0.02	0.02	278
Annual	—	—	—	—	—	—	—
High School	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	46.0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	46.0

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Consumer Products	0.41	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—
Landscape Equipment	0.14	0.01	0.83	< 0.005	< 0.005	< 0.005	3.44
Total	0.58	0.01	0.83	< 0.005	< 0.005	< 0.005	3.44
Daily, Winter (Max)	—	—	—	—	—	—	—
Consumer Products	0.41	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—
Total	0.44	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Consumer Products	0.08	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—

Landscape Equipment	0.01	< 0.005	0.07	< 0.005	< 0.005	< 0.005	0.28
Total	0.09	< 0.005	0.07	< 0.005	< 0.005	< 0.005	0.28

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	8.00
Parking Lot	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	8.00
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	8.00
Parking Lot	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	8.00
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	1.32
Parking Lot	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	1.32
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4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	46.9
Parking Lot	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	46.9
Parking Lot	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	46.9
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	7.77
Parking Lot	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	7.77

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	0.05
Daily, Winter (Max)	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	0.05
Annual	—	—	—	—	—	—	—
High School	—	—	—	—	—	—	0.01
Total	—	—	—	—	—	—	0.01

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	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	ROG	NOx	CO	SO2	PM10T	PM2.5T	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
Phase 3 - Site Preparation	Site Preparation	5/24/2027	6/4/2027	5.00	10.0	Site preperation
Phase 3 - Grading	Grading	6/7/2027	6/28/2027	5.00	16.0	Grading
Phase 3 - Building Construction	Building Construction	6/29/2027	4/17/2028	5.00	210	Building construction
Phase 3 - Paving	Paving	4/18/2028	5/1/2028	5.00	10.0	Paving
Phase 3 - Architectural Coating	Architectural Coating	5/2/2028	5/11/2028	5.00	8.00	Road & Building Painting

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
Phase 3 - Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Phase 3 - Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Phase 3 - Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Phase 3 - Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Phase 3 - Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Phase 3 - Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	7.00	84.0	0.37
Phase 3 - Building Construction	Cranes	Diesel	Average	1.00	1.00	367	0.29
Phase 3 - Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Phase 3 - Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Phase 3 - Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	1.00	6.00	84.0	0.37
Phase 3 - Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Phase 3 - Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Phase 3 - Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Phase 3 - Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Phase 3 - Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Phase 3 - Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37

Phase 3 - Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
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5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Phase 3 - Paving	—	—	—	—
Phase 3 - Paving	Worker	12.5	11.4	LDA,LDT1,LDT2
Phase 3 - Paving	Vendor	—	8.53	HHDT,MHDT
Phase 3 - Paving	Hauling	0.00	20.0	HHDT
Phase 3 - Paving	Onsite truck	—	—	HHDT
Phase 3 - Site Preparation	—	—	—	—
Phase 3 - Site Preparation	Worker	7.50	11.4	LDA,LDT1,LDT2
Phase 3 - Site Preparation	Vendor	—	8.53	HHDT,MHDT
Phase 3 - Site Preparation	Hauling	0.00	20.0	HHDT
Phase 3 - Site Preparation	Onsite truck	—	—	HHDT
Phase 3 - Grading	—	—	—	—
Phase 3 - Grading	Worker	10.0	11.4	LDA,LDT1,LDT2
Phase 3 - Grading	Vendor	—	8.53	HHDT,MHDT
Phase 3 - Grading	Hauling	0.00	20.0	HHDT
Phase 3 - Grading	Onsite truck	—	—	HHDT
Phase 3 - Building Construction	—	—	—	—
Phase 3 - Building Construction	Worker	8.04	11.4	LDA,LDT1,LDT2
Phase 3 - Building Construction	Vendor	3.14	8.53	HHDT,MHDT
Phase 3 - Building Construction	Hauling	0.00	20.0	HHDT
Phase 3 - Building Construction	Onsite truck	—	—	HHDT
Phase 3 - Architectural Coating	—	—	—	—
Phase 3 - Architectural Coating	Worker	1.61	11.4	LDA,LDT1,LDT2

Phase 3 - Architectural Coating	Vendor	—	8.53	HHDT,MHDT
Phase 3 - Architectural Coating	Hauling	0.00	20.0	HHDT
Phase 3 - Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Phase 3 - Architectural Coating	0.00	0.00	28,710	9,570	3,736

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)
Phase 3 - Site Preparation	0.00	0.00	9.38	0.00	—
Phase 3 - Grading	0.00	0.00	16.0	0.00	—
Phase 3 - Paving	0.00	0.00	0.00	0.00	1.43

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
High School	0.00	0%
Parking Lot	0.67	100%
Other Asphalt Surfaces	0.30	100%
Other Non-Asphalt Surfaces	0.46	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMt/Weekday	VMt/Saturday	VMt/Sunday	VMt/Year
High School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	28,710	9,570	3,736

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
High School	91,752	204	0.0330	0.0040	864,099
Parking Lot	25,414	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
High School	635,537	997,816
Parking Lot	0.00	0.00

Other Asphalt Surfaces	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
High School	24.9	—
Parking Lot	0.00	—
Other Asphalt Surfaces	0.00	—
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
High School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
High School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

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

Equipment Type	Fuel Type
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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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	31.2	annual days of extreme heat
Extreme Precipitation	0.25	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ 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	4	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	78.2

AQ-PM	86.6
AQ-DPM	16.6
Drinking Water	68.4
Lead Risk Housing	67.6
Pesticides	89.2
Toxic Releases	30.7
Traffic	2.14
Effect Indicators	—
CleanUp Sites	61.4
Groundwater	96.1
Haz Waste Facilities/Generators	16.6
Impaired Water Bodies	33.2
Solid Waste	52.9
Sensitive Population	—
Asthma	78.2
Cardio-vascular	93.2
Low Birth Weights	52.8
Socioeconomic Factor Indicators	—
Education	90.4
Housing	44.5
Linguistic	89.0
Poverty	91.5
Unemployment	45.8

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	11.33068138
Employed	15.8475555
Median HI	29.96278712
Education	—
Bachelor's or higher	12.06210702
High school enrollment	100
Preschool enrollment	33.82522777
Transportation	—
Auto Access	48.80020531
Active commuting	25.21493648
Social	—
2-parent households	86.23123316
Voting	19.18388297
Neighborhood	—
Alcohol availability	58.30873861
Park access	2.194276915
Retail density	4.606698319
Supermarket access	33.22212242
Tree canopy	1.668163737
Housing	—
Homeownership	44.41165148
Housing habitability	34.36417298
Low-inc homeowner severe housing cost burden	80.57230848
Low-inc renter severe housing cost burden	81.47055049
Uncrowded housing	6.108045682
Health Outcomes	—
Insured adults	8.815603747
Arthritis	0.0

Asthma ER Admissions	27.5
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	32.4
Cognitively Disabled	91.4
Physically Disabled	33.4
Heart Attack ER Admissions	8.2
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	0.0
SLR Inundation Area	0.0
Children	2.5
Elderly	57.3
English Speaking	23.7
Foreign-born	66.9

Outdoor Workers	3.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	92.5
Traffic Density	1.7
Traffic Access	0.0
Other Indices	—
Hardship	92.5
Other Decision Support	—
2016 Voting	19.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	88.0
Healthy Places Index Score for Project Location (b)	16.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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
Land Use	Adjusted Size to represent Educational Space, Lot Acreage to represent building footprint, and Building Square Feet to represent total building square footage.
Construction: Construction Phases	Adjusted timeframes for project phasing.
Construction: Dust From Material Movement	Total Acres Graded adjusted to match total acreage disturbed for all phases.
Construction: Trips and VMT	Zeroed Worker and Vendor trips to 0, per SJVAPCD guidance.
Construction: Off-Road Equipment	Adjusted Crane operating hours from 7hrs/day to 1hr/day. Crane operation expected to occur 7hr/day for a portion of the building phase timeline, not the entire building phase.
Operations: Vehicle Data	Zeroed out Weekday, Saturday, and Sunday trip rate since building is a reconstruction of an existing building and will not increase capacity or use.
Operations: Refrigerants	Removed walk-in refrigerator and freezer since project will not include them.