Energy Assessment
5977 & 6001 Silver Creek Valley Road Project
City of San José, California

Prepared by:
Kimley-Horn and Associates, Inc.
10 S. Almaden Boulevard, Suite 1250
San José, CA 95113
Contact: Ms. Noemi Wyss, AICP
669.800.4152

February 2022

TABLE OF CONTENTS

1 INTRODUCTION

The purpose of this report is to identify the energy use associated with construction and operations of the proposed 5977 & 6001 Silver Creek Valley Road Project ("project" or "proposed project"), located in the City of San José, California. This analysis has been undertaken to analyze whether the proposed project would result in significant environmental impacts related to energy use and conservation.

1.1 PROJECT LOCATION

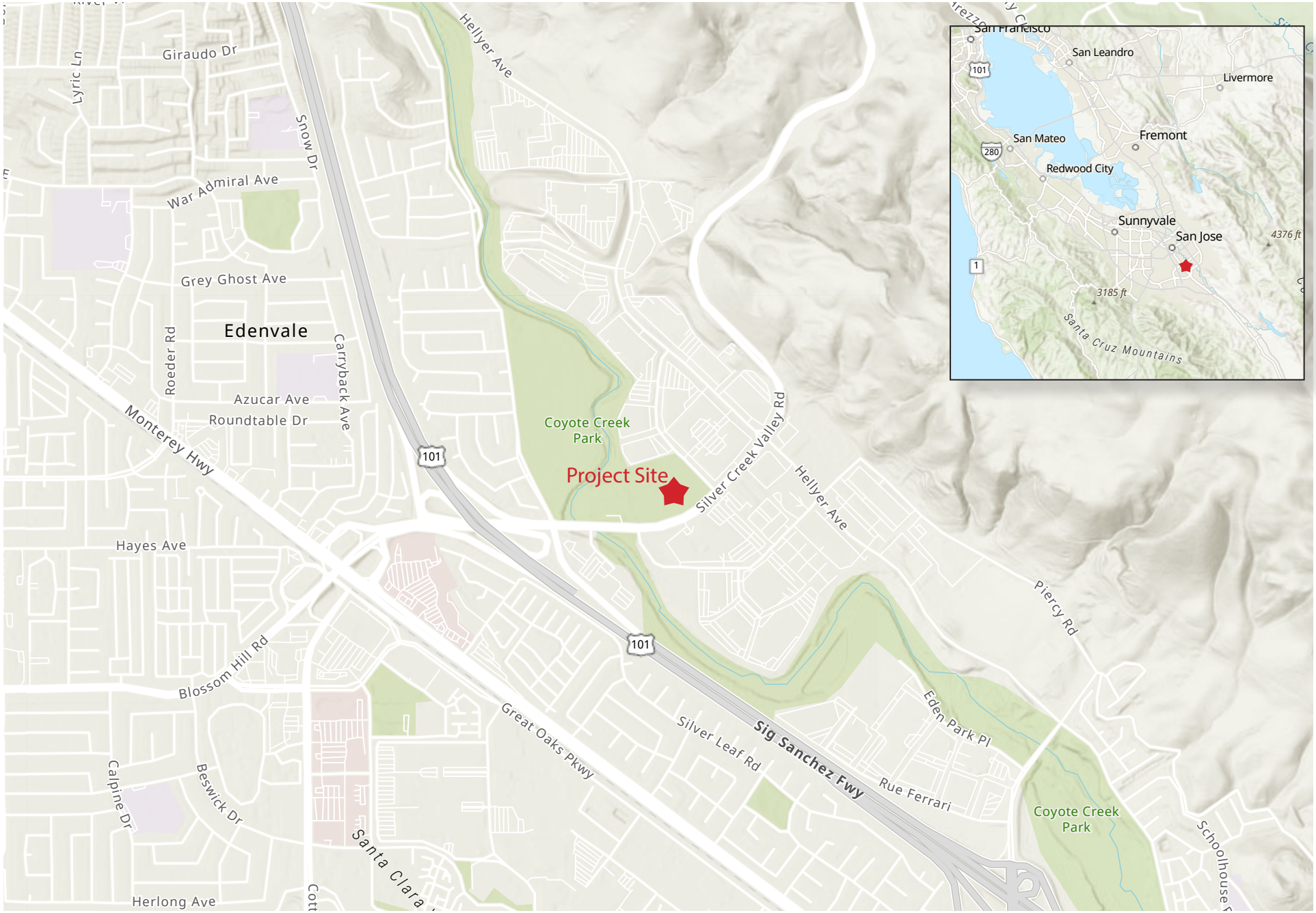
The proposed project is located at 5977 & 6001 Silver Creek Valley Road in San José. Figure 1: Regional Vicinity and Figure 2: Site Vicinity, depict the project site in a regional and local context. The project site is located in an urban area with a mix of surrounding uses including commercial, office, residential and industrial uses. To the west of the project site is open space. The proposed project's existing land use designation is Combined Industrial/Commercial and existing zoning designation is Industrial Park District (IP). Currently, the project site is vacant with some existing vegetation.

1.2 PROJECT DESCRIPTION

The proposed project would redevelop the vacant site located at 5977 Silver Creek Valley Road in San José with industrial uses consistent with the General Plan and zoning district regulations. The project proposes a 226,873 square foot industrial building, 45,000 square feet of manufacturing area, which includes up to 10,000 square feet of office space (including mezzanine), an outdoor employee amenity area, up to 40 loading dock doors, up to 54 truck trailer stalls, refer to Figure 3: Project Site Plan.

The proposed building would be approximately 50 feet tall and could be split into 100,000 square foot interior areas to provide flexibility of uses for either a more intensive office or industrial occupants. The facility would have space for up to 56 on site workers. The project site would be accessible via two driveways on Silver Creek Valley Road and two driveways on Fontanosa Way. These access points would lead into a surface lot with 210 parking spaces. The proposed project would connect to existing utilities located in Silver Creek Valley Road and Fontanosa Way.

The proposed project would be constructed over the course of approximately 13 months. The proposed project would not remove any trees from the project site and would not require soil import during grading or other phases of construction



Source: USGS, 2021

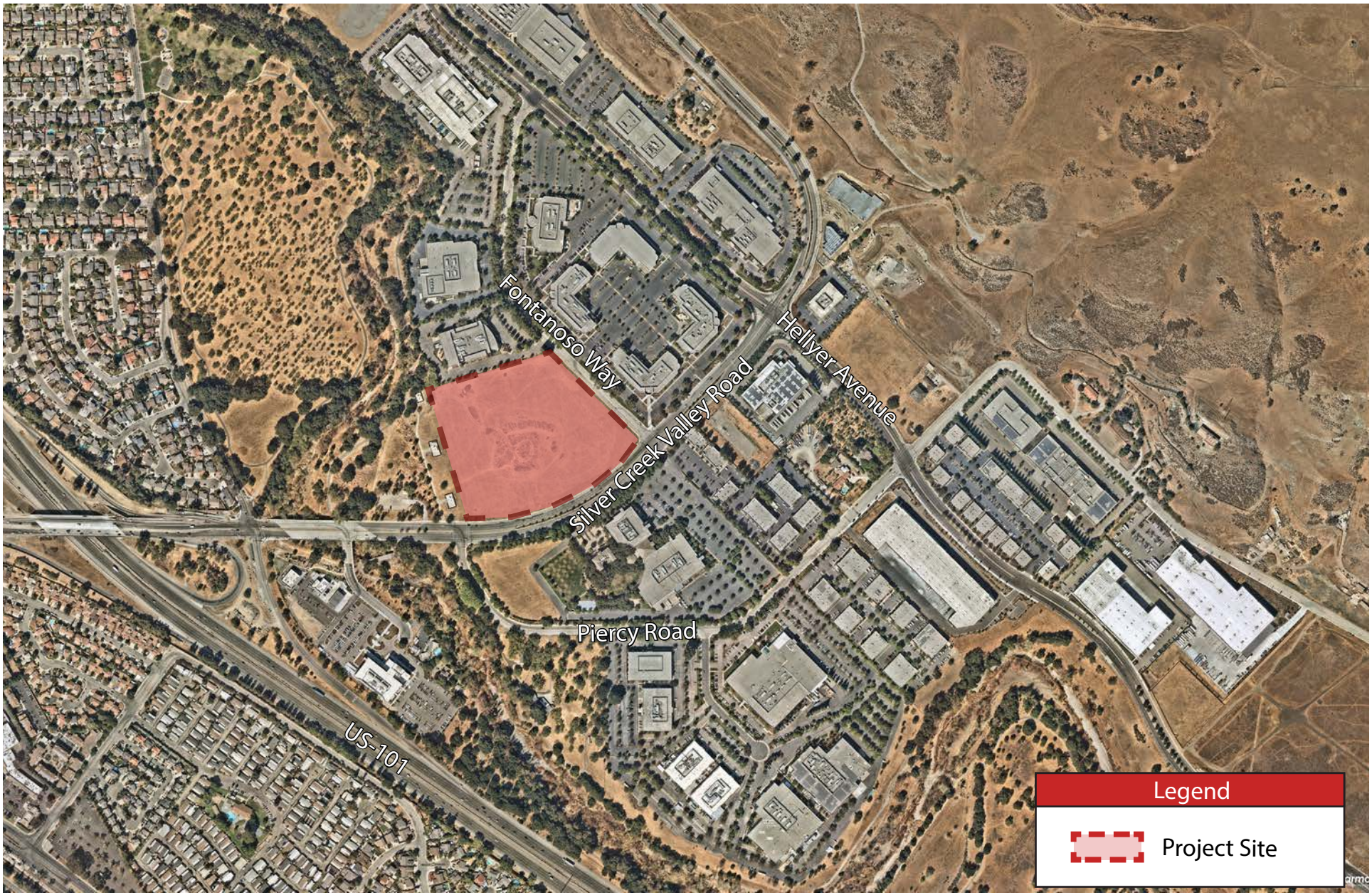
Figure 1: Regional Map

5977 & 6001 Silver Creek Valley Road Project

Not to scale

Kimley»Horn

Expect More. Experience Better.



Source: Nearmap, 2022

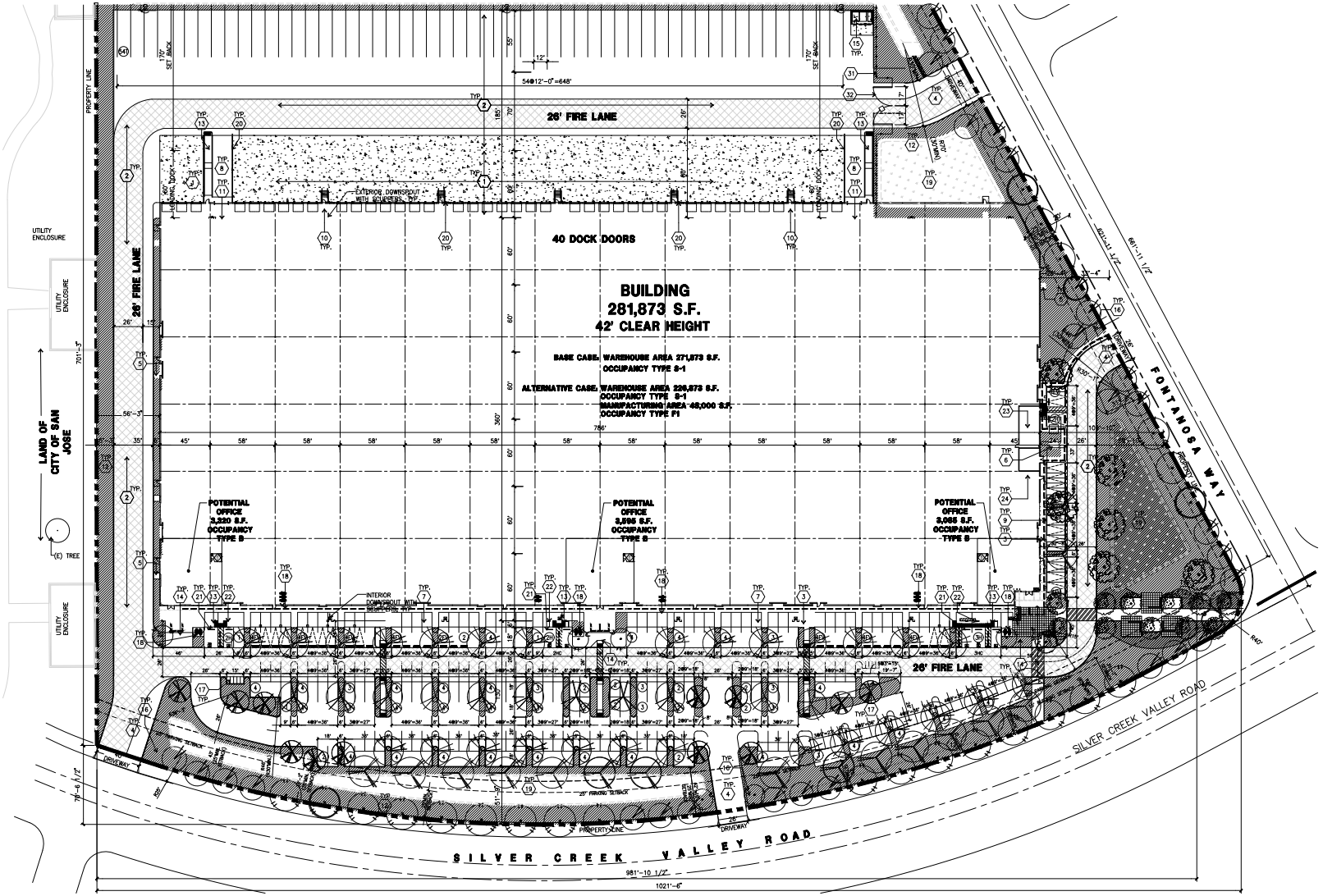
Figure 2: Site Vicinity

5977 & 6001 Silver Creek Valley Road Project

Not to scale

Kimley»Horn

Expect More. Experience Better.



Source: Duke Realty, 2021

Figure 3: Project Site Plan

5977 & 6001 Silver Creek Valley Road Project

Not to scale

Kimley»Horn
Expect More. Experience Better.

2 ENVIRONMENTAL SETTINGS

2.1 CALIFORNIA'S ENERGY USE AND SUPPLY

Californians consumed 279,510 gigawatt hours (GWh) of electricity in 2020, which is the most recent year for which data is available. Of this total, Santa Clara County consumed approximately 16,436 GWh.[1] In 2020, the California electricity mix included natural gas (37.06 percent), coal (2.74 percent), large hydroelectric plants (12.21 percent), nuclear (9.33 percent), oil (0.01 percent), petroleum coke/waste heat (0.19 percent) and unspecified sources of power (N/A). The remaining 33.09 percent was supplied from renewable resources, such as wind, solar, geothermal, biomass, and small hydroelectric facilities (CEC, 2020b). In 2020, the state consumed 2,074,302 million cubic feet of natural gas.

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 2,408 trillion BTU in 2018 (the most recent year for which this specific data is available), which equates to an average of 202 million BTU per capita.[2] Of California's total energy usage, the breakdown by sector is 39 percent transportation, 23 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use. In 2019, taxable gasoline sales (including aviation gasoline) in California accounted for 15,428,040,813 gallons of gasoline.

2.2 CURRENT ENERGY PROVIDERS

Pacific Gas and Electric Company
Pacific Gas and Electric Company (PG&E) is San José's energy utility provider, furnishing both natural gas and electricity for residential, commercial, industrial, and municipal uses. PG&E generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. In 2018, natural gas facilities provided 15 percent of PG&E's electricity delivered to retail customers; nuclear plants provided 34 percent; hydroelectric operations provided 13 percent; renewable energy facilities including solar, geothermal, and biomass provided 39 percent.

The electricity consumption attributable to Santa Clara County from 2010 to 2020 is shown Table 1. As shown below, energy consumption in Santa Clara County remained relatively constant between 2010 through 2020, with no substantial increase.

Table 1: Electricity Consumption in Santa Clara County 2010-2020

Year	Electricity Consumption (in millions of kilowatt hours)
2010	16,266
2011	16,551
2012	16,510
2013	16,585
2014	16,680
2015	16,814

[1] California Energy Commission (CEC) 2020. California Energy Consumption Database. Available at: http://www.ecdms.energy.ca.gov. Accessed February 22, 2022.

[2] United States Energy Information Administration (EIA). 2020. California Consumption and Expenditures. Available at: https://www.eia.gov/state/data.php?sid=CA. Accessed February 22, 2022.

Year	Electricity Consumption (in millions of kilowatt hours)
2016	16,832
2017	17,031
2018	16,713
2019	16,687
2020	16,437
Source: CEC, Energy Consumption Database, 2022.	

PG&E operates one of the largest natural gas distribution networks in the country, including approximately 42,142 miles of natural gas transmission and distribution pipelines (PG&E, 2019a). In all, PG&E delivers gas to approximately 4.3 million customer accounts and approximately 5.4 million electric customer accounts in Northern and Central California, including in Santa Clara County.

The natural gas consumption in Santa Clara County from 2010 to 2020 is shown in Table 2. Similar to energy consumption, natural gas consumption in Santa Clara County remained relatively constant between 2010 and 2020, with no substantial increase.

Table 2: Natural Gas Consumption in Santa Clara County 2010-2020

Year	Natural Gas Consumption (in millions of therms)
2010	458
2011	472
2012	455
2013	458
2014	404
2015	412
2016	422
2017	445
2018	438
2019	460
2020	419
Source: CEC, Energy Consumption Database, 2022.	

The California Public Utilities Commission (CPUC) regulates California natural gas rates and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins.

California's regulated utilities do not own any natural gas production facilities. All of the natural gas sold by these utilities must be purchased from suppliers or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the Federal Energy Regulatory Commission in the mid-1980s and is determined by market forces. However, the CPUC decides whether California's utilities have taken reasonable steps to minimize the cost of natural gas purchased on behalf of its core customers.

As indicated in the preceding discussion, natural gas is available from a variety of in-state and out-of-state sources, and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available through existing delivery systems, thereby increasing the availability and reliability of resources.

2.3 TRANSPORTATION FUELS

California's transportation sector uses roughly half of the energy consumed in the state. In 2019, Californians consumed approximately 15.3 billion gallons of gasoline and 3 billion gallons of diesel fuel. Automotive fuel consumption was estimated using California Air Resources Board (CARB) Emissions Factor (EMFAC) 2017 computer program for typical daily fuel use in Santa Clara County.

Fuel Consumption

Automotive fuel consumption in Santa Clara County from 2009 to 2021 is shown in Table 3. On-road automotive fuel consumption in Santa Clara County has increased from 2009 to 2019, then a slow increase in automotive fuel through 2019 to 2021, and now a slow decline until 2020, with a slight increase in 2021. Heavy-duty fuel consumption has been at a steady increase since 2009.

Table 3: Fuel Consumption in Santa Clara County 2009-2021

Year	On-Road Automotive Fuel Consumption (Gallons)	Heavy-Duty Vehicle/Diesel Fuel Consumption (Gallons)
2009	598,597,622	86,866,071
2010	606,865,597	87,249,060
2011	600,593,576	88,336,117
2012	599,977,347	87,729,569
2013	600,878,134	92,677,765
2014	608,445,652	93,959,323
2015	622,942,908	95,630,049
2016	640,038,922	101,013,516
2017	634,188,996	104,232,000
2018	630,429,980	102,523,852
2019	620,528,910	101,952,538
2020	533,583,122	99,487,878
2021	606,800,930	102,121,719

Source: California Air Resources Board, EMFAC2021.

3 APPLICABLE PLANS, POLICIES, AND REGULATIONS

3.1 STATE

Renewable Energy Standards

In 2002, California established its Renewable Portfolio Standard program[3] with the goal of increasing the annual percentage of renewable energy in the state's electricity mix by the equivalent of at least 1 percent of sales, with an aggregate total of 20 percent by 2017. The California Public Utilities Commission subsequently accelerated that goal to 2010 for retail sellers of electricity (*Public Utilities Code* Section 399.15(b)(1)). Then-Governor Schwarzenegger signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the California Air Resources Board under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In September 2010, the California Air Resources Board adopted its Renewable Electricity Standard regulations, which require all of the State's load-serving entities to meet this target. In October 2015, then-Governor Brown signed into legislation Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

California 2007 Energy Action Plan Update

The 2007 Energy Action Plan II is the State's principal energy planning and policy document. The plan describes a coordinated implementation strategy to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the state and its electricity providers would invest first in energy efficiency and demand-side resources, followed by renewable resources, and only then in clean conventional electricity supply to meet its energy needs.

Building Codes

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977 and are updated every three years (Title 24, Part 6, of the California Code of Regulations). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 9, 2018, the CEC adopted the 2019 Building Energy Efficiency Standards, which took effect on January 1, 2020.

The current 2019 Standards improve upon the previous 2016 Standards. Under the 2019 Title 24 standards, residential buildings are about 7 percent more energy efficient, and when the required rooftop

[3] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country.

solar is factored in for low-rise residential construction, residential buildings that meet 2019 Title 24 standards would use about 53 percent less energy than those built to meet current standards.

California Green Building Standards Code

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary measures (CALGreen Tier 1 and Tier 2) that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and went into effect January 1, 2020.

2006 Appliance Efficiency Regulations

The California Energy Commission adopted Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) on October 11, 2006. The regulations were approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both Federally regulated appliances and non-Federally regulated appliances. While these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

California Utility Efficiency Programs (Senate Bill 1037 and Assembly Bill 2021)

SB 1037 and AB 2021 require electric utilities to meet their resource needs first with energy efficiency. California Utility Efficiency Programs have also set new targets for statewide annual energy demand reductions.

3.2 REGIONAL & LOCAL

City of San José Private Sector Green Building Policy

The San José City Council approved Policy 6-32 *Private Sector Green Building Policy* in October 2008 that establishes a baseline green building standard for private sector new construction within the City. Policy 6-32 is intended to enhance the public health, safety, and welfare of City residents, workers, and visitors by fostering practices in the design, construction, and maintenance of buildings that will minimize the use and waste of energy, water, and other resources. All projects are required to submit a Leadership in Energy and Environmental Design (LEED)[4], GreenPoint[5], or Build It Green checklist with the development proposal. Private developments are required to implement green building practices if they meet the Applicable projects criteria defined by Council Policy 6-32 and shown in the Table 4 below.

Table 4: Green Building Practices

Applicable Project	Effective as of January 1, 2009
Commercial/ Industrial – Tier 1	< 25,000 square-feet = LEED Applicable NC Checklist

[4] Created by the U.S. Green Building Council, LEED is a certification system that assigns points for green building measures based on a 110-point rating scale.
[5] Created by Build It Green, GreenPoint is a certification system that assigns points for green building measures based on a 381-point scale for multi-family developments and 341-point scale for single-family developments.

Commercial/ Industrial – Tier 2	> 25,000 square-feet = LEED Silver
Residential < 10 units – Tier 1	GreenPoint or LEED Checklist
Residential > 10 Units – Tier 2	GreenPoint Rated 50 points or LEED Certified
High-Rise Residential (75' or higher)	Leed Certified

Green Vision

The Green Vision includes the goal to reduce per capita energy consumption by at least 50 percent compared to 2008 levels by 2022 and maintain or reduce net aggregate energy consumption levels equivalent to the 2022 level through 2040.

Sustainable City Strategy

The Sustainable City Strategy is a statement of the City's commitment to becoming an environmentally and economically sustainable city by ensuring that development is designed and built in a manner consistent with the efficient use of resources and environmental protection. Programs promoted under this strategy include recycling, waste disposal, water conservation, transportation demand management and energy efficiency.

Climate Smart San José

Approved by the City Council in February 2018, Climate Smart San José utilizes a people-focused approach, encouraging the entire San José community to join an ambitious campaign to reduce greenhouse gas emissions, save water and improve quality of life. The adoption of Climate Smart San José made San José one of the first U.S. cities to chart a path to achieving the greenhouse gas emissions reductions contained in the international Paris Agreement on climate change. Climate Smart San José focuses on three areas: energy, mobility, and water.Climate Smart San José encompasses nine overarching strategies:

- Transition to a renewable energy future
- Embrace our California climate
- Densify our city to accommodate our future neighbors
- Make homes efficient and affordable for families
- Create clean, personalized mobility choices
- Develop integrated, accessible public transport infrastructure
- Create local jobs in our city to reduce vehicle miles traveled
- Improve our commercial building stock
- Make commercial goods movement clean and efficient

City of San José Smart Energy Plan

In March 2001, the City of San José adopted a Smart Energy Plan which includes discussions and implementation steps for the following strategies:

- Explore regional energy solutions together with neighboring communities.
- Collaborate with neighboring communities to identify regional criteria for appropriate locations for new large, clean plants in Silicon Valley that do not harm residential communities.
- Explore creative energy partnerships among cities, the State, and federal governments, and the private sector to help ensure reliable supplies and achieve conservation.
- Reduce the City's energy demand through vigorous conservation efforts to achieve at least a 10 percent savings and encourage community conservation.
- Expand the City's model program for energy-efficient buildings to encourage long-term permanent conservation.
- Actively encourage small clean power plants in San José that can be located in appropriate industrial areas and publicly-owned lands, not in residential neighborhoods.

- Set clear predictable standards for clean energy generation projects within the City's authority and streamline the City's review and approval of appropriate power projects.

City Energy Programs

The City also has a number of programs to further promote energy conservation among residents and businesses in the City.

Silicon Valley Energy Watch (SVEW) program:

The City of San José, PG&E, and Ecology Action are part of the Silicon Valley Energy Watch program. The program assists cities, non-profits, small businesses, community organizations, professionals, and residents in the County to take advantage of cost-saving, energy-efficient technologies. SVEW offers free energy audits, targeted retrofits, technical assistance, education, and training.

City of San José Green Building Policies:

In 2001, the San José City Council adopted a series of Green Building Policies to demonstrate the City's commitment to the environmental, economic, and social stewardship and to yield cost savings to city taxpayers through reduced operating costs, to provide healthy work environments for staff and visitors, and to contribute to the City's goals of protecting, conserving, and enhancing the region's environmental resources. The Green Building Policy goals include a series in the category of energy and atmosphere. Energy and atmosphere policy goals are as follows:

- *Minimum Energy Performance*: establish the minimum level of energy efficiency for the base building and systems.
- *Optimize Energy Performance*: achieve increasing levels of energy performance above the minimum standard to reduce environmental impacts associated with excessive energy use.
- *Building Commissioning*: verify and ensure that the entire building is designed, constructed, and calibrated to operate as intended.
- *Measurement and Verification*: provide for the ongoing accountability and optimization of building energy and water consumption performance over time.
- *Renewable Energy*: encourage and recognize increasing levels of self-supply through renewable technologies to reduce environmental impacts associated with fossil fuel energy use.
- *Green Power*: encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.
- *Reduce Ozone Depletion*: support early compliance with the Montreal Protocol by eliminating the use of CFC-based refrigerants and reducing the use of HCFCs and halons. As part of its promotion of Green Building policies, the City encourages participation in City sponsored organized educational and training events covering green building topics to increase the use of green building techniques in municipal, commercial, and residential building development projects in the City and create greater awareness of these practices.

Municipal Code

The City's Municipal Code includes regulations associated with energy efficiency and energy use. City regulations include a Green Building Ordinance (Chapter 17.84) to foster practices to minimize the use and waste of energy, water and other resources in the City of San José, Water Efficient Landscape Standards for New and Rehabilitated Landscaping (Chapter 15.10), requirements for Transportation Demand Programs for employers with more than 100 employees (Chapter 11.105), and a Construction

and Demolition Diversion Deposit Program that fosters recycling of construction and demolition materials (Chapter 9.10).

In September 2019, San José City Council approved a building reach ordinance (No. 30311) that encourages building electrification and energy efficiency, requires solar-readiness on nonresidential buildings, and required electric vehicle-readiness and EV equipment installation. Additionally, in October 2019 City Council approved an ordinance (No. 30330) prohibiting natural gas infrastructure in new detached accessory dwelling units, single-family, and low-rise multi-family buildings. Cities may adopt amendments to the Green Building Standards which exceed the standards required by the State. These two ordinances apply to new construction as of January 1, 2020.

Envision San José 2040 General Plan

The Envision San José 2040 General Plan includes policies applicable to all development projects in San José. The following policies are specific to energy use and energy efficiency and applicable to the project.

Policy MS-1.1	Demonstrate leadership in the development and implementation of green building policies and practices. Ensure that all projects are consistent with or exceed the City's Green Building Ordinance and City Council Policies as well as State and/or regional policies which require that projects incorporate various green building principles into their design and construction.
Policy MS-2.2	Encourage maximized use of on-site generation of renewable energy for all new and existing buildings.
Policy MS-2.3	Utilize solar orientation, (i.e., building placement), landscaping, design, and construction techniques for new construction to minimize energy consumption.
Action MS-2.8	Develop policies which promote energy reduction for energy-intensive industries. For facilities such as data centers, which have high energy demand and indirect greenhouse gas emissions, require evaluation of operational energy efficiency and inclusion of operational design measures as part of development review consistent with benchmarks such as those in EPA's EnergyStar Program for new data centers.
Action MS-2.11	Require new development to incorporate green building practices, including those required by the Green Building Ordinance. Specifically target reduced energy use through construction techniques (e.g., design of building envelopes and systems to maximize energy performance), through architectural design (e.g., design to maximize cross ventilation and interior daylight) and through site design techniques (e.g., orienting buildings on sites to maximize the effectiveness of passive solar design).
Policy MS-3.1	Require water-efficient landscaping, which conforms to the State's Model Water Efficient Landscape Ordinance, for all new commercial, institutional, industrial, and developer-installed residential development unless for recreation or other area functions.
Policy MS-5.5	Maximize recycling and composting from all residents, businesses, and institutions in the City.
Policy MS-6.5	Reduce the amount of waste disposed in landfills through waste prevention, reuse, and recycling of materials at venues, facilities, and special events.
Policy MS-6.8	Maximize reuse, recycling, and composting citywide.

Policy MS-14.3	Consistent with the California Public Utilities Commission's California Long-Term Energy Efficiency Strategic Plan, as revised and when technological advances make it feasible, require all new residential and commercial construction to be designed for zero net energy use.
Policy MS-14.4	Implement the City's Green Building Policies (see Green Building Section) so that new construction and rehabilitation of existing buildings fully implements industry best practices, including the use of optimized energy systems, selection of materials and resources, water efficiency, sustainable site selection, and passive solar building design and planting of trees and other landscape materials to reduce energy
Policy MS-14.5	Consistent with State and Federal policies and best practices, require energy efficiency audits and retrofits prior to or at the same time as consideration of solar electric improvements.
Policy MS-17.2	Ensure that development within San José is planned and built in a manner consistent with fiscally and environmentally sustainable use of current and future water supplies by encouraging sustainable development practices, including low-impact development, water-efficient development and green building techniques. Support the location of new development within the vicinity of the recycled water system and promote expansion of the South Bay Water Recycling (SBWR) system in areas planned for new development. Residential development outside of the Urban Service Area can be approved only at minimal levels and only allowed to use non-recycled water at urban intensities. For residential development outside of the Urban Service Area, restrict water usage to well water, rainwater collection, or other similar sustainable practice. Non-residential development may use the same sources and potentially make use of recycled water, provided that its use will not result in conflicts with other General Plan policies, including geologic or habitat impacts. To maximize the efficient and environmentally beneficial use of water, outside of the Urban Service Area, limit water consumption for new development so that it does not diminish the water supply available for projected development in areas planned for urban uses within San José or other surrounding communities.
Policy MS-18.2	Require new development outside of the City's Urban Service Area to incorporate measures to minimize water consumption.
Policy MS-18.4	Retrofit existing development to improve water conservation.
Policy MS-18.5	Reduce citywide per capita water consumption by 25% by 2040 from a baseline established using the 2010 Urban Water Management Plans of water retailers in San José.
Policy MS-18.7	Use the 2008 Water Conservation Plan as the data source to determine San José's baseline water conservation savings level.
Policy MS-18.6	Achieve by 2040, 50 million gallons per day of water conservation savings in San José, by reducing water use and increasing water use efficiency.
Policy MS-19.1	Require new development to contribute to the cost-effective expansion of the recycled water system in proportion to the extent that it receives benefit from the development of a fiscally and environmentally sustainable local water supply.

Policy MS-19.4	Require the use of recycled water wherever feasible and cost-effective to serve existing and new development.
Action MS-19.10	Develop incentives to encourage the use of recycled water. Enact ordinances that ensure that new buildings in the vicinity of the SBWR pipeline are constructed in a manner suitable for connection to the recycled water system and that they use recycled water wherever appropriate.
Policy IN-2.1	Utilize the City's Infrastructure Management System Program to identify the most efficient use of available resources to maintain its infrastructure and minimize the need to replace it.
Policy IN-5.3	Use solid waste reduction techniques, including source reduction, reuse, recycling, source separation, composting, energy recovery and transformation of to extend the lifespan of existing landfills and to reduce the need for future landfill facilities and to achieve the City's Zero Waste goals.
Policy PR-6.4	Consistent with the Green Vision, complete San José's trail network and where feasible develop interconnected trails with bike lanes to facilitate bicycle commuting and recreational uses.
Action PR-6.9	Obtain applicable Leadership in Energy and Environmental Design (LEED) Certification (or its equivalent) for new and existing parks and recreation facilities, as dictated by applicable City policies.
Policy LU-5.4	Require new commercial development to facilitate pedestrian and bicycle access through techniques such as minimizing building separation from public sidewalks; providing safe, accessible, convenient, and pleasant pedestrian connections, and including secure and convenient bike storage.
Policy TR-1.4	Through the entitlement process for new development fund needed transportation improvements for all modes, giving first consideration to improvement of bicycling, walking and transit facilities. Encourage investments that reduce vehicle travel demand.
Policy TR-2.8	Require new development where feasible to provide on-site facilities such as bicycle storage and showers, provide connections to existing and planned facilities, dedicate land to expand existing facilities or provide new facilities such as sidewalks and/or bicycle lanes/paths, or share in the cost of improvements.

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 ENERGY THRESHOLDS

Based upon the criteria derived from Appendix G of the CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

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?

In determining whether implementation of the proposed project would result in the inefficient, wasteful or unnecessary use of fuel or energy, this analysis considers the recommendations of Appendix F to the CEQA Guidelines as described above.

4.2 METHODOLOGY

This analysis evaluates energy use on three sources of energy that are relevant to the proposed project, including electricity, natural gas, and transportation fuel for vehicle trips associated with new development, as well as the fuel necessary for project construction. The analysis of project electricity and natural gas use is based on the California Emissions Estimator Model (CalEEMod), which quantifies energy use for occupancy. The results of CalEEMod are included in the Appendix A. Modeling related to project energy use was based primarily on the default settings in CalEEMod. The amount of operational fuel use was estimated using CalEEMod outputs for the proposed project and the California Air Resources Board (CARB) Emissions Factor (EMFAC) 2021 computer program for typical daily fuel use in Santa Clara County. Construction fuel was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 ENERGY ANALYSIS

Threshold (a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

The energy consumption associated with construction of the proposed project includes primarily diesel fuel consumption from on-road hauling trips and off-road construction diesel equipment, and gasoline consumption from on-road worker commute and vendor trips. Temporary electric power for as-necessary lighting and electronic equipment (such as computers inside temporary construction trailers, and heating, ventilation, and air conditioning) would be powered by a generator. The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. The majority of the energy used during construction would be from petroleum. This analysis relies on the construction equipment list and operational characteristics, as states in the *Air Quality Assessment* and the *Greenhouse Gas Assessment*, as well as Appendix A. Table 5 quantifies the construction energy consumption are provided for the project, followed by an analysis of impacts based on those quantifications.

Table 5: Project Energy Consumption During Construction

Source	Project Construction Usage	Santa Clara County Annual Energy Consumption	Percentage Increase Countywide
Electricity Use	**Megawatt Hours (MWh)**		
Water Consumption	12.68	16,435,722	0.0008%
Diesel Use	**Gallons**		
On-Road Construction Trips [1]	20,887	103,122,398	0.02%
Off-Road Construction Equipment [2]	30,828	103,122,398	0.03%
Construction Diesel Total	***51,714***	***103,122,398***	***0.05%***
Gasoline	**Gallons**		
On-Road Construction Trips [1]	26,061	600,613,962	0.004%

1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod and fleet-average fuel consumption in gallons per mile from EMFAC2021 in Santa Clara County for construction year 2023.
2. Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (hp)-hour from USEPA.
Abbreviations:
CalEEMod: California Emission Estimation Model; EMFAC: Emission Factor Model 2021;
Sources: Energy Calculations in Appendix A

In total, construction of the project would consume approximately 13 megawatt hours (MWh) of electricity, 51,714 gallons of diesel and 26,061 gallons of gasoline. Water for project construction would represent 0.0008 percent of the County's water consumption. The project's fuel from the entire construction period would increase fuel use in the County by approximately 0.05 percent for diesel and 0.004 percent for gasoline.

There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or state. In addition, some incidental energy conservation would occur during construction through compliance with State requirements that equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest EPA and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel consumption.

The CEQA Guideline Appendix G and Appendix F criteria requires the project's effects on local and regional energy supplies and on the requirements for additional capacity to be addressed. A 0.05 percent increase in construction fuel demand is not anticipated to trigger the need for additional capacity. Fuel consumption is based on a conservative construction phasing and conservative estimates for annual construction fuel consumption. Longer phases would result in lower construction intensity and a lower annual fuel consumption, resulting in lower annual demand on energy supplies. Additionally, use of construction fuel would cease once the project is fully developed. As such, project construction would have a nominal effect on the local and regional energy supplies. Therefore, it is expected that construction fuel consumption associated with the project would not be inefficient, wasteful, or unnecessary. The project would not substantially affect existing energy or fuel supplies, or resources and new capacity would not be required. Impacts would be less than significant in this regard.

Operations

The energy consumption associated with the project would include building electricity, water, and natural gas usage, as well as fuel usage from on-road vehicles. Note that this energy resources analysis is consistent with the analysis presented in the *Air Quality Assessment* and the *Greenhouse Gas Assessment*, as well as Appendix A. Quantification of operational energy consumption are provided for the project in Table 6. Operation of uses implemented pursuant to the proposed project would annually consume approximately 3,590 MWh of electricity, 11,781 therms of natural gas, 155,231 gallons of diesel, and 83,395 gallons of gasoline.

Table 6: Annual Energy Consumption During Operations

Source	Project Operational Usage	Santa Clara County Annual Energy Consumption	Percentage Increase Countywide
Electricity Use	**Megawatt Hour/Year (MWh/year)**		
Area [1]	3,292	16,435,722	0.200%
Water[1]	298		0.018%
Total Electricity	3,590		0.218%
Natural Gas Use	**Therms/year**		
Area [1]	11,781	418,684,416	0.003%
Diesel Use	**Gallons/Year**		
Mobile [2]	155,231	103,305,684	0.15%
Gasoline Use	**Gallons/Year**		
Mobile [2]	83,395	593,638,414	0.014%

Notes:
1. The electricity and natural gas usage are based on project-specific estimates and CalEEMod defaults.
2. Calculated based on the mobile source fuel use based on vehicle miles traveled (VMT) and fleet-average fuel consumption (in gallons per mile) from EMFAC2021 for operational year 2024

Abbreviations: CalEEMod: California Emission Estimation Model; EMFAC2021: California Air Resources Board Emission Factor Model; MWh: Megawatt-hour

Source: Energy Calculations in Appendix A

Pacific Gas and Electric (PG&E) provides electricity to the project area. Electricity is currently used by the existing building on the project site. However, for a more conservative approach the project energy analysis does not take credit for baseline use. The project site is expected to continue to be served by the existing PG&E electrical facilities. While PG&E facilities deliver electricity to the project site, electricity used by the project site could be sourced from San José Clean Energy (SJCE). The project site would automatically be enrolled in the Green Source program from SJCE with the option to enroll in the TotalGreen program. Total electricity demand in PG&E's service area is forecast to increase by approximately 12,000 GWh—or 12 billion kWh—between 2016 and 2028.[6] The project's anticipated electricity demand (approximately 3,590 MWh) would be nominal compared to overall demand in PG&E's service area.[7] Therefore, the projected electrical demand would not significantly impact PG&E's level of service.

Regarding natural gas, Santa Clara County consumed 418,684,416 therms of natural gas in 2020. Therefore, the project's operational energy consumption for space and water heating would represent 0.003 percent of the natural gas consumption in the County.

In 2024, Californians are anticipated to used approximately 14,997,128,554 gallons of gasoline and approximately 3,709,759,962 gallons of diesel fuel. Santa Clara County annual gasoline fuel use in 2024 is anticipated to be 593,638,414 gallons and diesel fuel is anticipated to be 103,305,684 gallons. Expected project operational use of gasoline and diesel would represent 0.0006 percent of current gasoline use and 0.004 percent of current diesel use in the state. Project operational use of gasoline and diesel would represent 0.014 percent of gasoline use and 0.15 percent of diesel use in the County.

Efficiency Standards, which take effect on January 1, 2020, and/or future 2019 Building Energy Efficiency Standards depending on when construction permits are issued. Prior to issuance of a building permit, the City of San José would review and verify that the project plans demonstrate compliance with the current version of the Building and Energy Efficiency Standards. Title 24 standards require energy conservation features in new construction (e.g., high- efficiency lighting, high-efficiency heating, ventilating, and air-conditioning (HVAC) systems, thermal insulation, double-glazed windows, water conserving plumbing fixtures).

Although the proposed project does not include on-site renewable energy resources, the proposed building would be built in conformance with San José Council Policy 6-32 and the City's Green Building Measures. Additionally, the project would also be required adhere to the provisions of CALGreen, which establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The insulation and design code requirements would minimize wasteful energy consumption.

None of the project energy uses exceed one percent of Santa Clara County use. Therefore, it is expected that operational fuel and energy consumption associated with the project would not be inefficient, wasteful, or unnecessary. Impacts would be less than significant in this regard.

Mitigation Measures: None required.

Level of Significance: Less than significant.

[6] California Energy Commission, *California Energy Demand 2018-2030 Revised Forecast, Figure 49 Historical and Projected Baseline Consumption PG&E Planning Area*, April 2018.
[7] The energy analysis does not take credit for baseline use for a more conservative approach.

Threshold (b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

As stated above the project would be required to be built in conformance with Council Policy 6-32. The project would be required to comply with existing regulations, including applicable measures from the City's General Plan, or would be directly affected by the outcomes (vehicle trips and energy consumption would be less carbon intensive due to statewide compliance with future low carbon fuel standard amendments and increasingly stringent Renewable Portfolio Standards). As such, the project would not conflict with any other state-level regulations pertaining to energy. The project would comply with existing State energy standards and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Mitigation Measures: None required.

Level of Significance: Less than significant.

Appendix A

Energy Calculations

Construction Fuel

On-Site Diesel[1]	$MTCO_2e$	Gallons of Fuel[4]	2022 County Fuel	Percent Increase Countywide
Demolition	0	0		
Site Preparation/Grading	8	788		
Building Construction	274	26,985		
Paving	20	1,970		
Architectural Coating	11	1,084		
Total	313	30,828	**103,122,398.04**	0.0299%
Off-Site Diesel[1]				
Demolition	0	0		
Site Preparation/Grading	0	0		
Building Construction	212	20,887		
Paving	0	0		
Architectural Coating	0	0		
Total	212	20,887	**103,122,398.04**	0.0203%
Off-Site Gasoline[2]				
Demolition	0	0		
Site Preparation/Grading	55	6,243		
Building Construction	162	18,343		
Paving	1	114		
Architectural Coating	12	1,362		
Total	230	26,061	**600,613,962**	0.0043%
Total Diesel Fuel		**51,714**	103,122,398	0.0501%
Total Gasoline Fuel		**26,061**	600,613,962	**0.0043%**
Total Construction Fuel	755	**77,776**		

Construction Phase[3]	**Demolition**			**Site Preparation**			**Grading**		
	On-Site Diesel (Off-Road)	**Off-Site Diesel (Hauling/Vendor)**	**Off-Site Gas (Worker)**	**On-Site Diesel (Off-Road)**	**Off-Site Diesel (Hauling/Vendor)**	**Off-Site Gas (Worker)**	**On-Site Diesel (Off-Road)**	**Off-Site Diesel (Hauling/Vendor)**	**Off-Site Gas (Worker)**
2023	0	0	0	8	0	0	0	0	55
2024									
Total	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**55**
Construction Phase[3]	**Building Construction**			**Paving**			**Architectural Coating**		
	On-Site Diesel (Off-Road)	**Off-Site Diesel (Hauling/Vendor)**	**Off-Site Gas (Worker)**	**On-Site Diesel (Off-Road)**	**Off-Site Diesel (Hauling/Vendor)**	**Off-Site Gas (Worker)**	**On-Site Diesel (Off-Road)**	**Off-Site Diesel (Hauling/Vendor)**	**Off-Site Gas (Worker)**
2023	274	212	162	0	0	0	8	0	9
2024	0	0	0	20		1	3		3
Total	**274**	**212**	**162**	**20**	**0**	**1**	**11**	**0**	**12**

Notes:

[1] Fuel used for off-road, hauling, and vendor trips assumed to be diesel.

[2] Fuel used for worker trips assumed to be gasoline.

[3] $MTCO_2e$ rates from CalEEMod (3.0 Construction Details).

[4] For CO2e emissions, see Chapter 13 (page 94); Conversion Ratios: Climate Registry, General Reporting Protocol, 2016.

Operational Fuel

Vehicle Type	Percent[1]	Annual VMT[2]	MGP[3]	Annual Fuel	Fuel Type	County Gallons[4]	County Percent		Statewide	Statewide percent
Passenger Cars	0.5920	1,801,334	21.6	**83,395**	Gas	593,638,414	0.0140%		14,773,931,520	0.0006%
Light/Medium Trucks	0.15000	456,419	17.2	26,536	Diesel	103,305,684	**0.0033%**	0.1503%	3,625,305,260	0.0007%
Heavy Trucks/Other	0.26	785,041	6.1	128,695	Diesel	103,305,684	**0.0161%**			
Total	1.000	**3,042,794**		**155,231**		800,249,782				

Notes:

[1] Percent of vehicle trip distribution based on fleet mix from CalEEMod (4.4 Fleet Mix).

[2] Total annual operational VMT based on mitigated annual VMT from CalEEMod (4.2 Trip Summary Information).

[3] Average fuel economy derived from Department of Transportation.

[4] Total annual county fuel per EMFAC 2017 model of projected operational fuel usage.

Electricity and Natural Gas

	Mitigated Project Annual Energy	County Annual Energy[3]	Percentage Increase
Electricity (kWh/yr)	1,280,819	**1,643,721,919**	**0.0779%**
Electricity (MWh/yr)	1,281	**1,643,722**	0.0779%
Electricity (GWh/yr)	**1.281**	**1,644**	**0.0779%**
Adjusted Electricity (GWh/yr)	**3.292**	**1,644**	**0.2002%**
Natural Gas (million therms)		**419**	
Natural Gas (kBTU/yr)	1,178,100	**41,868,441,600**	**0.0028%**
Natural Gas (therms)	11,781	418,684,416.00	0.0028%

Land Use	**Electricity[1] (kWh/yr)**		**Natural Gas[2] (kBTU/yr)**	
	Unmitigated	**Mitigated**	**Unmitigated**	**Mitigated**
Manufacturing	364500	364500	1.18E+06	1.18E+06
Parking Lot	87262.7	87262.7	0	0
Warehouse	829056	829056	814843	814844
Total Energy	**1,280,819**	**1,280,819**	**1,178,100**	**1,178,100**

Notes:

[1] Electricity use per CalEEMod (5.3 Energy by Land Use).

[2] Natural Gas use per CalEEMod (5.2 Natural Gas by Land Use).

[3] County total energy values from California Energy Commission energy reports available through ecdms.energy.ca.gov.

Construction Water

Daily Soil Disturbance[1]	**60**	acres
Days of Soil Disturbance[2]	**20**	days
Water Concentration[3]	3,020	gallons/acre
Water Energy Intensity[4]	3,500	kWh/MG
Total Construction Water	**3.62**	million gallons
Construction Water Energy	**12,684**	kWh
	12.6840	MWh
Percentage Increase Countywide	0.000772%	

Notes:

[1] Total daily acres disturbed from offroad equipment per CalEEMod (3.0 Construction Detail) and maximum SCAQMD LST values for soil-disturbing equipment.

[2] Number of days of construction with soil-disturbing equipment per CalEEMod (3.0 Construction Detail).

[3] Water application rate per Air and Waste Management Association's Air Pollution Engineering Manual.

[4] Water energy intensity factor for county subarea per CalEEMod User Guide, Appendix D, page D-343.

Operational Water

Mitigated Indoor	55	million gallons
Indoor Energy Intensity Factor[1]	5,411	kWh/MG
Mitigated Outdoor	0	million gallons
Outdoor Energy Intensity Factor[2]	3,500	kWh/MG
Operational Water Energy	**297605**	kWh
Operational Water Energy	297.605	MWh
Operational Water Energy	**0.297605**	GWh
Percentage Countywide	0.0181%	
Total water use	**55**	million gallons

Land Use[3]	**Unmitigated (MG)**		**Mitigated (MG)**	
	Indoor	**Outdoor**	**Indoor**	**Outdoor**
Manufacturing	10	0	0	0
Parking Lot	0	0	0	0
Warehouse	55	0	55	0
Total Operational Water	**65**	**0**	**55**	**0**

Notes:

[1] Indoor water energy intensity factor for county subarea per CalEEMod User Guide, Appendix D, page D-343. Factor includes supply, treatment, distribution, and wastewater.

[2] Outdoor water energy intensity factor for county subarea per CalEEMod User Guide, Appendix D, page D-343. Factor includes supply, treatment, and distribution.

[3] Operational water use values per CalEEMod (7.2 Water by Land Use).