

Energy Impact Assessment

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
AFV	Alternative Fuel Vehicles
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CHP	Combines Heat Power
CPUC	California Public Utilities Commission
CO ₂	Carbon Dioxide
DSG	Department of General Services
EMFAC	Emissions Factor
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse Gas
kBTU	Kilo British Thermal Units
kW	Kilowatt
kWh	Kilowatt Hour
LEED	Leadership in Energy and Environmental Design
MMcf	Million Cubic Feet
MW	Megawatt
NHSTA	National Highway Traffic Safety Administration
PG&E	Pacific Gas and Electric
PV	Photovoltaic
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SJVAPCD	San Joaquin Valley Air Pollution Control District
USDOT	U.S. Department of Transportation
VMT	Vehicle Miles Travelled
ZEV	Zero Emission Vehicle

Introduction

This report provides an analysis of potential energy impacts associated with the proposed Riverdale High School Facility Improvements Project (project). This report also provides a summary of existing conditions in the project area and the applicable regulatory framework pertaining to energy.

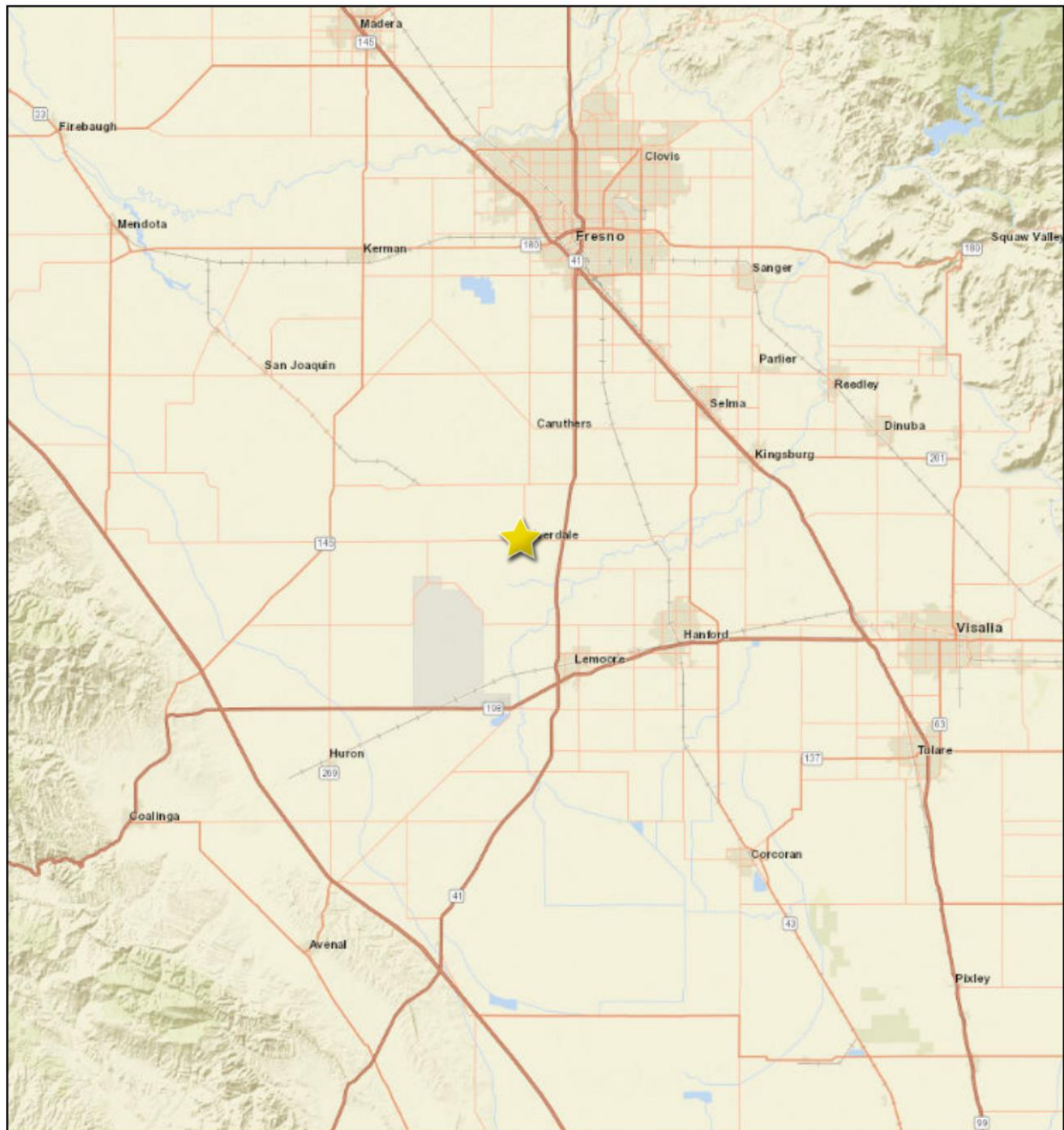
Proposed Project Summary

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 prepare 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.

Energy Fundamentals

Energy consumption is commonly linked to transportation, construction, and land use operations. In transportation, energy use is classified into direct and indirect categories. Direct energy pertains to the fuel consumption required for vehicle propulsion, whereas indirect energy encompasses the long-term energy demands of equipment, including maintenance activities. Additionally, energy is expended in the construction and ongoing operation and maintenance based on land uses. Construction energy represents a one-time direct expenditure, primarily driven by fuel consumption for operating construction machinery. Land use-related energy consumption is typically associated with direct energy consumption for building systems such as heating, ventilation, and air-conditioning.

Figure 1: Project Location



5/21/2025

World_Street_Map

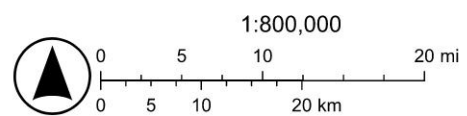


Figure 2: Project Site

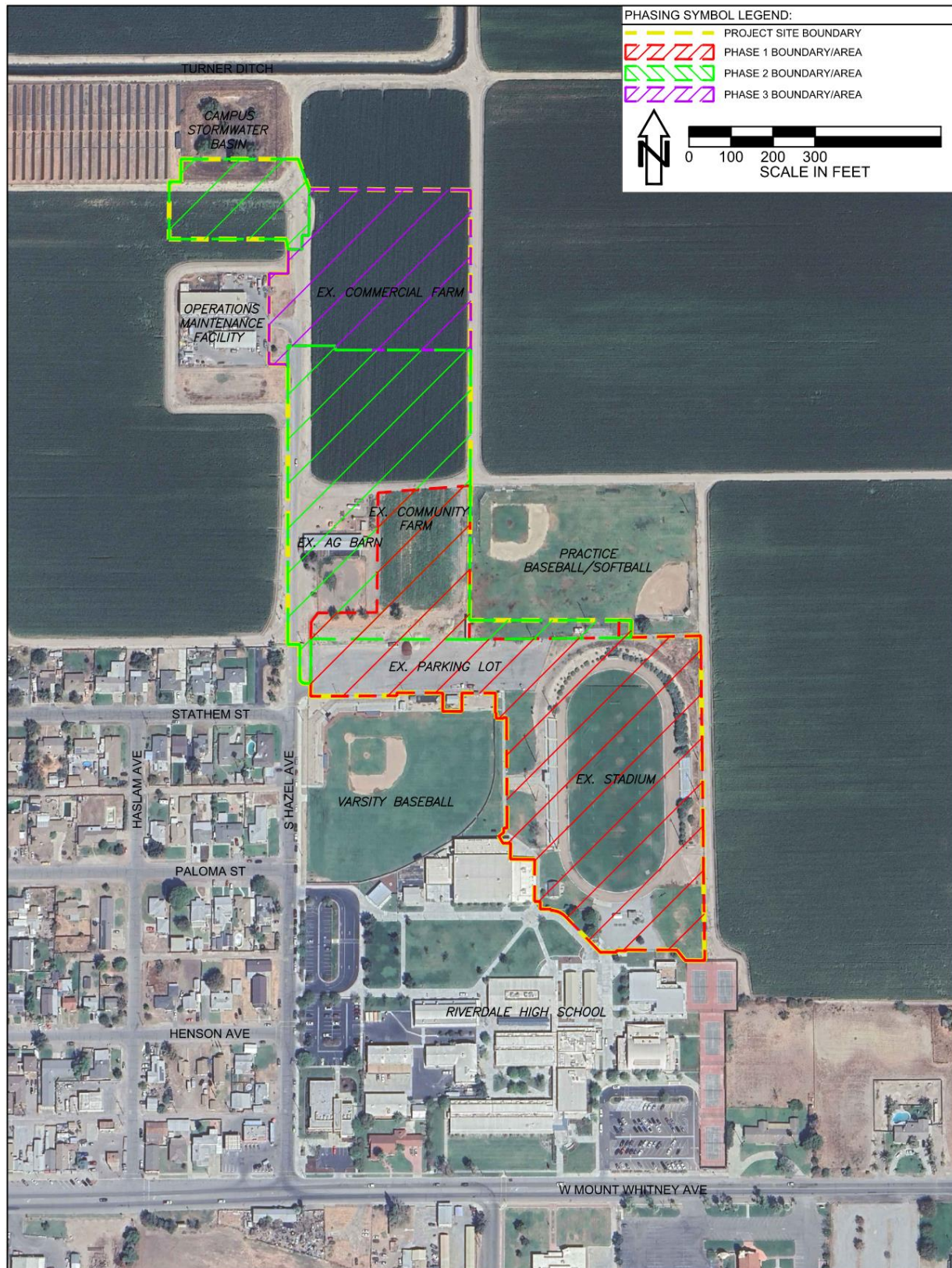
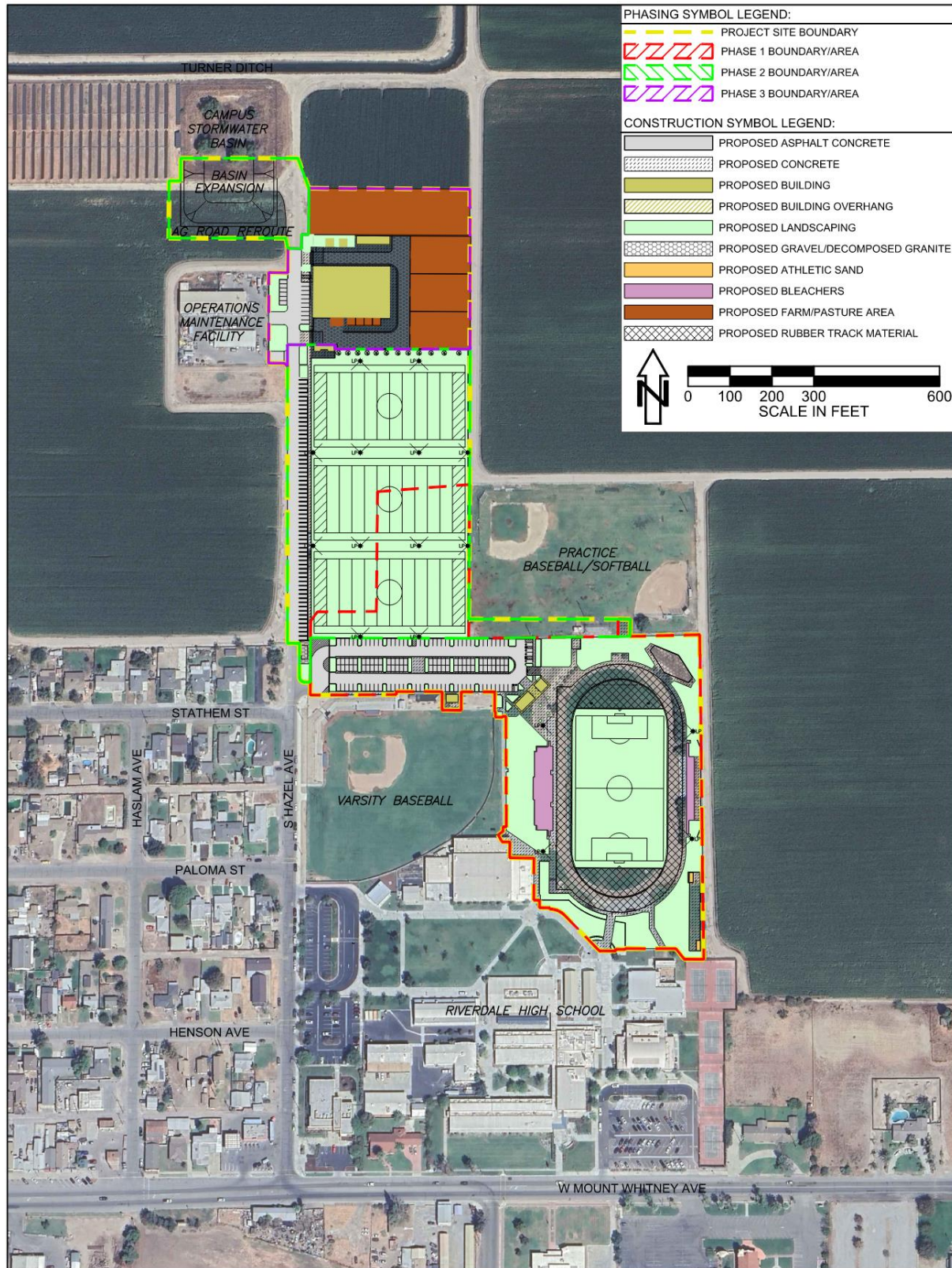


Figure 3: Project Site Plan



Existing Setting

Physical Setting

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 roughly 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.).

Energy Resources

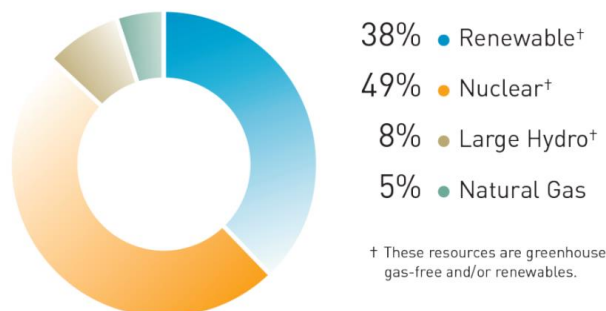
Energy sources for the community are served primarily by PG&E. Energy resources are provided by natural gas, nuclear, fossil fuels, hydropower, solar, and wind. The primary use of energy is for electricity to operate buildings. Energy use is discussed in greater detail, as follows:

Electricity

Riverdale receives electric services from the regulated utility provider, PG&E. Figure 4 presents the composition of PG&E's energy portfolio. As depicted, PG&E's total electricity supply in 2021 was entirely sourced by 95% greenhouse gas (GHG)-free energy, including nuclear power, large hydroelectric facilities, renewable energy sources, and natural gas (Pacific Gas & Electric n.d.).

Figure 4. PG&E Electric Power Mix (2022)

Electric power mix (2022)



Natural Gas

PG&E's natural gas system encompasses approximately 70,000 square miles in Northern and Central California. Approximately 90 percent of the natural gas supply for PG&E is from out-of-state imports. In 2023, natural gas throughput provided by PG&E totaled 895,420 million cubic feet (MMcf). Natural gas throughput has decreased over the past few years (Pacific Gas & Electric 2024).

Regulatory Framework

Federal

Regulations for Greenhouse Gas Emissions From Passenger Cars and Trucks and Corporate Average Fuel Economy Standards

In October 2012, the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA), representing the Department of Transportation, finalized regulations aimed at further reducing greenhouse gas (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 carbon dioxide (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 n.d.).

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).

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).

State

Warren Alquist Act

The Warren-Alquist Act of 1975 created the California Energy Resources Conservation and Development Commission, now referred to as the California Energy Commission (CEC). This legislation sets forth a state policy aimed at minimizing inefficient, excessive, and uneconomical energy consumption through various strategies. Additionally, the California Public Utilities Commission (CPUC) oversees the regulation of privately-owned utilities across multiple sectors, including energy, rail, telecommunications, and water services (California Energy Commission 2025).

Assembly Bill 32: 2008 Climate Change Scoping Plan and Update

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 jurisdiction 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 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 2017).

AB 1279 and 2022 Scoping Plan

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 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 2022).

Assembly Bill 1007: State Alternative Fuels Plan

Assembly Bill 1007 (Chapter 371, Statutes of 2005) mandated that the CEC, in collaboration with the CARB and other relevant agencies, develop a comprehensive plan to enhance the utilization of alternative fuels within the state. This initiative led to the creation of the State Alternative Fuels Plan, which outlines strategies and actions aimed at increasing the use of non-petroleum-based fuels in California. The plan evaluates various alternative fuels and proposes fuel portfolios designed to achieve the state's objectives of reducing petroleum dependence, increasing alternative fuel usage, lowering

greenhouse gas emissions, and boosting in-state biofuel production, all while minimizing costs and maximizing economic benefits (U.S. Department of Energy 2007).

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 2007).

Senate Bill 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).

Senate Bill 350: Clean Energy and Pollution Prevention Reduction Act of 2015

Senate Bill 350 also known as the Clean Energy and Pollution Reduction Act of 2015, 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 (California Energy Commission n.d.).

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 (Brown, Executive Order B-30-15s 2015).

Executive Order B-48-18

A directive signed by Governor Jerry Brown in September 2018 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 (Brown, Executive Order B-48-18 2018).

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.

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 (Western City 2008).

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 Natural Resources Agency 2009).

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, and were filed with the Secretary of State to be included in 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.

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.

Section 15183.5 permits programmatic GHG analysis and subsequent project-specific tiering, as well as 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 Natural Resources Agency 2009).

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.).

Title 24 California Code of Regulations

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 ultimate 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

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

California's 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, as well as 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 the installation of renewable energy systems and the use of 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.).

2018 CEQA Guideline Updates.

The California National 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

The purpose of this section is to provide screening criteria that agencies can use to determine whether 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.

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).

Energy Impact Analysis

Thresholds of Significance

Based on Appendix F and G of the State CEQA Guidelines, the proposed project would result in a potentially significant impact on energy use if it would:

1. Result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The CEQA Guidelines, Appendix F, require environmental analyses to include a discussion of potential energy impacts associated with a proposed project. Where necessary, CEQA requires that mitigation measures be incorporated to reduce the inefficient, wasteful or unnecessary consumption of energy. The State CEQA Guidelines, however, do not establish criteria that define inefficient, wasteful or unnecessary consumption. Compliance with the State's building standards for energy efficiency would result in decreased energy consumption for proposed buildings. However, compliance with building codes may not adequately address all potential energy impacts associated with project construction and operation. As a result, this analysis includes an evaluation of electricity and natural gas usage requirements associated with future development, as well as energy requirements associated with the use of on-road and off-road vehicles. The degree to which the proposed project would comply with existing energy standards, as well as applicable regulatory requirements and policies related to energy conservation were also taken into consideration for the evaluation of project-related energy impacts.

Methodology

Construction

Regarding energy use (e.g., fuel use) during construction, it is assumed that only diesel fuel would be used in construction equipment. On-road vehicles for hauling materials and worker commute trips assumed a mix of diesel and gasoline fuel use. Construction schedules, equipment numbers, horsepower ratings, and load factors were used to calculate construction-related fuel use, based on default assumptions contained in the California Emissions Estimator Model (CalEEMod). Diesel fuel use was estimated based on a factor of 0.05 gallons of diesel fuel per horsepower-hour derived from the South Coast Air Quality Management District's (SCAQMD) CEQA Air Quality Handbook (South Coast Air Quality Management District 1993).

Operation

The long-term operation of the proposed land uses would require electricity usage for lighting, space and water heating, appliances, water conveyance, and landscaping maintenance equipment. Indirect energy use would include wastewater treatment and solid waste removal. Project operation would not increase the consumption of diesel or gasoline fuel from existing conditions and so those emissions have not been included.

Energy use was estimated using CalEEMod, version 2022.1.1.29. Energy use includes electricity and electricity use associated with the conveyance, and treatment of water. Estimated energy use was based on year 2028 operational conditions. With continued improvements in energy efficiencies, energy use in future years would be less.

Project Impacts and Mitigation Measures

Impact E-1: *Would the Project result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?*

Implementation of the proposed project would increase electricity, diesel, gasoline, and natural gas consumption associated with construction activities, as well as long-term operational activities. Energy consumption associated with short-term construction and long-term operational activities are discussed in greater detail, as follows:

Construction-Related Energy Consumption

Energy consumption would occur during construction of the proposed project, including fuel use associated with the on-site operation of off-road equipment and vehicles traveling to and from the construction site. Table 1 summarizes the levels of energy consumption associated with project construction. As depicted, operation of off-road construction equipment would use an estimated total of 46,919 gallons of diesel fuel. On-road vehicles would use approximately 8,907 gallons of gasoline and 371 gallons of diesel fuel. In total, fuel use would equate to approximately 7,631 million British thermal units (MMBTU) over the life of the construction project. Construction equipment use and associated energy consumption would be typical of that commonly associated with the construction of new land uses. As a result, project construction would not be anticipated to require the use of construction equipment that would be more energy efficient than those commonly used for the construction of similar facilities. Idling of on-site equipment during construction would be limited to no more than five minutes in accordance with San Joaquin Valley Air Pollution Control District (SJVAPCD) requirements. Furthermore, on-site construction equipment may include alternatively-fueled vehicles (e.g., natural gas) where feasible. Energy use associated with construction of the proposed facilities would be temporary and would not be anticipated to result in the need for additional capacity, nor would construction be anticipated to result in increased peak-period demands for electricity. As a result, the construction of proposed facilities and improvements would not result in an inefficient, wasteful, or unnecessary consumption of energy. As a result, the project would result in a ***less than significant impact***.

Table 1. Construction Energy Consumption

Source	Total Fuel Use (gallons)	Total MMBTU
Off-Road Equipment Use (Diesel)	46,919	6,508
On-Road Vehicles (Gasoline)	8,907	1,123
On-Road Vehicles (Diesel)	371	
Total:		7,631
<i>Fuel use was calculated based, in part, on default construction schedules, equipment use, and vehicle trips identified for</i>		

the construction of similar land uses contained in the CalEEMod output files prepared for the air quality analysis conducted for this project. Refer to Appendix A for modeling assumptions and results.

Operational Mobile-Source Energy Consumption

Table 2. Operational Fuel Use Consumption

Source	Annual Fuel Use	Annual MMBTU
Mobile Fuel (Diesel)	411	56.47
Mobile Fuel (Gasoline)	818	98.43
Total:		154.90
<i>Fuel use was calculated based, in part, on default construction schedules, equipment use, and vehicle trips identified for the construction of similar land uses contained in the CalEEMod output files prepared for the air quality analysis conducted for this project. Refer to Appendix A for modeling assumptions and results.</i>		

Operational Building-Use Energy Consumption

Table 3. Operational Electricity & Natural Gas Consumption

Source	Energy Use	MMBTU/Year
Electricity Consumption	247168 kWh/yr	843
Water Use, Treatment & Conveyance	2,457 kWh/yr	8.38
Natural Gas Use	954,662 kBTU/yr	955
Total:		1,806.38
<i>Fuel and Energy use was calculated based, in part, on default construction schedules, equipment use, and vehicle trips identified for the construction of similar land uses contained in the CalEEMod output files prepared for the air quality analysis conducted for this project. Refer to Appendix A for modeling assumptions and results.</i>		

Impact E-2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

As discussed earlier in this report, the proposed land uses would not be anticipated to result in wasteful or unnecessary vehicle trips. As a result, the proposed project would not result in increased fuel usage that would be anticipated to conflict with applicable plans, policies, or regulations adopted for the purpose of reducing future fuel consumption rates.

The State of California's Energy Efficiency Strategic Plan establishes a goal for the development of buildings with net zero energy consumption. This plan includes goals pertaining to the construction of new residential, commercial, and governmental buildings. Adherence to current and future CALGreen and Title 24 energy requirements would require the installation or pre-existing presence of Photo Voltaic (PV) systems and an energy storage system to help to reduce the project's building-use energy consumption, and Electric Vehicle (EV) capable stalls to reduce operational emissions from vehicle trips and promote EV adoption. Additionally, Mitigation Measure GHG-1 states that "Building mechanical equipment and appliances shall be electrically powered. The installation of natural-gas service/infrastructure shall be

prohibited". The project's design and implementation of Mitigation Measures ensure operational energy consumption would be substantially reduced, beyond those required by Title 24 building energy-efficiency requirements in alignment with the state's building GHG emission goals. With mitigation, the project would result in a **less than significant impact**.

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Appendix A: Energy Modeling

Total Project Off-Road Construction Equipment Fuel Use

	Diesel Fuel Use (Gallons)	Number of Construction Years	Average Diesel Fuel Use/Year:	Total BTUs:	Total MMBTU:
Phase 1	22439	0.80	28049	3112287913	3112
Phase 2	10788	0.21	52501	1496284504	1496
Phase 3	13692	0.75	18373	1899027139	1899
Totals:	46919	1.75	56505	6507599556	6508

Phase 1 Construction Equipment Fuel Use

Off-Road Equipment Fuel Use

Primary Construction Activity	Activity Duration (Days)	Equipment Type	Size (hp)	Number of Pieces	Hours of Daily Use/Piece of Equipment	Total Days of Use	Load Factor	Fuel Usage Rate (g/bhph)	Total Diesel Fuel (Gallons)
Demolition	20	Concrete/Industrial Saws	33	1	8	20	0.73	0.05	192.7
		Rubber Tired Dozers	367	2	8	20	0.4	0.05	2348.8
		Excavators	36	3	8	20	0.38	0.05	328.3
Site Preparation	3	Tractors/Loaders/Backhoes	84	4	8	3	0.37	0.05	149.2
		Rubber Tired Dozers	367	3	8	3	0.4	0.05	528.5
Grading	16	Graders	148	1	8	16	0.41	0.05	388.4
		Rubber Tired Dozers	367	1	8	16	0.4	0.05	939.5
		Tractors/Loaders/Backhoes	84	3	8	16	0.37	0.05	596.7
		Excavators	36	1	8	16	0.38	0.05	87.6
Building Construction	228	Cranes	367	1	1	228	0.29	0.05	1213.3
		Forklifts	82	3	8	228	0.2	0.05	4487.0
		Generator Sets	14	1	8	228	0.74	0.05	944.8
		Tractors/Loaders/Backhoes	84	3	7	228	0.37	0.05	7440.6
		Welders	46	1	8	228	0.45	0.05	1887.8
Paving & Track	15	Pavers	81	1	8	15	0.42	0.05	204.1
		Paving Equipment	89	2	6	15	0.36	0.05	288.4
		Rollers	36	2	6	15	0.38	0.05	123.1
		Cement and Mortar Mixers	10	2	6	15	0.56	0.05	50.4
		Tractors/Loaders/Backhoes	84	1	8	15	0.37	0.05	186.5
Architectural Coating	10	Air Compressors	37	1	6	10	0.48	0.05	53.3

Total Phase 1 Diesel Fuel Use (Gallons):	22439
Number of Construction Years:	0.80
Average Diesel Fuel Use/Year:	28049
BTU/Gallons:	138700
Total Phase 1 BTUs:	3112287913
MMBTU:	3112

Phase 2 Construction Equipment Fuel Use

Off-Road Equipment Fuel Use

Primary Construction Activity	Activity Duration (Days)	Equipment Type	Size (hp)	Number of Pieces	Hours of Daily Use/Piece of Equipment	Total Days of Use	Load Factor	Fuel Usage Rate (g/bhph)	Total Diesel Fuel (Gallons)
Demolition	20	Concrete/Industrial Saws	33	1	8	20	0.73	0.05	192.7
		Rubber Tired Dozers	367	2	8	20	0.4	0.05	2348.8
		Excavators	36	3	8	20	0.38	0.05	328.3
Site Preparation	10	Tractors/Loaders/Backhoes	84	4	8	10	0.37	0.05	497.3
		Rubber Tired Dozers	367	3	8	10	0.4	0.05	1761.6
Grading	45	Graders	148	1	8	45	0.41	0.05	1092.2
		Rubber Tired Dozers	367	1	8	45	0.4	0.05	2642.4
		Tractors/Loaders/Backhoes	84	3	8	45	0.37	0.05	1678.3
		Excavators	36	1	8	45	0.38	0.05	246.2
Total Phase 2 Diesel Fuel Use (Gallons):									10788
Number of Construction Years:									0.21
Average Diesel Fuel Use/Year:									52501
BTU/Gallons:									138700
Total Phase 2 BTUs:									1496284504
Total Phase 2 MMBTU:									1496

Phase 3 Construction Equipment Fuel Use

Off-Road Equipment Fuel Use

Primary Construction Activity	Activity Duration (Days)	Equipment Type	Size (hp)	Number of Pieces	Hours of Daily Use/Piece of Equipment	Total Days of Use	Load Factor	Fuel Usage Rate (g/bhph)	Total Diesel Fuel (Gallons)
Site Preparation	3	Tractors/Loaders/Backhoes	84	1	8	3	0.37	0.05	37.3
		Rubber Tired Dozers	367	1	7	3	0.4	0.05	154.1
		Graders	148	1	8	3	0.41	0.05	72.8
Grading	16	Graders	148	1	8	16	0.41	0.05	388.4
		Rubber Tired Dozers	367	1	8	16	0.4	0.05	939.5
		Tractors/Loaders/Backhoes	84	2	7	16	0.37	0.05	348.1
Building Construction	228	Cranes	367	1	1	228	0.29	0.05	1213.3
		Forklifts	82	1	6	228	0.2	0.05	1121.8
		Generator Sets	14	1	8	228	0.74	0.05	944.8
		Tractors/Loaders/Backhoes	84	1	6	228	0.37	0.05	2125.9
		Welders	46	3	8	228	0.45	0.05	5663.5
Paving & Track	15	Pavers	81	1	6	15	0.42	0.05	153.1
		Paving Equipment	89	1	8	15	0.36	0.05	192.2
		Rollers	36	1	7	15	0.38	0.05	71.8
		Cement and Mortar Mixers	10	1	6	15	0.56	0.05	25.2
		Tractors/Loaders/Backhoes	84	1	8	15	0.37	0.05	186.5
Architectural Coating	10	Air Compressors	37	1	6	10	0.48	0.05	53.3

Total Phase 3 Diesel Fuel Use (Gallons):	13692
Number of Construction Years:	0.75
Average Diesel Fuel Use/Year:	18373
BTU/Gallons:	138700
Total Phase 3 BTUs:	1899027139
Total Phase 3 MMBTU:	1899

Phase 1 Construction Fuel Use - On-Road Vehicles

Activity	Demolition	Site Prep	Grading	Bldg Const	Paving	Arch Coating	Total	LDA	LDT1	LDT2	MDV	HDT
Days	20	3	16	228	15	10						
Worker Trips/Day	15	17	15	58.56	20	20						
Miles/Trip	11.4	11.4	11.4	11.4	11.4	11.4						
Total VMT	3420	581.4	2736	152209.2	3420	2280	164646.55	54882.2	54882.2	54882.2	0	0
Vendor Trips/Day	0	0	0	22.9	0	0						
Miles/Trip	-	-	-	8.5	-	-						
Total VMT	0	0	0	44380.2	0	0	44380.2	0	0	0	44380.2	0
Haul Trips/Day	0.75	0	82.5	0	0	0						
Miles/Trip	20	-	0.1	-	-	-						
Total VMT	300	0	132	0	0	0	432	0	0	0	0	432

	VMT	Gallons/Mile ⁽¹⁾	Gallons	% Diesel ⁽²⁾	% Gasoline ⁽²⁾	Gallons Diesel	Gallons Gasoline	BTU/Gallon Diesel ⁽³⁾	BTU/Gallon Gasoline ⁽³⁾	Total BTU	Total MMBTU
LDA	54882.2	0.03141995	1724	0.89%	99.11%	15.4	1709.0	137381	120333	207764421	208
LDT1	54882.2	0.03642770	1999	0.07%	99.93%	1.4	1997.9	137381	120333	240596749	241
LDT2	54882.2	0.04118580	2260	0.50%	99.50%	11.3	2249.0	137381	120333	272189972	272
MDV	44380.2	0.03609284	1602	1.85%	98.15%	29.6	1572.2	137381	120333	193254822	193
HDT	432.0	0.18609383	80	98.68%	1.32%	79.3	1.1	137381	120333	11026343	11
TOTAL	209458.8		7666.2			137.0	7529.2	686905	601665	924832307	925

⁽¹⁾ Gallons per mile based on year 2024 conditions for Fresno County. Derived from Emfac2017 (v.1.0.2) Emissions Inventory.

⁽²⁾ Fuel consumption type per vehicle class derived from EMFAC2017 (v1.0.2) for year 2024

⁽³⁾ Energy Coefficient from from US Energy Information Administration (EIA)

<https://www.eia.gov/energyexplained/units-and-calculators/>

Phase 2 Construction Fuel Use - On-Road Vehicles

Activity	Demolition	Site Prep	Grading	Total	LDA	LDT1	LDT2	MDV	HDT
Days	20	10	45						
Worker Trips/Day	15	17.5	15						
Miles/Trip	11.4	11.4	11.4						
Total VMT	3420	598.5	2736	6754.5	2251.5	2251.5	2251.5	0	0
Vendor Trips/Day	0	0	0						
Miles/Trip	-	-	-						
Total VMT	0	0	0	0	0	0	0	0	0
Haul Trips/Day	3.05	0	0						
Miles/Trip	20	-	-						
Total VMT	1220	0	0	1220	0	0	0	0	1220

	VMT	Gallons/Mile ⁽¹⁾	Gallons	% Diesel ⁽²⁾	% Gasoline ⁽²⁾	Gallons Diesel	Gallons Gasoline	BTU/Gallon Diesel ⁽³⁾	BTU/Gallon Gasoline ⁽³⁾	Total BTU	Total MMBTU
LDA	2251.5	0.03141995	71	0.89%	99.11%	0.6	70.1	137381	120333	8523378	9
LDT1	2251.5	0.03642770	82	0.07%	99.93%	0.1	82.0	137381	120333	9870299	10
LDT2	2251.5	0.04118580	93	0.50%	99.50%	0.5	92.3	137381	120333	11166387	11
MDV	0.0	0.03609284	0	1.85%	98.15%	0.0	0.0	137381	120333	0	0
HDT	1220.0	0.18609383	227	98.68%	1.32%	224.0	3.0	137381	120333	31139210	31
TOTAL	7974.5		472.5			225.2	247.3	686905	601665	60699274	61

⁽¹⁾ Gallons per mile based on year 2024 conditions for Fresno County. Derived from Emfac2017 (v.1.0.2) Emissions Inventory.

⁽²⁾ Fuel consumption type per vehicle class derived from EMFAC2017 (v1.0.2) for year 2024

⁽³⁾ Energy Coefficient from from US Energy Information Administration (EIA)

<https://www.eia.gov/energyexplained/units-and-calculators/>

Phase 3 Construction Fuel Use - On-Road Vehicles

Activity	Site Prep	Grading	Bldg Const	Paving	Arch Coating	Total	LDA	LDT1	LDT2	MDV	HDT
Days	3	16	228	15	10						
Worker Trips/Day	7.5	10	8.038	12.5	1.6						
Miles/Trip	11.4	11.4	11.4	11.4	11.4						
Total VMT	256.5	1824	20892.4	2137.5	182.4	25292.7696	8430.9	8430.9	8430.9	0	0
Vendor Trips/Day	0	0	3.14	0	0						
Miles/Trip	-	-	8.5	-	-						
Total VMT	0	0	6085.32	0	0	6085.32	0	0	0	6085.32	0
Haul Trips/Day	0	0	0	0	0						
Miles/Trip	-	-	-	-	-						
Total VMT	0	0	0	0	0	0	0	0	0	0	0

	VMT	Gallons/Mile ⁽¹⁾	Gallons	% Diesel ⁽²⁾	% Gasoline ⁽²⁾	Gallons Diesel	Gallons Gasoline	BTU/Gallon Diesel ⁽³⁾	BTU/Gallon Gasoline ⁽³⁾	Total BTU	Total MMBTU
LDA	8430.9	0.03141995	265	0.89%	99.11%	2.4	262.5	137381	120333	31916475	32
LDT1	8430.9	0.03642770	307	0.07%	99.93%	0.2	306.9	137381	120333	36960131	37
LDT2	8430.9	0.04118580	347	0.50%	99.50%	1.7	345.5	137381	120333	41813437	42
MDV	6085.3	0.03609284	220	1.85%	98.15%	4.1	215.6	137381	120333	26498696	26
HDT	0.0	0.18609383	0	98.68%	1.32%	0.0	0.0	137381	120333	0	0
TOTAL	31378.1		1138.9			8.4	1130.5	686905	601665	137188740	137

⁽¹⁾ Gallons per mile based on year 2024 conditions for Fresno County. Derived from Emfac2017 (v.1.0.2) Emissions Inventory.

⁽²⁾ Fuel consumption type per vehicle class derived from EMFAC2017 (v1.0.2) for year 2024

⁽³⁾ Energy Coefficient from from US Energy Information Administration (EIA)

<https://www.eia.gov/energyexplained/units-and-calculators/>

Total Project (Phase 1, 2 & 3) Construction Fuel Use - On-Road Vehicles

	VMT	Gallons Fuel	Gallons Diesel	Gallons Gasoline	MMBTU
Phase 1	209459	7666	137	7529	925
Phase 2	7975	473	225	247	61
Phase 3	31378	1139	8	1131	137
Total	248811	9278	371	8907	1123

Operational Fuel Use - Proposed Total Project Operational Year 2028 - Unmitigated

Land Use	Total Annual VMT
Phase 1	
High School	0
Other Non-Asphalt Surfaces	0
Parking Lot	0
Phase 2	
City Park ⁽¹⁾	29537
Phase 3	
High School	0
Parking Lot	0
Other Asphalt Surfaces	0
Other Non-Asphalt Surfaces	0

⁽¹⁾ VMTs resulting from Phase 2 are calculated by CalEEMod default values, however, Phase 2 would result in less total VMT for residents of Riverdale by providing a public recreation facility closer than other regional parks.

	VMT	Gallon/Mile ⁽¹⁾	Gallons	BTU/Gallon ⁽²⁾	BTU	MMBTU
Diesel	3952	0.1040044	411	137381	56468932.4	56.47
Gasoline	25585	0.031971034	818	120333	98429357.8	98.43
Total	29537		1229		154898290.2	154.90

⁽¹⁾ Gallons per mile based on 2028 conditions for Fresno County. Derived from EMFAC2017 (v1.0.2) Emissions Inventory.

⁽²⁾ Energy coefficient derived from US Energy Information Administration
<https://www.eia.gov/energyexplained/units-and-calculators/>

EMFAC2017 Fuel Rate Calculation	Fuel Consumption (1000 Gal/Day) ⁽¹⁾		VMT (Miles/Day) ⁽²⁾	
	Diesel	Gasoline	Diesel	Gasoline
All Other Buses	1.18818884		12512.48729	
LDA	2.87806963	419.1769263	171804.5683	15470922.14
LDT1	0.00671071	48.41377522	206.1921502	1508160.63
LDT2	0.092943362	164.9020916	41137.28881	4932849.031
LHD1	16.2912162	33.88245691	316594.5802	306713.1721
LHD2	6.76225874	6.235226126	117250.2207	48697.53392
MDV	3.30378882	148.0122755	106717.9329	3516818.414
MH	0.58236629	2.50687649	6111.256069	13275.76701
Motor Coach	1.22565228		8706.371662	
PTO	3.00464981		16704.47446	
SBUS	3.92346561	0.578266947	32721.20894	5825.230127
T6 Ag	0.04695793		413.0254788	
T6CAIRP heavy	2.47520425		32943.11999	
T6CAIRP small	0.38209868		4595.941275	
T6 instate construction heavy	4.61250614		41193.78251	
T6 instate construction small	14.3282964		133067.7406	
T6 instate heavy	21.357591		238870.8706	
T6 instate small	22.6168399		247929.5211	
T6 OOS heavy	1.41652118		18855.73431	
T6 OOS small	0.22446862		2698.694366	
T6 Public	0.8315377		6414.165523	
T6 utility	0.18888771		1963.251332	
T7 ag	0.13200594		749.0095513	
T7 CAIRP	65.8233559		527851.1073	
T7 CAIRP construction	4.36542098		29589.85182	
T7 NNOOS	76.6849198		643442.7483	
T7 NOOS	26.5826403		207402.8387	
T7 other port	1.5543183		10492.40107	
T7 Public	3.33833832		20999.42037	
T7 Single	11.8233757		84127.07235	
T7 single construction	12.0287616		73406.97989	
T7 SWCV	5.58964087		15394.48314	
T7 tractor	91.8033612		781809.755	
T7 tractor construction	10.0049088		60554.2956	
T7 utility	0.11908829		765.0542267	
UBUS	0.42488013	1.486021516	3209.790254	7411.128871
MCY		3.697978204		139836.4649
OBUS		2.605547662		13503.55513
T6TS		10.25625163		54581.38783
T7IS		0.110517893		514.941279
Total	418.0152359	825.1939166	4019207.236	25810673.05
Percent of Total			13.38%	86.62%
Miles/Gallon	9.614977854	31.27831232		
Gallons/Mile	0.1040044	0.031971034		

⁽¹⁾ Gallons per mile based on 2028 conditions for Fresno County. Derived from EMFAC2017 (v1.0.2) Emissions Inventory.

⁽²⁾ VMT derived from EMFAC2017 (v1.0.2) for year 2028 conditions

Fuel consumption and VMT based on Fresno County

Operational Electricity & Natural Gas Use Year 2028

	kWh/yr	MWh/Yr	BTU/kWh ⁽¹⁾	BTU	MMBTU
Phase 1 Electricity	130002	130	3412	443566824	444
Phase 2 Electricity	0	0	3412	0	0
Phase 3 Electricity	117166	117	3412	399770392	400
Total Electricity	247168	247	10236	843337216	843

⁽¹⁾ Energy coefficient derived from US Energy Information Administration (EIA)

<https://www.eia.gov/energyexplained/units-and-calculators/>

	kBTU/yr			BTU	MMBTU
Phase 1 Natural Gas	90563			90563000	91
Phase 2 Natural Gas	0			0	0
Phase 3 Natural Gas	864099			864099000	864
Total Natural Gas	954662			954662000	955

Based on estimated natural gas use derived from CalEEMod

Operational Water and Wastewater Energy Use Year 2028

	Water Use ⁽¹⁾ (Mgal/Yr)	Electric Intensity Factor		Annual Electric Use (kWh/Yr)	
		Indoor	Outdoor	Indoor	Outdoor
Ph 1 Annual Indoor Water	0.066609	3500		233.1315	
Ph 1 Annual Outdoor Water	8.075322		0		0
Ph 2 Annual Indoor Water	0	3500		0	
Ph 2 Annual Outdoor Water	7.946188		0		0
Ph 3 Annual Indoor Water	0.635537	3500		2224.3795	
Ph 3 Annual Outdoor Water	0.997816		0		0
Total	17.721472			2457.511	

⁽¹⁾ Based on estimated water use derived from CalEEMod

⁽²⁾ Energy coefficient derived from US EIA

<https://www.eia.gov/energyexplained/units-and-calculators/>

BTU/kWh⁽²⁾:	3412
BTU:	8385028
MMBTU:	8.385027532