3.7 Energy

3.7.1 Introduction

This section describes the regulatory setting and affected environment for energy resources that are known to occur or have the potential to occur in the energy RSA, and describes the potential impacts on those resources during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on energy resources when considered in combination with other relevant projects.

3.7.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of energy consumption. This section also addresses the proposed Project's consistency with the regulations described herein.

3.7.2.1 Federal

Energy Policy Act of 1992

The Energy Policy Act of 1992 (Public Law 102-486) included measures to lessen the nation's dependence on imported energy, provided incentives for clean and renewable energy, and promoted energy conservation in buildings. One goal was to cut petroleum use in the U.S. by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005

The Energy Policy Act of 2005 (Public Law 109-58) focused on energy production, energy efficiency, and tax incentives. To reduce national energy consumption, this act directed the National Highway Traffic Safety Administration (NHTSA) within the U.S. Department of Transportation to establish the Corporate Average Fuel Economy (CAFE) Program. This allowed NHTSA to enforce average fuel economy standards for passenger cars and light trucks sold in the U.S.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 included goals to increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. This act amended the Energy Policy Act of 2005 with more aggressive CAFE and federal energy efficiency standards for appliances and lighting.

3.7.2.2 State

California Environmental Quality Act Guidelines Section 15126.2(b)

CEQA Guidelines Section 15126.2(b) requires an analysis of a project's energy consumption to determine if the project may result in significant environmental effects due to wasteful, inefficient,

or unnecessary use of energy, or wasteful use of energy resources. An energy analysis is required for all EIR-level CEQA documents.

California Green Building Standards

The California Green Building Standards, also referred to as CALGreen standards, require sustainable building design of residential and nonresidential buildings. CALGreen standards include sustainable construction practices, energy efficiency, water efficiency, material conservation, resource efficiency, and environmental quality. CALGreen mandates new residential and nonresidential building construction and demolition recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition debris generated during a project.

California Code of Regulations Title 24

New buildings must comply with California Code of Regulations Title 24 Energy Conservation Standards. These standards require buildings and their components to conserve energy. The standards are updated periodically to allow for consideration of new energy efficiency technologies. Specifically, Title 24 Part 11 (CALGreen standards) establishes mandatory standards for sustainable site development, energy efficiency, water conservation, and material conservation.

Executive Order N-79-20

Executive Order N-79-20 requires all new cars and passenger trucks sold in California be zero-emission vehicles by 2035. The order directs state agencies to develop strategies for an integrated, statewide rail and transit network, and incorporate infrastructure into projects to support bicycle and pedestrian options. These strategies are particularly focused in low-income and disadvantaged communities.

3.7.2.3 Local

Multiple cities are located within the RSA. Each city's general plan was reviewed for pertinent policies to energy consumption (City of Oakland 1996; City of San Leandro 2016, City of Hayward 2014, City of Fremont 2011, City of Newark 2013, and Union City 2019). Each general plan included sustainability and conservation measures that directly (or indirectly) related to energy consumption. City polices generally supported mode shift from motor vehicles to transit and/or active transportation (biking/walking). City polices also focused on constructing energy efficient residential, commercial, and public buildings (or retrofitting existing buildings). Cities generally promoted the use of renewable energy sources. Each city had policies for the minimization of solid waste through recycling and reuse. Multiple cities had specific policies requiring the use of energy efficient lighting technology for streets and public facilities.

The City of Fremont's General Plan (2011) is presented here, specifically, due to the location of the proposed Ardenwood Station.

City of Fremont General Plan

The City of Fremont's General Plan (2011) includes a conservation element that focuses on the use of renewable fuels and energy efficiency. The City has building standards to promote energy efficient design and landscaping. Fremont's general plan notes the high energy consumption

associated with automobile transportation and includes goals/polices to promote development near transit to reduce dependence on automobile transportation.

Mandatory statewide requirements established within CALGreen standards allow cities to modify building codes to add more restrictive provisions. Modifications must be cost-effective with benefits that outweigh costs. Local modifications to CALGreen are known as "reach codes." City of Fremont reach codes include measures for residential and nonresidential building construction, outdoor lighting, and construction and demolition debris recycling/salvage. For example, as a reach code the City requires 100 percent recycle or reuse of asphalt, concrete, and plant/tree debris (versus 65 percent required by CALGreen).

3.7.2.4 Consistency with Plan, Policies, and Regulations

An energy analysis for the proposed Project was prepared to evaluate both construction-related and operational energy consumption. This evaluation fulfills the requirements under CEQA, which requires a project to consider its potential effects on energy resources.

The proposed Project would reduce passenger rail travel time between Oakland and San Jose, facilitating more auto competitive travel times for intercity passenger rail trips throughout Northern California and reducing regional VMT. Decreasing rail travel times, decreasing VMT, and increasing rail/transit ridership would reduce energy consumption within Northern California. Conserving energy would comply with federal, state, and local plans, policies, and regulations.

The proposed Project would create new connections to transbay transit services and destinations on the San Francisco Peninsula, encouraging additional transit ridership. It would improve local pedestrian and bicyclist infrastructure, encouraging a mode shift from automobiles to energy-free modes of transportation. Conserving energy by expanding transit services and reducing the dependence on automobile transportation would be in line with federal, state, and local plans, policies, and regulations.

Green building standards would be followed for the construction of the proposed Ardenwood Station. This would be consistent with statewide and local standards, and it would result in energy savings.

3.7.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for energy and describes the methods used to analyze impacts on energy resources within the RSA.

3.7.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

The energy RSA was comprised of the area affected by proposed Project construction and existing/ proposed operations (i.e., Project Footprint).

3.7.3.2 Data Sources

Direct energy includes energy consumed by vehicle propulsion. This is a function of traffic characteristics, including distance traveled and vehicle speed. Lighting, or other Project features requiring electricity, are also a source of direct energy consumption. In addition, the one-time energy expenditure to construct a project contributes to direct energy consumption.

For the proposed Project, direct energy consumption was evaluated through both quantitative and qualitative methods, as follows:

- Energy consumption related to the change in rail ridership was quantitatively estimated using the VMT model outputs for 2025 and 2040 (Fehr and Peers 2023). This model estimated the increased ridership associated with the proposed Project's improvements using data from three travel demand models. Forecasted VMT was used as an input in the California Air Resources Board (CARB) Emission Factor 2021 model to calculate fuel consumption under both the No Project Alternative and the Proposed Project. Fuel (gallons of gasoline, gallons of diesel fuel, and kilowatt hours [kWh] [electric vehicles]) was converted to energy equivalents to estimate energy consumption for both 2025 and 2040.

- Operational energy consumption for Capitol Corridor stations was quantitively evaluated. The existing Hayward Station would be closed under the proposed Project, and a new station would be constructed at Ardenwood. Electricity use in 2019 for the Hayward Station was compared to the forecasted electricity needs for the Ardenwood Station.

- Operational energy consumption associated with changes to freight train and passenger rail operations was qualitatively assessed. It was generally assumed that the following could result in decreased fuel consumption (and therefore decreased energy consumption): shorter train travel times, decreased train acceleration times, and decreased train idling times. In contrast, the following were assumed to increase fuel consumption: longer train travel distances, increased train speed, and increased train acceleration times.

- During construction, fuel (gasoline, diesel, and electricity) would be consumed to produce and transport construction materials, operate construction equipment, and transport workers to/from the proposed Project. This energy consumption would be temporary in nature and would cease at the completion of construction. Construction-related energy consumption was quantitively calculated for the proposed Project. Fuel would be consumed by off-road vehicles, haul trucks, grading and earth moving equipment, and paving equipment. Off-road vehicle fuel consumption was estimated using CalEEMod, while on-road vehicle fuel consumption was estimated using the CARB Emission Factor.

Indirect energy consumption was assessed qualitatively. Indirect energy includes fuel consumed for the periodic maintenance of project elements and the life cycle energy consumption associated with the proposed Project (e.g., refining the raw materials used during construction). Both the long-term maintenance and operation of the proposed Project were considered.

3.7.3.3 CEQA Thresholds

To satisfy CEQA requirements, energy impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant energy impacts under CEQA if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

3.7.4 Affected Environment

3.7.4.1 Environmental Setting

Regional Setting

According to the U.S. Energy Information Administration (EIA 2019), the transportation sector in California consumed more energy than any other sector (residential, commercial, and industrial), representing nearly 40 percent of the total statewide energy consumed (Table 3.7-1). Automobiles, airports, and public transportation were key consumers of energy within this sector, with automobiles listed as the leading contributor. This is due, in part, to the total number of automobiles statewide. Per the Federal Highway Administration, California leads the nation in the number of motor vehicles. In addition, several of the state's major metropolitan areas (including the San Francisco Bay Area) experience long commutes and/or delays associated with traffic congestion, resulting in increased energy consumption.

Table 3.7-1. California Energy Consumption by End-Use Sector

End-Use Sector	Energy (Trillion Btu[1])	Percent of Total Energy Consumption
Residential	1,455.7	18.67
Commercial	1,468.1	18.83
Industrial	1,805.2	23.15
Transportation	3,068.8	39.35
TOTAL	**7,797.8**	**100.00**

Source: EIA 2019
1. Btu = British thermal unit

Gasoline consumed by automobiles was the dominant energy source used by the transportation sector, representing over 55 percent of the energy consumed by this sector (Table 3.7-2) (EIA 2019). When compared to all energy sectors, gasoline represented nearly a quarter (22 percent) of the total energy consumed statewide. Distillate fuel oil, which includes diesel fuel for trucks and railroad locomotives, represented approximately 15 percent of the energy consumed by the transportation sector. Together, these fuels total nearly three quarters (70 percent) of the transportation sector and 28 percent of the statewide energy consumption. Based on their large contribution to statewide energy consumption, it is important to understand how infrastructure projects would impact fuel and energy consumption.

Table 3.7-2. Transportation Sector Energy Consumption in California

Fuel Type	Energy (Trillion Btu[1])	Percent of Total Energy Consumption
Coal	0.0	0.00
Natural Gas	48.9	1.59
Aviation Gasoline	2.5	0.08
Distillate Fuel Oil	478.7	15.60
Propane	0.5	0.02
Jet Fuel	602.2	19.62
Lubricants	12.8	0.42
Motor Gasoline	1,736.3	56.59
Residual Fuel Oil	184.3	6.00
Electricity	2.6	0.08
TOTAL	**3,068.8**	**100.00**

Source: EIA 2019
1. Btu = British thermal unit

Local Setting

Alameda County

Data on yearly energy consumption is not available for Alameda County. However, a Greenhouse Gas Emissions Analysis performed by Alameda County in 2008 (Alameda County 2008) considered

greenhouse gas emissions by end-use sector (Table 3.7-3). The transportation sector represented nearly half of total emissions (46 percent). While this information is dated, this suggests that the dominance of the transportation sector statewide likely applies at the county level.

Transportation sector energy consumption, previously noted as being largely driven by motor vehicles (Table 3.7-3), is especially high during peak travel times with heavy traffic congestion. Alternative modes of transportation to motor vehicles, such as rail transit, would help reduce the transportation sector's consumption of energy.

Table 3.7-3. Greenhouse Gas Emissions by End-Use Sector in Alameda County, California

End-Sector	Percent of Total GHG Emissions[1]
Residential	26.77
Commercial/Industrial	23.02
Transportation	46.24
Waste	3.97
TOTAL	**100.00**

Source: Alameda County 2008
1. GHG = greenhouse gas

Pacific Gas and Electric

The Pacific Gas and Electric Company (PG&E) provides electricity for approximately 5.5 million customer accounts in its nearly 70,000 square mile service area in northern and central California (PG&E 2022). Its service area extends between Eureka and Bakersfield (north to south) and the Pacific Ocean to the Sierra Nevada (west to east). PG&E operates nearly 107,000 circuit miles of electric distribution lines and approximately 18,000 circuit miles of interconnected transmission lines. PG&E's total electricity production in 2019 was 33,849 gigawatt hours (PG&E 2023), equating to approximately 115 trillion Btu/year.

3.7.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

No BMPs for energy are included in the proposed Project.

3.7.6 Environmental Impacts

This section describes the potential environmental impacts on energy as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

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

No Project Alternative

No Impact. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. The operation of passenger and freight trains would continue to result in energy consumption. As this would match existing conditions, the No Project Alternative would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. No impact would occur.

Proposed Project

Construction

No Impact. The proposed Project's construction-related energy consumption (direct and indirect) is discussed below.

Direct Construction-related Energy Consumption

Construction-related energy consumption would be temporary in nature. Gasoline, diesel, and electricity would be consumed to produce and transport construction materials, operate construction equipment, and transport workers to/from the Project Study Area. Construction-related energy consumption was estimated for the proposed Project during its proposed construction periods (Table 3.7-4). Total construction-related energy consumption for the proposed Project was estimated at 109,532,900,000 Btu (Table 3.7-4).

When compared with the operational energy savings from decreased VMT, construction would negate between 4 years of the proposed Project's operational energy savings. However, because construction represents a one-time energy expenditure, all subsequent years would represent an energy savings for the region and state.

Table 3.7-4. Construction-Related Energy Consumption Associated with the Proposed Project

Metric	Proposed Project
2027 Fuel and Energy Consumption	
Diesel Fuel (gallons/year)	329,360
Diesel Energy (100,000 Btu/year)	452,478
Gasoline fuel (gallons/year)	15,350

Table 3.7-4. Construction-Related Energy Consumption Associated with the Proposed Project

Metric	Proposed Project
Gasoline Energy (100,000 Btu/year)	18,464
Electricity (kilowatt hours/year)	2,425
Electricity Energy (Btu/year)	83
Total Energy (100,000 Btu/year)	**471,025**
2028 Fuel and Energy Consumption	
Diesel Fuel (gallons/year)	370,328
Diesel Energy (100,000 Btu/year)	508,760
Gasoline fuel (gallon/year)	21,437
Gasoline Energy (100,000 Btu/year)	25,786
Electricity (kilowatt hours/year)	3,200
Electricity Energy (Btu/year)	109
Total Energy (100,000 Btu/year)	534,655
2029 Fuel and Energy Consumption	
Diesel Fuel (gallons/year)	64,332
Diesel Energy (100,000 Btu/year)	88,380
Gasoline fuel (gallon/year)	1,030
Gasoline Energy (100,000 Btu/year)	1,239
Electricity (kilowatt hours/year)	877
Electricity Energy (Btu/year)	30

Table 3.7-4. Construction-Related Energy Consumption Associated with the Proposed Project

Metric	Proposed Project
Total Energy (100,000 Btu/year)	89,649
TOTAL PROJECT ENERGY CONSUMPTION (100,000 Btu)	**1,095,329**

Indirect Construction-related Energy Consumption

Indirect construction-related energy consumption would include the manufacturing and transport of raw materials used for construction. This energy expenditure would be temporary in nature and end at the completion of construction. As noted above, direct construction-related energy consumption would be overcome by operational energy savings (associated with decreased VMT) within 4 years of the proposed Project's operation. Even if, as a conservative estimate, indirect energy consumption equaled direct consumption during construction, their combined energy consumption would be overcome during the first 8 years of the proposed Project's operation.

After considering potential indirect construction-related energy consumption, the proposed Project would not represent a wasteful, inefficient, or unnecessary consumption of energy resources during construction. No impacts would occur.

Operation

No Impact. The proposed Project's operational energy consumption (direct and indirect) is discussed below.

Vehicle Miles Traveled/Rail Ridership

The proposed Project would add approximately 500 Capitol Corridor systemwide riders per day in 2025, and approximately 1,000 systemwide riders per day by 2040 (Fehr and Peers 2023). Forecasts for VMT were used to estimate motor vehicle fuel consumption for the proposed Project's opening year (2025) and horizon year (2040). Energy consumption from gasoline, diesel, and electricity (electric vehicles) were all evaluated (Table 3.7-5).

A decrease in VMT would occur as a result of the proposed Project, in part due to more auto-competitive travel times for intercity passenger rail trips throughout the area. This would result in reduced motor vehicle use, reduced traffic congestion, and reduced energy consumption. For the proposed Project, in both 2025 and 2040, decreased VMT would result in a reduction in energy consumption of 0.01 percent as compared to the No Project Alternative (Table 3.7-5). The resulting energy savings associated with the proposed Project would equate to 27,357,900,000 Btu/year in 2025, and to 36,311,200,000 Btu/year in 2040.

The proposed Project's energy savings were compared to the transportation sector's annual energy consumption in California (3,036.8 trillion Btu/year). Increased rail ridership and decreased VMT, as a result of the proposed Project, would represent a statewide energy savings of approximately 0.001 percent in both 2025 and 2040. As a result, no impacts to energy resources would result from changes in VMT.

Table 3.7-5. Estimated Energy Consumption based on Forecast Vehicle Miles Traveled

Year	Alternative	Gasoline Fuel		Diesel Fuel		Electric Vehicles	Total Energy (100,000 Btu/ year)	Net Reduction from No-Build (100,000 Btu/year)	Net Reduction from No-Build (%)
		Gallons/year	Energy (100,000 Btu/year)	Gallons/ year	Energy (100,000 Btu/year)	Energy (100,000 Btu/year)			
2025	No Project	2,067,788,482	2,487,260,053	4,767,908	6,550,200	95,502,434	2,589,312,688	N/A	N/A
2025	Proposed Project	2,067,570,006	2,486,997,257	4,767,404	6,549,508	95,492,344	2,589,039,108	273,579	0.01
2040	No Project	2,220,307,781	2,670,719,418	5,379,594	7,390,541	143,046,461	2,821,156,419	N/A	N/A
2040	Proposed Project	2,220,022,005	2,670,375,669	5,378,902	7,389,589	143,028,049	2,820,793,308	363,112	0.01

Notes:
EIA 2020 conversion rates: 1 gallon gasoline = 120,286 Btu and 1 gallon diesel= 137,381 Btu

Stations

Operational energy consumption was evaluated for the proposed Project's changes to Capitol Corridor stations. For the existing Hayward Station, which would be closed as a result of the proposed Project, electricity usage from 2019 was provided by CCJPA (Table 3.7-6). These data were compared to the estimated electricity consumption for the proposed Ardenwood Station. Existing and estimated energy consumption included electrical needs for each station's parking lot (lighting). From an operational perspective, the proposed Project would result in an increase in annual station energy consumption by approximately 329,000,000 Btu/year. When compared to PG&E's annual output of 260.0 trillion Btu/year, this would represent an increase of approximately 0.0001 percent; therefore, it was not considered to be a substantial change from existing conditions.

It was assumed that the existing and proposed stations would have similar annual energy consumption. However, the proposed Ardenwood Station would provide nearly three times more parking than the existing Hayward Station (Table 3.7-6). The larger parking facility at the Ardenwood Station would have higher energy needs for lighting than the smaller parking lot at the existing Hayward Station. This ratio appears to correlate with energy consumption, which would be approximately three times higher for the Ardenwood Station. Therefore, increased energy consumption is directly related to the larger facility provided by the proposed Project.

The increase in operational energy consumption for stations was compared to the operational energy savings associated with decreased VMT (Table 3.7-7). In both 2025 and 2040, additional station energy consumption represented approximately 1.2 percent to 0.9 percent (respectively) of the proposed energy savings associated with decreased VMT. Because the proposed Project reflected a net energy savings, no impact to energy resources is anticipated from proposed station changes.

Table 3.7-6. Comparison of Capitol Corridor Station Energy Consumption

Metric	Existing Station (Hayward)	Proposed Station (Ardenwood)[1]	Net Increase
Parking Lot Capacity (number of spaces)	70	200	130
Station Electricity Consumption[2] (kilowatt-hours/year)	50,000	146,423	96,423
Station Electricity Consumption[2] (100,000 Btu/year)	1,706	4,996	3,290

Notes:

1. ***Does not include data associated with the existing Ardenwood Park and Ride facility, which provides an additional 350 parking spaces***
2. ***Includes electrical needs for the station and the parking lot.***

Table 3.7-7. Net Operational Energy Savings

Metric	100,000 Btu/year	Net Energy Savings in 2025 (%)	Net Energy Savings in 2040 (%)
2025 Energy Savings	273,579	N/A	N/A
2040 Energy Savings	363,112	N/A	N/A
Ardenwood Station Net Energy Increase	3,290	98.8	99.1

Passenger Rail and Freight Service

Changes in Capitol Corridor rail service would be expected to result in a net reduction in locomotive fuel consumption (and therefore energy consumption) as follows:

- The proposed Project would create a more direct passenger rail route and reduce overall rail travel time between Oakland and San Jose. Existing passenger trains currently use a longer route along the Niles Subdivision. The reduced travel distance and time for passenger rail would correlate to decreased fuel consumption.
- The proposed Coast Subdivision route would only have one station to stop at, compared to two stations on the Niles Subdivision. As a result, the proposed Project would require less locomotive acceleration time, correlating to less energy consumption.
- The proposed Project would install new track to allow train passing on the Coast Subdivision, thereby reducing train idling times and associated energy consumption.

Track upgrades along the Coast Subdivision could contribute to higher speeds. Higher locomotive speeds would result in greater fuel consumption. Conservatively, the net changes to Capitol Corridor service would equate to no energy savings, although it is likely there would still be a minor net reduction in energy consumption. No changes in freight train routing are expected under the proposed Project; thus, no change in energy consumption is expected.

No impacts to energy resources would be anticipated for operation of passenger rail or freight trains.

Multimodal Improvements

The proposed Project would connect to transbay transit services and destinations on the San Francisco Peninsula via the proposed Ardenwood Station. It would connect Capitol Corridor service to the existing Ardenwood Park and Ride facility, which provides 350 parking spaces and connectivity to transbay bus and shuttle routes (AC Transit, Dumbarton Express, Stanford Marguerite, and private shuttles). Improved access to these transit services would encourage further mode shift from single-occupant vehicle travel, thereby reducing fuel (and associated energy) consumption.

As part of the proposed Project, pedestrian and bicycle infrastructure improvements would be constructed for at-grade rail crossings. Sidewalk improvements would comply with the ADA. All improvements would maintain or enhance existing infrastructure for pedestrians and bicyclists. In some locations, improvements would reduce existing conflicts between trains, bicyclists, and pedestrians. Removing (or minimizing) barriers to walking/biking would encourage a mode shift from motor vehicles to walking/biking, which are forms of transportation that do not require fossil fuels.

Improved multimodal connectivity and additional potential mode shift would result in no operational impacts to energy resources.

Rail Crossing Technology

As part of the proposed Project, new railway signal technology and crossing equipment (gates, arms, signal boxes, etc.) would be installed. More energy efficient technology/equipment, such as the use of light-emitting diode (LED) lighting at rail crossings, would replace existing technology that is less energy efficient, resulting in operational energy savings. No impact to energy resources would be anticipated as a result of this technology.

Indirect Operational Energy Consumption

Indirect operational energy consumption was assumed to be the same between the No Project Alternative and the proposed Project. Indirect energy consumption would be fuel consumed for the periodic maintenance of either existing facilities or the proposed Project elements. All three rail subdivisions (Coast, Niles, and Oakland) would continue to be used by trains multiple times per day and would require periodic maintenance. While the Hayward Station would be closed and not require future maintenance, the proposed Ardenwood Station would have new maintenance needs. No impact to energy resources would occur as a result of the proposed Project.

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

No Project Alternative

No Impact. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. The operation of passenger and freight trains would continue to result in energy consumption. The No Project Alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. No impact would occur.

Proposed Project

Construction and Operations

No impact. The proposed Project would result in a net energy savings, and it would not obstruct a state or local plan for either renewable energy or energy efficiency. The proposed Project would promote the use of transit and decrease dependency on motor vehicles. Both outcomes are in line

with the general plans for the cities within the energy RSA. The proposed Project also would comply with state and local CALGreen requirements for the proposed Ardenwood Station. Therefore, no impact would occur.

3.7.7 Mitigation Measures

No mitigation measures for energy are required for the proposed Project.

3.7.8 Cumulative Impact Analysis

Resource Study Area

The cumulative RSA for the analysis of energy-related impacts was Alameda County. CEQA guidelines require EIR-level documents to include a discussion of potential energy impacts. Based on this, all projects within Alameda County without an EIR were excluded from consideration for potential cumulative impacts. All past, present, and reasonably foreseeable projects with an EIR were considered for potential cumulative impacts to energy. Table 3.1-1 in Section 3.1, Introduction, identifies and summarizes the list of cumulative projects.

Cumulative Condition and Contribution of the Proposed Project

None of the cumulative projects identified in Table 3.1-1 had potential energy-related impacts that warranted consideration for cumulative impacts with the proposed Project. However, as outlined in Section 3.7.6, the proposed Project would have no impact to energy resources. Because of this, there is no potential for cumulative impacts to occur when considered with other reasonably foreseeable past, current, or future projects.

Conclusion

Implementation of the proposed Project, combined with other foreseeable projects in the surrounding area, is not expected to result in significant cumulative impacts on energy resources.

3.7.9 CEQA Significance Findings Table

Table 3.7-8 summarizes the energy resources impacts of the proposed Project.

Table 3.7-8. Energy Resources Impacts Summary

Impact	Level of Significance Before Mitigation	Incremental Project Contribution to Cumulative Impacts	Mitigation	Level of Significance with Mitigation Incorporated	Incremental Project Cumulative Impact after Mitigation
(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	NI	NCC	N/A	NI	NCC
(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	NI	NCC	N/A	NI	NCC

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

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