

Energy Consumption Assessment for the Pepper Development Project

City of Colton, California

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
ADA	Americans with Disability Act
APN	Assessor’s Parcel Number
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
CAISO	California Independent System Operator
CARB	California Air Resources Board
CCR	California Code of Regulations

CEC	California Energy Commission
CHCCSP	Colton Hub City Centre Specific Plan
City	Colton
County	San Bernardino County
CPUC	California Public Utilities Commission
EMFAC	EMission FACtor
EO	Executive Order
IEPR	Integrated Energy Policy Report
kv	Kilovolt
kWh	Kilowatt-hours
Project	Pepper Development Project
RPS	Renewables Portfolio Standard
SB	Senate Bill
sf	Square feet
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

1.0 INTRODUCTION

This report documents the results of an Energy Consumption Assessment completed for the Pepper Development Project (Project) in the City of Colton (City) in San Bernardino County (County). This report was prepared to analyze the potential direct and indirect environmental impacts associated with Project energy consumption, including the depletion of nonrenewable resources (e.g., oil, natural gas, coal) during the construction and operational phases. The impact analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity, natural gas, the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations.

1.1 Project Location and Setting

The Proposed Project is located on an approximately 9-acre (389,336 square feet [sf]) vacant parcel in the City of Colton in San Bernardino County, California (Figure 1, Project Location). The Project is located on the west side of North Pepper Avenue and approximately 625 feet south of West San Bernardino Avenue. The Project Area is composed of one parcel (Assessor's Parcel Number [APN] 0254-071-10) designated as Office/Mixed Use per the City's Colton Hub City Centre Specific Plan (CHCCSP 2016). As depicted on the U.S. Geological Survey (USGS) 7.5-minute "San Bernardino South, California" topographic quadrangle, the Proposed Project is located within Section 24, Township 1 South, Range 5 West, San Bernardino Principal Meridian.

1.2 Project Description

The Project Applicant proposes to construct a three-story 60,000 sf medical office clinic, a five-story 71,000 sf commercial hotel, a three-story parking structure, surface parking areas, and associated site improvements such as curb and gutter, utilities, and landscaping on approximately 3.83 acres of the site. The remaining 5.1 acres in the western portion of the Project parcel is proposed to be a dedicated conservation area for the Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) consistent with the conservation strategy identified within the West Valley Habitat Conservation Plan (City of Colton 2014).

The proposed three-story medical clinic would be built-to-suit and complement the nearby Arrowhead Regional Medical Center located across North Pepper Avenue. The proposed five-story hotel would be branded as a Home2 Suites by Hilton and would provide 112 guest rooms and guest amenities such as a pool. The proposed structures would be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. Other improvements include concrete and asphalt pavement, hardscape, and landscaping.

The proposed parking structure and surface parking areas would service both the medical clinic and the hotel. Approximately 321 parking stalls, including Americans with Disability Act (ADA)-compliant stalls, would be provided. This exceeds the 300-parking stall requirement for a medical office of the proposed size.

2.0 ENERGY CONSUMPTION

2.1 Environmental Setting

Energy relates directly to environmental quality. Energy use can adversely affect air quality and other natural resources. The vast majority of California's air pollution is caused by burning fossil fuels. Consumption of fossil fuels is linked to changes in global climate and depletion of stratospheric ozone. Transportation energy use is related to the fuel efficiency of cars, trucks, and public transportation; choice of different travel modes (auto, carpool, and public transit); vehicle speeds; and miles traveled by these modes. Construction and routine operation and maintenance of transportation infrastructure also consume energy. In addition, residential, commercial, and industrial land uses consume energy, typically through the usage of natural gas and electricity.

2.2 Energy Types and Sources

Colton Electric Utility provides electrical services to the Project Site through state-regulated public utility contracts. Established in 1887, Colton's Electric Utility is the oldest founded utility in San Bernardino County and currently provides electrical service to Colton. The Colton Electric Utility was created to provide electrical service to residential and business customers within the city. Colton Electric Utility owns and operates its own power plant, five substations and the entire electrical infrastructure including the transmission and distribution lines within the city boundaries. The utility serves approximately 16,000 residential customers and 2,500 commercial and industrial customers, with a peak load of 90 megawatts. Colton Electric Utility met its year 2020 Renewable Portfolio Standard requirements, procuring renewable energy from diverse sources, including biomass, biowaste, hydroelectric, solar and wind. This Standard requires all California utilities to generate 60 percent of their electricity from renewables by 2030 and 100 percent by 2045.

The Southern California Gas Company provides natural gas services to the Project Area. As the nation's largest natural gas distribution utility, the Southern California Gas Company delivers natural gas energy to 21.6 million consumers through 5.9 million meters in more than 500 communities. The Southern California Gas Company's service territory encompasses approximately 20,000 square miles throughout Central and Southern California, from Visalia to the Mexican border.

In October 2015, the legislature approved, and the Governor signed, Senate Bill (SB) 350, which reaffirms California's commitment to reducing its greenhouse gas emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Specifically, SB 350 requires the following to reduce statewide greenhouse gas emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030 (SB 100 later increased the requirement to 60 percent by 2030, with an interim target of 50 percent in 2026. The policy has the additional mandate of increasing the amount of electricity produced from renewable energy sources to 100 percent by 2045.

- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the California Independent System Operator (CAISO) to develop more regional electricity transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

Established in 2002 under SB 1078 and accelerated by SB 107 (2006) and SB 2 (2011), California's RPS obligated investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. Eligible renewable resources are defined in the 2013 RPS to include biodiesel; biomass; hydroelectric and small hydro (30 megawatts or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 60 percent of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provided for the transformation of the CAISO into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process. In 2018, SB 100 (the California 100 Percent Clean Energy Act) was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045. Specifically, SB 100 sets the goal of powering the state with 100 percent clean and carbon free electricity by 2045.

CAISO manages the flow of electricity across the high-voltage, long-distance power lines (high-voltage transmissions system) that make up 80 percent of California's and a small part of Nevada's grid. This nonprofit public benefit corporation keeps power moving to and throughout California by operating a competitive wholesale electricity market, designed to promote a broad range of resources at lower prices, and managing the reliability of the electrical transmission grid. In managing the grid, CAISO centrally dispatches generation and coordinates the movement of wholesale electricity in California. As the only independent grid operator in the western U.S., CAISO grants equal access to 26,000 circuit miles of transmission lines and coordinates competing and diverse energy resources into the grid where it is distributed to consumers. Every five minutes, CAISO forecasts electrical demand and dispatches the lowest cost generator to meet demand while ensuring enough transmission capacity for delivery of power.

CAISO conducts an annual transmission planning process that uses engineering tools to identify any grid expansions necessary to maintain reliability, lower costs or meet future infrastructure needs based on public policies. CAISO engineers design, run and analyze complex formulas and models that simulate grid use under wide-ranging scenarios, such as high demand days coupled with wildfires. This process includes

evaluating power plant proposals submitted for study into the interconnection queue to determine viability and impact to the grid. The long-term comprehensive transmission plan, completed every 15 months, maps future growth in electricity demand and the need to meet state energy and environmental goals that require the CAISO grid to connect to renewable-rich, but remote areas of the Western landscape. CAISO promotes energy efficiency through resource sharing. CAISO electricity distribution management strategy designed so that an area with surplus electricity can benefit by sharing megawatts with another region via the open market. This allows the dispatch of electricity as efficiently as possible. By maximizing megawatts as the demand for electricity increases, CAISO helps keep electricity flowing during peak periods.

2.3 Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g., gallons of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh. As previously stated, this impact analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity usage, natural gas usage, the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations.

The electricity consumption associated with all nonresidential uses in San Bernardino County from 2018 to 2022 is shown in Table 2-1. As indicated, electricity consumption has increased since 2018.

Table 2-1. Non-Residential Electricity Consumption in San Bernardino County 2018-2022	
Year	Electricity Consumption (kilowatt hours)
2022	10,327,755,820
2021	10,137,255,897
2020	9,797,575,011
2019	9,926,183,260
2018	10,158,958,013

Source: CEC 2023

The natural gas consumption associated with all nonresidential uses in San Bernardino County from 2018 to 2022 is shown in Table 2-2. As indicated, natural gas consumption has decreased since 2018.

Table 2-2. Non-Residential Natural Gas Consumption in San Bernardino County 2018-2022	
Year	Natural Gas Consumption (therms)
2022	294,792,317
2021	304,591,046
2020	259,859,817
2019	272,237,239
2018	268,588,772

Source: CEC 2023

On-road gasoline fuel consumption in San Bernardino County from 2019 to 2023 is shown in Table 2-3. On-road gasoline consumption has decreased in the County since 2019.

Table 2-3. On-Road Gasoline Fuel Consumption in San Bernardino County 2019-2023	
Year	On-Road Gasoline Consumption
2023	859,496,393
2022	867,249,836
2021	869,262,610
2020	763,765,304
2019	894,821,914

Sources: California Air Resources Board (CARB) 2022, CARB 2021.

On-road and off-road diesel fuel consumption in San Bernardino County from 2019 to 2023 is shown in Table 2-4. Off-road diesel consumption has decreased in the County since 2019, and on-road diesel consumption has increased in the County since 2019.

Year	On-Road Diesel Consumption	Off-Road Diesel Consumption	Total Diesel Consumption
2023	279,150,963	17,957,859	297,108,822
2022	276,240,473	17,958,286	297,198,759
2021	272,787,528	17,961,981	290,749,509
2020	265,477,739	17,970,801	283,448,540
2019	261,139,639	20,984,704	282,124,343

Sources: California Air Resources Board (CARB) 2022, CARB 2021.

2.4 Regulatory Framework

2.4.1 State

2.4.1.1 *Integrated Energy Policy Report*

SB 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report (IEPR) that assesses major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (Public Resources Code Section 25301a). Each biennial IEPR takes into account various factors such as energy supply, demand, infrastructure, environmental considerations, and economic impacts. The report aims to address key energy challenges and provide recommendations to achieve a reliable, affordable, and sustainable energy system for California.

Some of the key areas typically covered in the report include:

1. **Renewable Energy:** The IEPR focuses on promoting renewable energy sources such as solar, wind, geothermal, and biomass. It assesses the state's progress in meeting its renewable energy goals, identifies barriers, and proposes strategies to increase renewable energy generation and integration into the grid.
2. **Energy Efficiency:** The report highlights the importance of energy efficiency measures to reduce energy consumption and greenhouse gas emissions. It explores policies and initiatives to promote energy-efficient technologies and practices in buildings, transportation, and industries.
3. **Grid Modernization:** The IEPR addresses the modernization and optimization of the electrical grid infrastructure to accommodate a higher penetration of renewable energy, improve grid reliability, and support emerging technologies such as energy storage and electric vehicles.
4. **Transportation:** The report typically includes a section on transportation, focusing on reducing dependence on fossil fuels and promoting the adoption of EVs and alternative fuels. It may discuss

infrastructure development, incentives, and policies to accelerate the transition to cleaner transportation options.

5. **Climate Change Mitigation:** Given California's commitment to combating climate change, the IEPR often emphasizes strategies to reduce greenhouse gas emissions and achieve the state's climate goals. This may include discussions on carbon pricing, cap-and-trade programs, and the integration of climate considerations into energy planning.
6. **Energy Resilience:** The report may address strategies to enhance the resilience of the energy system, considering factors such as extreme weather events, natural disasters, and cybersecurity risks. It could discuss measures to ensure reliable and uninterrupted supply of energy during emergencies.
7. **Economic Impacts and Equity:** The IEPR often explores the economic implications of energy policies and initiatives, including job creation, investment opportunities, and the equitable distribution of benefits across different communities and socioeconomic groups.

The CEC prepares these assessments and associated policy recommendations every two years, with updates on alternate years, as part of the IEPR.

The 2023 IEPR focuses on next steps for transforming transportation energy use in California. The 2023 IEPR addresses the role of transportation in meeting state climate, air quality, and energy goals; the transportation fuel supply; the Alternative and Renewable Fuel and Vehicle Technology Program; current and potential funding mechanisms to advance transportation policy; transportation energy demand forecasts; the status of statewide plug-in electric vehicle infrastructure; challenges and opportunities for electric vehicle infrastructure.

2.4.1.2 Executive Order B-55-18

In September 2018 Governor Jerry Brown Signed Executive Order (EO) B-55-18, which establishes a new statewide goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” Carbon neutrality refers to achieving a net zero carbon dioxide emissions. This can be achieved by reducing or eliminating carbon emissions, balancing carbon emissions with carbon removal, or a combination of the two. This goal is in addition to existing statewide targets for greenhouse gas emission reduction. EO B-55-18 requires the California Air Resource Board (CARB) to “work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

2.4.1.3 Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law SB 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation by the state’s utilities to those power plants that meet an emissions performance standard jointly established by the CEC and the CPUC.

The CEC has designed regulations that:

- Establish a standard for baseload generation owned by, or under long-term contract to, publicly owned utilities, of 1,100 pounds carbon dioxide per megawatt hour. This would encourage the development of power plants that meet California’s growing energy needs while minimizing their emissions of greenhouse gas.
- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This would facilitate public awareness of utility efforts to meet customer needs for energy over the long term while meeting the State’s standards for environmental impact.
- Establish a public process for determining the compliance of proposed investments with the Emissions Performance Standard (Perata, Chapter 598, Statutes of 2006).

2.4.1.4 Senate Bill 1368 Renewable Energy Sources (Renewable Portfolio Standards)

Established in 2002 under SB 1078 and accelerated by SB 107 (2006) and SB 2 (2011), California’s RPS obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. Eligible renewable resources are defined in the 2013 RPS to include biodiesel; biomass; hydroelectric and small hydro (30 megawatts or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 60 percent of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the CAISO into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

2.4.2 Local

2.4.2.1 City of Colton General Plan

The City of Colton’s General Plan Land Use Element lists goals and associated policies related to sustainable development and building practices. The goals and policy statements help guide the City council, Planning Commission, committees and boards, and City staff to review and decide whether a land use proposal is consistent with the City’s goals for future growth and development. The goals and policies listed below are pertinent to the Proposed Project’s impact related to energy consumption (City of Colton 2013).

- **Goal LU 4:** Incorporate green building and other sustainable building practices into development projects.
 1. Policy LU 4.3: Promote sustainable building practices that go beyond the requirement of Title 24 of the California Administrative Code and encourage energy-efficient design elements.
- **Goal LU 5:** Reduce use of energy resources citywide, with a key goal of reducing the City's carbon footprint.
 1. Policy LU 5.1: Require the incorporation of energy conservation features into the design of all new construction and site development, as required by State law and local regulations.

2.5 Energy Consumption Impact Assessment

2.5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to energy if it would do any of the following:

- 1) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- 2) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The impact analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity usage, natural gas usage, the equipment fuel necessary for Project construction and the automotive fuel necessary for Project operations. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purposes of this analysis, the amount of electricity and natural gas estimated to be consumed by the Project are quantified and compared to that consumed by all nonresidential land uses in San Bernardino County. Similarly, the amount of gasoline fuel and diesel fuel necessary for Project construction and operations is calculated separately and compared to that consumed in San Bernardino County.

2.5.2 Methodology

The levels of construction and operational related energy consumption estimated to be consumed by the Project include the number of kWh of electricity, therms of natural gas, gallons of gasoline and gallons of diesel. The amount of total on-road construction-related fuel use was estimated using average county fuel economy found in CARB's Emission FACtor (EMFAC) 2021 (2022). EMFAC 2021 is a mathematical model that was developed to calculate emission rates and rates of gasoline and diesel consumption from motor vehicles that operate on highways, freeways, and local roads in California. EMFAC also provides annual

vehicle miles traveled, which was used to calculate the average countywide fuel economy of both gasoline and diesel vehicles.

The fuel consumption of Project construction off-road equipment was also modeled using a combination of CalEEMod and CARB's OFFROAD2021 version 1.0.7 (CARB 2021). OFFROAD2021 is a mathematical model that was developed to calculate emission rates and rates of gasoline and diesel consumption from off-road vehicles that operate in California. Fuel consumption of off-road equipment was compared to all diesel fuel consumed by construction and mining equipment in San Bernardino County in 2023. Fuel consumption was calculated by deriving the fuel consumption factors of each piece of equipment using the United States Environmental Protection Agency (USEPA)'s *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2* (USEPA 2021), which identifies brake specific fuel capacities of 0.408 pounds of diesel per horsepower-hour for engines below 100 horsepower, and 0.367 pounds of diesel per horsepower-hour for engines above 100 horsepower. The fuel consumption factor was then converted from pounds of diesel per horsepower-hour to gallons of diesel per horsepower-hour using the standard conversion of diesel from pounds to gallons (7.07 pounds per gallon). The fuel consumption factor for vehicles below 100 horsepower was calculated to be 0.0577 gallons of diesel per horsepower-hour and the fuel consumption factor for vehicles above 100 horsepower was calculated to be 0.0519 gallons of diesel per horsepower-hour. The horsepower and load factor of each piece of equipment was then multiplied by its respective fuel consumption factor, resulting in the fuel consumption rate of the equipment. After finding the fuel consumption rate, the total quantity of each set of equipment and its daily usage were multiplied to find the total hours of usage per day, and then multiplied by the length of their respective construction phases in order to calculate total hours of usage per piece of equipment per construction phase. These total hours were then multiplied by the fuel consumption rate in order to find each piece of equipment's total fuel consumption (see Appendix A: Energy Consumption Analysis).

Project operational electricity and natural gas consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1. (see Air Quality and Greenhouse Gas Emissions Assessment: Pepper Development Project [ECORP 2024]). CalEEMod is a statewide land use computer model designed to quantify resources associated with both construction and operations from a variety of land use projects.

Operational automotive fuel consumption has been calculated with county fuel economy of both gasoline and diesel-powered vehicles derived from EMFAC, and then compared to the most recent full year of data.

2.5.3 Impact Analysis

2.5.3.1 *Would the Project Result in a Potentially Significant Environmental Impact Due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources, During Project Construction or Operation?*

The Project is proposing the construction and operation of a three-story medical office clinic, a five-story hotel, a three-story parking structure, additional unenclosed parking, and associated site improvements. The Project would generate 2,807 daily trips on weekdays and 895 trips on weekends. In total, the Project would therefore generate 763,910 annual trips.

For the purpose of this analysis, the amount of electricity and natural gas estimated to be consumed by the Project is quantified and compared to that consumed by all nonresidential land uses in San Bernardino County. The amount of fuel necessary for Project construction is calculated and compared to that consumed in San Bernardino County. Similarly, the amount of fuel necessary for Project operations is calculated and compared to that consumed in San Bernardino County. Energy consumption associated with the Proposed Project is summarized in Table 2-5.

Table 2-5. Proposed Project Energy and Fuel Consumption		
Energy Type	Annual Energy Consumption	Percentage Increase Countywide
Building Energy Consumption		
Electricity Consumption ¹	2,551,459 kilowatt-hours	0.0247 percent
Natural Gas ¹	37,672 therms	0.0128 percent
Construction Fuel Consumption		
Construction Off-Road & On-Road Equipment (Diesel) ^{2,3}	92,760 gallons	0.0312 percent
Construction On-Road (Gasoline) ³	21,228 gallons	0.0025 percent
Operations Fuel Consumption		
Operations On-Road (Diesel) ³	81,403 gallons	0.0292 percent
Operations On-Road (Gasoline) ³	315,499 gallons	0.0367 percent

Source: ¹CalEEMod; ²OFFROAD2021; ³EMFAC2021 (CARB 2024)

Notes: The Project increases in electricity and natural gas consumption are compared with all nonresidential uses in San Bernardino County in 2022, the latest data available. The Project increases in on-road and off-road fuel consumption are compared with the anticipated countywide fuel consumption in 2023, the most recent full year of data.

Fuel necessary for Project construction would be required for the operation and maintenance of construction equipment and the transportation of materials to the Project Site. The fuel expenditure necessary to construct the hotel, medical office and associated parking would be temporary, lasting only as long as Project construction. As indicated in Table 2-5, the Project’s on-road gasoline fuel consumption during the one-time construction period is estimated to be 21,228 gallons, which would increase the annual countywide gasoline fuel use by 0.0025 percent. Additionally, the Project is estimated to consume 92,760 gallons of diesel fuel, which would be 0.0312 percent of the county’s annual diesel fuel consumption. As such, Project construction would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state

regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction.

Operations of the Proposed Project would include electricity and natural gas usage. As shown in Table 2-5, the annual electricity consumption due to operations would be 2,551,459 kilowatt-hours resulting in a small increase (0.0247 percent) in the typical annual electricity consumption attributable to all nonresidential uses in San Bernardino County. However, this is potentially a conservative estimate. The City of Colton General Plan Land Use Element provides goals and policies meant to reduce energy consumption by all new projects. Policy LU 4.3 of the General Plan aims to promote sustainable building practices that go beyond the requirement of Title 24 of the California Administrative Code and encourage energy-efficient design elements. Natural gas consumption due to operations would be 37,672 therms resulting in a nominal increase (0.0128 percent) in the typical annual natural gas consumption attributable to all nonresidential uses in San Bernardino County. For these reasons, it is expected that energy consumption associated with Project buildings would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

The Project is estimated to generate approximately 2,807 daily trips on weekdays and 895 trips on weekends. No Project-specific fleet mix data was provided, therefore CalEEMod defaults were used for a conservative analysis. As indicated in Table 2-5, this would equate to a consumption of approximately 315,499 gallons of automotive gasoline per year, which would lead to a minimal (0.0367 percent) increase in the annual countywide automotive gasoline consumption. The Project is estimated to consume approximately 81,403 gallons of automotive diesel fuel per year, which would lead to a minimal (0.0292 percent) increase in the annual countywide automotive diesel consumption. Therefore, fuel consumption associated with the vehicle trips generated by the Project during ongoing maintenance activities would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

2.5.3.2 *Would the Project Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency?*

The Project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. The Project will be built to the Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the California Code of Regulations (Title 24). Title 24 was established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 is updated approximately every three years; the 2019 Title 24 updates went into effect on January 1, 2020. The 2022 standards went into effect became effective January 1, 2023. The 2022 Energy Standards improve upon the 2019 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2022 update to the Energy Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings, encouraging better energy efficiency, strengthening ventilation standards, and more. The 2022 Energy Standards are a major step toward meeting Zero Net Energy. Buildings permitted on or after January 1, 2023, must comply with the 2022 Standards. Compliance with Title 24 is mandatory at the time new building permits are issued by city

and county governments. Additionally, in January 2010, the State of California adopted the California Green Building Standards Code (CalGreen) that establishes mandatory green building standards for all buildings in California. The code was subsequently updated in 2013. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. Policy LU 4.3 of the City of Colton General Plan aims to promote sustainable building practices that go beyond the requirement of Title 24 of the California Administrative Code and encourage energy-efficient design elements. Additionally, Policy LU 5.1 requires the incorporation of energy conservation features into the design of all new construction and site development, as required by State law and local regulations.

The Proposed Project would not conflict or obstruct a State or local plan for renewable energy or energy efficiency.

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Energy Consumption Modeling Output

Energy Consumption Analysis
Electricity and Natural Gas

Phase Name		Project Natural Gas Consumption	
(kWh/year)	(MWh/year)	(kBTU/year)	(Therms/year)
2,551,459	2,551	3,767,206	37,672

San Bernardino County Annual Energy Consumption (2022)			
Electricity Consumption ¹		Natural Gas Consumption ²	
(kWh/year)	(MWh/year)	(kBTU/year)	(Therms/year)
10,327,755,820	10,327,756	29,479,231,700	294,792,317

Percentage Increase Countywide	
Electricity Consumption ¹	Natural Gas Consumption ²
0.0247%	0.0128%

Notes:

1. County annual electricity consumption data source: California Energy Commission, Electricity Consumption by County, <http://www.ecdms.energy.ca.gov/elecbycounty.aspx>.
2. County annual natural gas consumption data source: California Energy Commission, Gas Consumption by County, <http://www.ecdms.energy.ca.gov/gasbycounty.aspx>.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

**Energy Consumption Analysis
Construction Off-Road Fuel Consumption**

Phase Name	Off-Road Equipment	Quantity	Usage (hrs)	Horsepower (hp)	Load Factor	Fuel Consumption Rate (gallon/hr) ¹	Total Hours	Number of Days	Total Fuel Consumption (gallon)
Site Preparation	Trenchers	3	8	40	0.5	1.15	24	5	138.5
Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37	1.79	32	5	286.9
Grading	Graders	1	8	148	0.41	3.15	8	8	201.6
Grading	Excavators	1	8	36	0.38	0.79	8	8	50.5
Grading	Tractors/Loaders/Backhoes	3	8	84	0.37	1.79	24	8	344.3
Grading	Rubber Tired Dozers	1	8	367	0.4	7.62	8	8	487.6
Building Construction	Cranes	1	7	367	0.29	5.52	7	230	8,893.2
Building Construction	Forklifts	3	8	82	0.2	0.95	24	230	5,223.5
Building Construction	Generator Sets	1	8	14	0.74	0.60	8	230	1,099.9
Building Construction	Welders	1	8	46	0.45	1.19	8	230	2,197.7
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37	1.79	21	230	8,661.7
Paving	Tractors/Loaders/Backhoes	1	8	84	0.37	1.79	8	230	3,299.7
Paving	Cement and Morter Mixers	2	6	10	0.56	0.32	12	230	891.8
Paving	Pavers	1	8	81	0.42	1.96	8	230	3,611.8
Paving	Paving Equipment	2	6	89	0.36	1.85	12	230	5,102.4
Paving	Rollers	2	6	36	0.38	0.79	12	230	2,178.6
Painting	Air Compressors	1	6	37	0.48	1.02	6	230	1,414.2
Total Construction Off-Road Fuel (Diesel) Consumption (gallon)									44,084
Countywide Off-Road Fuel (Diesel) Consumption (2023) (gallon)									17,957,859
Percentage Increase Countywide									0.2455%
Notes:									
1. Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor Fuel Consumption Factor: Brake Specific Fuel Capacity is converted from diesel lb/hp-hr to diesel gallon/hp-hr Environmental Protection Agency, 2021. <i>Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2</i>									
2. Countywide off-road diesel consumption is from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.									
Source: Refer to CalEEMod outputs for assumptions used in this analysis as well as equipment usage.									

Energy Consumption Analysis
Construction On-Road Fuel Consumption

Worker Trips						
Phase Name	Phase Length	# of Trips	Worker Trip Length	Total VMT	Fuel Consumption Factor (Miles/Gallon/Day)	Total Fuel Consumption (gallon)
Site Preparation	5.0	17.5	18.5	1,618.8	24.35426516	66.5
Grading	8.0	15.0	18.5	2,220.0		91.2
Building Construction	230.0	83.8	18.5	356,569.0		14,640.9
Paving	230.0	20.0	18.5	85,100.0		3,494.3
Painting	230.0	16.8	18.5	71,484.0		2,935.2
Worker Trips Total (Gasoline)						21,228

Vendor Trips						
Phase	Phase Length	# of Trips	Vendor Trip Length	Total VMT	Fuel Consumption Factor (Miles/Gallon/Day)	Total Fuel Consumption (gallon)
Site Preparation	5	0	0	0	7.572729988	0.0
Grading	8	0	0	0		0.0
Building Construction	230	35	10	82110		10,842.9
Paving	230	0	0	0		0.0
Painting	230	0	0	0		0.0
Vendor Trips Total (Diesel)						10,843

Hauling Trips						
Phase	Phase Length	# of Trips	Hauling Trip Length	Total VMT	Fuel Consumption Factor (Miles/Gallon/Day)	Total Fuel Consumption (gallon)
Site Preparation	5	25	20	2500	7.572729988	18,931.8
Grading	8	16	20	2496		18,901.5
Building Construction	230	0	0	0		0.0
Paving	230	0	0	0		0.0
Painting	230	0	0	0		0.0
Hauling Trips Total (Diesel)						37,833
Construction On-Road Diesel Consumption						48,676
Construction Off-Road Diesel Consumption						44,084

Total Construction On-Road Gasoline Consumption (gallon)	Total Construction Off-Road and On-Road Diesel Consumption (gallon)
21,228	92,760
Countywide On-Road Gasoline Consumption (2023)	Countywide Off-Road and On-Road Diesel Consumption (2023)
859,496,393	297,108,822
Percentage Increase Countywide	
Gasoline Consumption ¹	Diesel Consumption ^{1,2}
0.0025%	0.0312%

Notes:

1. Countywide fuel consumption rates, on-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's EMFAC2021.
2. Countywide off-road fuel consumption is from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

**Energy Consumption Analysis
Operational On-Road Fuel Consumption**

Vehicle Type	Percent of Vehicle Trips ¹	Annual Trips ²	Annual Vehicle Miles Traveled	Average Fuel Economy (miles per gallon) ³	Total Annual Fuel Consumption (gallon) ⁴
Gasoline Vehicles	0.93	707,175	7,683,748	24.35426516	315,499
Diesel Vehicles	0.07	56,735	616,447	7.572729988	81,403
Total	1.00	763,910	8,300,195	--	396,903

Total Operations On-Road Gasoline Consumption (gallon)	Total Operations On-Road Diesel Consumption (gallon)
315,499	81,403
Countywide On-Road Gasoline Consumption (2023)	Countywide On-Road Diesel Consumption (2023)
859,496,393	279,150,963
Percentage Increase Countywide	
Gasoline Consumption ⁵	Diesel Consumption ⁵
0.0367%	0.0292%

Notes:

- Percent of Vehicle Trip distribution based on default trip characteristics within the CalEEMod model.
- Annual Trips taken from Traffic Study and CalEEMod outputs.
- Average fuel economy derived from EMFAC countywide fuel consumption divided by miles traveled.
- Total Annual Fuel Consumption calculated by dividing the annual VMT by the average fuel economy (i.e., VMT/Average Fuel Economy).
- Countywide on-road gasoline and diesel consumption are from CARB's EMFAC2021.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.